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Errata

In page 61, first line, second para, for 'hidrophobia' read 'hydrophobia.'

In page 69, first line, 4th para, for 'donkeys' read 'monkeys.'

In page 102, line eleven from the bottom, for 'warding off contagious,' read 'warding off of contagious.'



Editor :

P. SRINIVASA RAO, G.M.V.C.
Veterinary Surgeon, Madras

Office : 26, WALLAJAH ROAD, MOUNT ROAD, MADRAS (S. INDIA).

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NOTICE.

The Indian Veterinary Journal.

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

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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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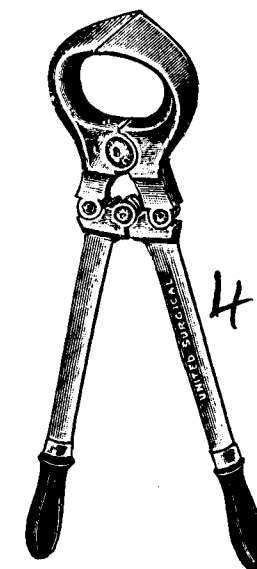
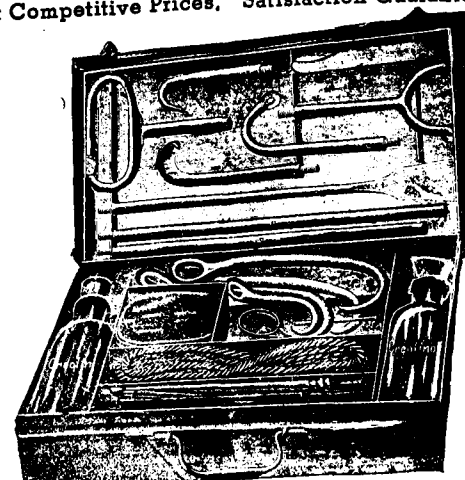
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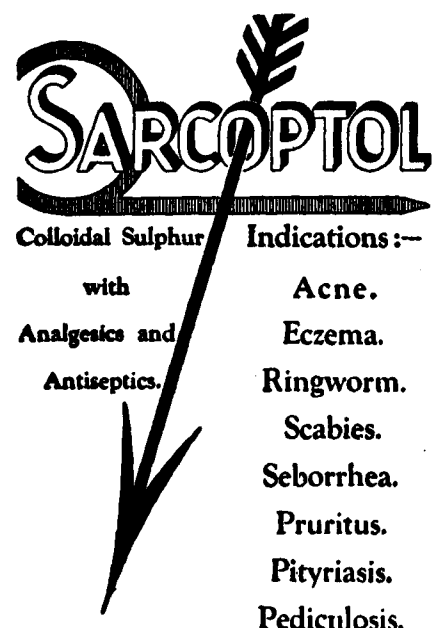
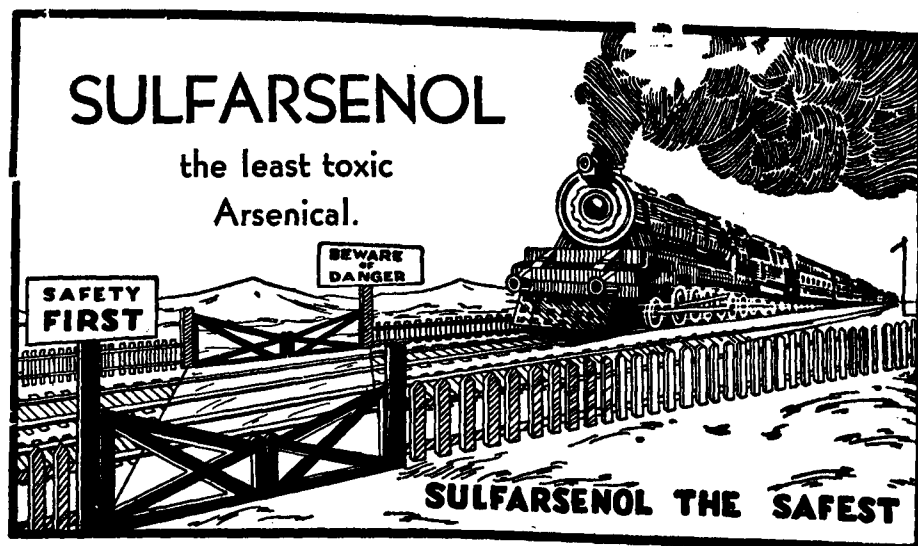


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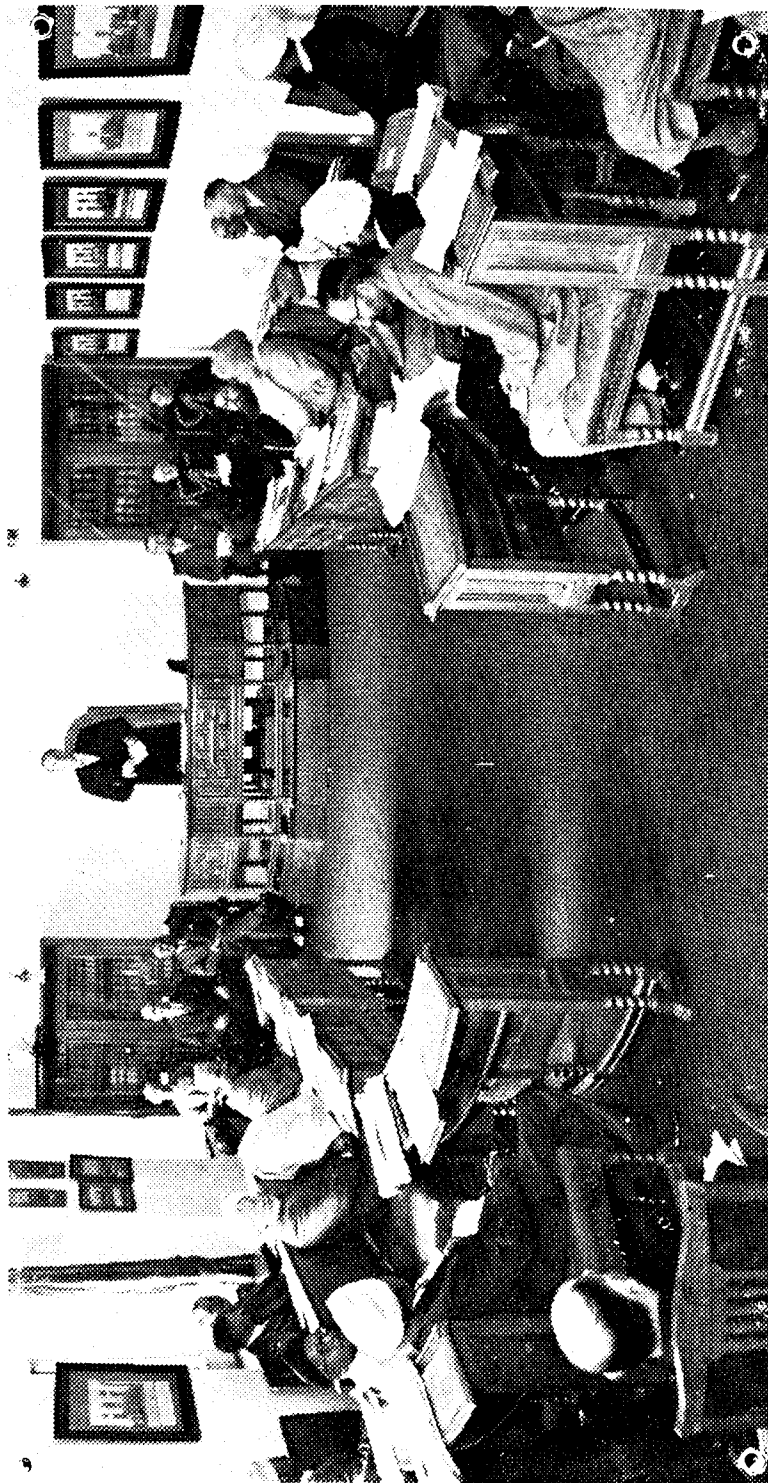
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H. E. the Viceroy addressing the General Committee of the All-India Cattle Show Society, at the Viceregal Lodge, Simla, on 22-7-1939.

THE Indian Veterinary Journal

Vol. XVI

SEPTEMBER 1939

No. 2

General Articles

ANTI-RABIC VACCINE FOR ANIMALS

BY

LIEUT. COLONEL W. J. WEBSTER, M.C., M.D., D.P.H.,
D.T.M. & H., I.M.S.,

Director, Pasteur Institute of India, Kasauli.

The reservoir of rabies infection in India includes jackals, wild dogs and stray dogs. A proper campaign against rabies would include ruthless destruction of these, as well as the muzzling of all dogs kept for sport or domestic purposes. But we cannot always do what is best.

The annual number of deaths from human rabies, or hydrophobia as it is generally called, is not high. Rabies is however a particularly unpleasant cause of death and the anxiety associated with the risk of rabies has attracted more attention than would appear to be deserved by mere mortality figures when compared with, say, plague or cholera or small-pox.

All mammals and probably all vertebrates are susceptible to Rabies and it is certain that there is a considerable annual loss of cattle from Rabies in India although accurate figures are not available. On the cattle ranches of South America the annual loss of cattle from Rabies is numbered in thousands.

Dog-slaughtering campaigns have been carried out in small areas, *e.g.*, in Bechuana Protectorate where a five-mile dog-free belt controlled what might have been a serious outbreak of Rabies.

In other areas anti-rabic vaccine campaigns have been undertaken, *e.g.*, 28,000 dogs were vaccinated in Detroit a year or two ago.

Large-scale anti-rabic vaccination of dogs has not so far been carried out in India but many individual dog-owners protect their pets by this means. The vaccine is generally used as a prophylactic. No one would claim that any such method is a sure preventive. The idea is to raise the resistance of the animal so that if it is exposed to infection, *e.g.*, from the bite of a rabid dog or jackal, it will be less likely to succumb. The figures from Detroit showed that an unvaccinated dog was 12.5 times more likely to get Rabies than a vaccinated dog.

Now, if a pet dog has been bitten by a rabid animal the proper course is to destroy the pet dog. Dogs are extremely susceptible to rabies, no vaccine is a hundred per cent protective whether used before or after infection, and the human disease is so horrible that no risk should be taken.

If it is decided not to destroy the pet dog, the owner remains morally responsible for any unfortunate results. In such cases anti-rabic vaccine should be administered even if the dog has had a course of vaccine before. The dog should be tied up for three months and closely watched for three months more.

The object of using a vaccine prophylactically is to give some measure of protection in cases where dogs are bitten unknown to their owners or by animals not suspected of rabies but actually infective. Few dogs are so carefully guarded that their owners can be confident that they are never in contact with stray dogs.

There are different anti-rabic vaccines available but most dog-owners will prefer those manufactured at the various Pasteur

Institutes in India. The Kasauli vaccine is a 6% sheep brain carbolised vaccine and is harmless. Seven daily doses of 5 or 10 c. c. should be injected subcutaneously, the dose depending on whether the dog weighs more or less than thirty pounds. Dogs less than three months old are not usually vaccinated as they are considered to be probably under close control but there is no real objection to their being vaccinated. This vaccine is designed to meet Indian conditions and probably gives some measure of protection for a period of 6 months. Re-vaccination after six months the first time and then at intervals of a year seems a reasonable procedure. An experimental comparison of Kasauli vaccine and a one-shot proprietary vaccine was reported in the Indian Medical Gazette of December 1938. The result indicated that the one-shot vaccine gave less protection against Rabies to dogs and monkeys than the Kasauli vaccine.

Other animals are not generally vaccinated unless they have been bitten by rabid or suspected rabid dogs etc. Cattle, horses and even elephants and camels are given doses of the same vaccine, more or less proportionate to their weight. The expense is presumably justified although actual figures proving the success of the vaccine in these animals are not available.

Readers may be reminded that it is better to observe a suspected rabid dog than to destroy it. The animal should be securely confined and of course fed and watered. If it is still alive and well ten days later then it can be confidently stated that it was not capable of conveying rabies infection before it was tied up. If such a dog is merely slaughtered then all persons bitten must remain in a state of grave anxiety for months. On the other hand it will happen in many cases that the observed dog will survive, anti-rabic treatment of persons bitten can be stopped, and there need be no further anxiety. In England, however, the law demands immediate slaughter of suspected rabid animals.

THE TREATMENT OF ANIMALS WITH ANTIRABIC VACCINE*

BY

R. O. A. SMITH, D.T.M., I.M.D.,
Officiating Director,

J. P. MCGUIRE, L.M.S.S.A, (LOND.), I.M.D.,

E. D. STEPHENS, D.T.M., I.M.D.,
and

B. N. LAHIRI SUBEDAR, I.M.D.
(*From the Pasteur Institute of India, Kasauli.*)

The advisability of treating animals with antirabic vaccine either as a prophylactic measure or subsequent to exposure to infection is a matter on which directors and other workers in Pasteur Institutes are not unanimously agreed.

One of the main reasons advanced against the treatment of animals is the difficulty of arranging for their proper segregation during the period they are at risk. From general observation in India it would seem that except in the case of dogs, and then only in certain circumscribed areas such as cantonments and well organised towns, animals exposed to infection get neither segregation nor treatment, the owner just trusting to luck that they may escape the disease. The lack of statistics renders it impossible to estimate the mortality from rabies among cattle and other useful domestic animals in India. Certain information on the subject can be obtained from the records of this Institute as the history cards of patients treated also record whether any animals have been bitten by the dogs who bit the patient. An examination of the cards of about

800 patients treated during 1937 shows the following number of animals having also been bitten:—

Species	Number bitten	Remarks
Camels.	2	
Buffaloes.	50	Also 3 cards marked 'several'
Horses.	3	
Goats.	10	Also 3 cards marked 'several'
Oxen.	47	" 5 " " "
Donkeys.	5	" 1 card " "

In addition there were 20 other cards where it was stated that 'several animals were bitten', but these were not specified. It is unlikely that any of the above animals received antirabic treatment and the actual mortality among them is a matter for conjecture. There were also a number of dogs said to have been bitten by the rabid ones; the disposal of dogs exposed to infection, however, will be considered separately for various reasons.

Despite such a state of affairs no death from hydrophobia has been reported among persons treated at this Institute and its centres during the past 30 years for infections caused by horses, cows, donkeys, or buffaloes (Smith, 1937). The Saliva of these species of animals has been proved by different workers to contain the virus.

Provided treatment is given when necessary it would appear that rabid cattle do not constitute a grave danger to man, but their death from the disease represents a serious loss to their owners. It may therefore be assumed that no serious contraindications exist to the treatment of this class of animal in India. The efficacy or otherwise of the treatment could be estimated by the results obtained up to date, which are given in tabular form below.

Of domestic animals which are susceptible to the disease and transmit it freely, dogs are the only ones that need be considered. The treatment of dogs may conveniently be divided into:—

(1) Prophylactic treatment.

* Reprinted from the Indian Medical Gazette, December 1938.

TABLE
Statement showing results of animal treatment

Animal	Number of courses issued	HISTORY CARDS RECEIVED		Total	Died of rabies	Died of suspected rabies	REMARKS
		Prophy-lactically treated	Bitten or in contact				
1936.							
Dog	1,333	515	130	645	2	...	No deaths from rabies were reported among the animals treated prophylactically.
Horse, mule	18	...	10	10	...	...	
Cow, bullock, buffalo	8	...	4	4	...	...	
Elephant	1	...	...	...	...	...	
Cat	2	...	1	1	...	...	
Monkey	1	...	...	...	...	...	
TOTAL	1,363	515	145	660	2	...	
1937.							
Dog	1,264	453	258	711	3	3	No deaths from rabies were reported among the animals treated prophylactically.
Horse, mule	28	8	17	25	3	...	
Cow, bullock, buffalo	36	...	27	27	...	...	
Cat	1	...	...	...	...	...	
Monkey	1	1	...	1	...	...	
Elephant	1	...	1	1	...	...	
TOTAL	1,331	462	303	765	6	3	

(2) Treatment after exposure to infection.

(1) The prophylactic treatment of dogs has been recommended by the International Rabies Conference (Marie *et al.*, 1937) and there are no serious reasons why prophylactic treatment should not be carried out on a large scale in India, as is being done in certain other countries. The vaccine itself is harmless, being composed of a dead carbolized fixed virus. The suggestion that such treatment may result in conferring a partial immunity and, if the animal be subsequently infected, give rise to conditions like 'inapparent' or 'recurrent' rabies need not cause any doubts. No reports of such conditions have emanated from Japan or America where the prophylactic treatment of dogs has been practised extensively. Neither have they been noticed at this Institute which has carried out the prophylactic inoculation of dogs on a small scale for the past five years.

(2) The treatment of dogs that have been exposed to infection is a different matter and is dependent largely on the value of the animal and the nature and position of the wounds it has sustained. It may here be mentioned that this Institute does not recommend the treatment of any dog which has been severely injured on the head or neck. As dogs are so susceptible to rabies, the chances of such an animal escaping the infection are very meagre and the kinder fate for the dog and the safer one for the owner and his immediate neighbours is to destroy the animal in as humane a manner as possible. Provided however that satisfactory segregation can be arranged it has become the practice for this Institute to encourage owners of valuable dogs which have not been severely wounded on the head and neck to have them treated. The precautionary measures to be adopted when it has been decided to treat such animals are laid down in the pamphlet on *Rabies and Antirabic Treatment in India* (Shortt, 1933), and need not be recounted here.

The results of treatment with our vaccine are now being collected six months after the date of completion, as is done in the case of humans, and below in tabular form are given the figures up to date.

The mortality among dogs treated after exposure to infection for these two years is a little over 2 per cent, which, considering the special susceptibility of dogs to rabies, is a very satisfactory figure. Cows and buffaloes also seem to respond to the treatment very efficiently. The loss of 3 out of 17 horses, however, represents a mortality of over 17 per cent, which seems a high figure. Of the three deaths, one was an animal which sustained five wounds on the forehead and treatment was begun 7 days late. In the second which had 2 wounds, one on the face and the other on the leg, treatment was begun three days late. The third was one of four treated in a remount depot. All four animals were bitten on the nose by the same rabid dog, and treatment was begun four days after they were injured. It is gratifying to note the other three animals survived. A dog and a buffalo, presumably infected by the same rabid animal in an adjoining village, received no treatment and died of the disease.

It may be concluded from the results that the vaccine confers a considerable degree of protection against infection, and that prophylactic and post-infectional inoculation of animals will save many lightly bitten ones that might otherwise succumb to the disease.

Treatment.

The vaccine recommended for the treatment of animals is prepared in exactly the same manner as that for humans, only it is stronger, and the dosage for the different species of animals has been graduated according to their weights. For the prophylactic inoculation of dogs a series of seven daily inoculations of 6 per cent carbolyzed vaccine, 5 c. cm. for dogs weighing 30 lbs., and 10 c. cm. for those above that weight is recommended. Experiments conducted in the Institute have shown that the vaccine affords very efficient protection against the Indian strains of street virus, for a period of eight months and probably longer.

The following experiment was carried out to determine the efficacy of the carbolyzed vaccine prepared here compared

with one on the open market. This proprietary vaccine is said to contain 33½ per cent rabies brain and cord tissue in which the virus has been killed by chloroform. It is also stated that, while the use of the single dose as a prophylactic for dogs before exposure has been found highly satisfactory, the double dose or series of injections will accomplish more. It is unfortunate that many dog owners assume therefore that a single inoculation is all that is necessary to protect their animals. That this idea is erroneous may be concluded from the results of the experiments cited below.

Fifteen dogs divided into three groups of 5 each were used in the first experiment. One group received 5 c. cm. of Kasauli antirabic vaccine for 7 days; the second group were given one injection of the proprietary vaccine mentioned above on the seventh day of inoculation of the dogs in the first batch, and the last group of 5 were kept as controls.

Twenty-five days after the treatment the dogs were given a dose of street virus into the muscles of the neck.

It is unfortunate that one dog from each batch died before the infecting dose was given, so that four animals of each group only were available for the test.

In a second experiment 15 donkeys were treated and infected under identical conditions. The results of both experiments are given below in tabular form:—

Comparison of Kasauli antirabic vaccine for animals and a proprietary antirabic vaccine.

	Dogs.			Monkeys.		
	Infected	Died		Infected	Died	
		Other causes	Rabies		Other causes	Rabies
Kasauli Vaccine	4	1	0	3*	0	0
Proprietary Vaccine	4	1	3	5	0	3
Controls.	4	0	4	5	0	2

* Two died before infection from dysentery.

The results indicate that a single dose of vaccine of the type tested composed of dead fixed virus is not sufficient to protect an animal. Hermann (1928) concluded from a number of experiments that a single inoculation of a live fixed virus as large as can safely be given is not sufficient to protect an animal.

In a country like India where no muzzling or quarantine laws are in force and the number of uncared for and ownerless dogs is legion, efficient prophylactic immunization against rabies will afford owners who value their animals a definite measure of protection, both for their dogs and themselves.

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THE ECONOMIC VALUE AND THE MANAGEMENT OF CATTLE IN ASSAM

BY

B. C. CHATTERJEE, G.B.V.C.,

John's Disease Officer, Assam.

(Continued from page 19. I. V. J. Vol. XVI. No. I.)

Bullocks.

The economic value of bullocks:—The economic value of bullocks is by far greater than that of the cows in this province. As agriculture is the main occupation of a vast majority of the people here the bullocks occupy the most important position in the rural economy. At least ninety per cent of the entire population is directly engaged in or dependent on agricultural pursuits. In the words of the "Royal Commission on Agriculture in India" it may be said that "In every part of the world cattle are valued for food or for milk, in India their primary purpose is draught for the plough or the cart.....Without the ox no cultivation would be possible, without the ox no produce could be transported". No agricultural improvement can even be contemplated here without thinking of the bullocks first. It is the bullocks which supply agriculture with the entire power of tillage, in the whole province. According to the Agricultural Statistics for the year 1935-36, only 118 iron ploughs were used in the province during the year against 11,44,876 wooden country ploughs drawn by local cattle. So the local cattle entirely did the first and the most important work in agriculture without which it could not be possible at all. Good seeds may be in hand and even fertilisers may be in possession, but without proper tilling of the land all these will be of no avail. The weather may be quite favourable, there may not be any scarcity of men or suitable land for cultivation, but without the bullocks, which do the first important work in cultivation by preparing the soil for sowing and growth of the plants all these will remain useless, consequently if the rural people have any real wealth it is their cattle and without

them their condition is hopeless. That is why whenever there is any depreciation of their cattle from epidemics or from other causes, they cannot but approach the Government for rendering them help with money for the purchase of fresh cattle to carry on their only occupation of subsistence which is cultivation. In short cultivation is the chief support of the people here and for that bullocks are of vital importance. The Assamese saying "He who has no cattle is the poorest of all" is true to the letter. Generally bullocks are employed here for ploughing and buffaloes, both male and female, are also used for the purpose. In the Surma Valley cows are often used in ploughing which is a very bad practice and should be discouraged.

The monetary value of cattle labour:—It is very difficult to put a definite monetary value on cattle labour. However, in a recent enquiry into the value of cattle labour in the Punjab, it has been shown that between 15 to 20 per cent of the cost of cultivation falls under this head. In the India Government Publication:—"India in 1930-1931" it has been stated that "The value of the work performed under the existing conditions by cattle in India to agriculture alone is reliably estimated to have exceeded Rs. 600/- crores". The condition of soil and nature of cultivation is quite different here from those of the Punjab or other parts of India. Paddy is the main crop in this province and cattle's share must not at least be less than one-fourth of the total cost of its cultivation as tilling and sowing only are practically required in the production of this crop here. Whatsoever may be the monetary value of cattle labour in the province, we may try to find out an approximate monetary gain from the cattle labour from the price of the crops in the production of which cattle's contribution in labour is so great and of so considerable proportion. According to the Agricultural Statistics for the year 1935-36 the total area sown with crops during the year was 71,30,632 acres. According to the same report the total number of working bullocks including buffaloes and cows used for work was 22,43,586. So each animal on an average had to cultivate about 3 acres of land. The total number of ploughs which were in

work in the same year had been numbered at 11,44,876. This is roughly half of the total number of working animals and it goes to show, as is usual here, that a pair of animals worked with each plough. As already said rice is the chief crop in the province, out of the total cultivated area of seven million acres, over five million acres were used for growing rice only (India Government Publication 1930-31); mustard, jute, and sugarcane, which are also grown here, come next to rice. These are the principal crops in the province. Tea is also grown here, but it has been excluded from the list as it is practically not a concern of the local people and bullocks are not employed in its cultivation. The following is the total production of these crops and their approximate value in money for the year 1935-36 (Agricultural Statistics of Assam.)

1935-36.

Total production of crops.		Value.
1. Rice:— 16,09,500 Tons; Approximate:— 4,34,56,500 Maunds. On an average price of Rs. 2/- per maund	Rs. ...	8,69,13,000
2. Mustard:— 54,200 Tons; Approximate:— 14,63,400 Maunds. @ Rs. 5/- per maund	Rs. ...	73,17,000
3. Jute:— (in 400 lbs. bale) 3,03,900 Bales—15,19,500 Maunds @ Rs. 5/- per maund	Rs. ...	75,97,500
4. Sugar cane:— 35,000 Tons; Approximate:— 9,45,000 Maunds @ As. 0-8-0 per maund	Rs. ...	4,72,500
Total Rs. ...		10,63,00,000

If the cattle's share is taken as one-fourth of the total cost of cultivation, the monetary gain from their labour in the production of these crops only comes to Rs. 2,65,75,000, i.e., over two and a half crores of rupees annually.

Bullocks in transport:—Although automobiles are in use now-a-days in the province for transport of things, their use is restricted to the urban areas only. In a very few places in the rural areas where the road communication is somewhat better, they may be in use to some extent and that also in the fair

weather only. Bullock carts cannot possibly be replaced by automobiles nor it will be economically sound unless conditions in the rural areas undergo a thorough change. It is at least beyond imagination at present that carts will be entirely replaced by motor lorries, as the bullock carts chiefly work in places where the roads are very bad with breaches here and there and which become awfully muddy in the rainy season with water in the breaches making it absolutely unfit for motor traffic. In such places it is only the bullocks with their unlimited patience and endurance that are able to drag loaded carts through mud and water. The internal rural trade of the province is solely carried on by carts, the only means of transport suitable in the present village condition and agricultural products from villages are also transported to business centres by the same means. In fact, transport in the rural areas would have been impossible without bullocks and so their importance in the rural economy in this respect cannot be overestimated.

Bullocks in conveyance:—Even in these days of speedy and improved conveyances such as motor cars, motor buses, etc., the bullock carts in Assam are still holding good their position and importance. In the rural areas with bad roads where even the pedestrians find difficulty in walking specially during the rainy season, people avail of the bullock carts which are the only vehicles suitable for such roads and which safely carry them to their destination. Moreover, motor cars, motor buses, or even hackney carriages are costly conveyances if they can at all be engaged on village roads and as such they are beyond the means of the average village people. So if they require any conveyance there they are to use bullock carts which are best suited, safest and the cheapest conveyance for the village roads. Consequently unless the economic condition of the people is substantially raised and the village roads are considerably improved the importance of bullock carts in the rural areas as means of conveyance will remain unchanged. Unlike in Bengal bullocks are seldom used in Assam for pack purpose.

Hides, Bones, and Cow dung.

Value of hides:—The province has no external trade in cattle or their products except in hides and bones. Large quantities of hides are annually sent out from here to foreign countries. The stock owners, however, do not derive any benefit from it. Out of prejudice among the Hindus specially among the high castes they would not touch dead cattle except for removing the carcass under unavoidable circumstances. If an animal dies in a place away from the village, it is usually left there to be eaten up by vultures. If it is on a river side, the carcass is very often thrown into the river to be carried down by the current. These are great disadvantages which the Department always meet with in controlling epidemics. It is only when an animal dies in the shed or any where close to human habitation, the necessity of removing the carcass arises. Then usually chamars are called in who do the work free of charge in return for the hide which they get. The practice is more or less the same throughout the province with all the people of different castes or religions. The chamars and the middlemen who deal in raw hides to be exported to foreign countries derive considerable benefit from it and their monetary gain from this source is not insignificant. In the year 1928 the Empire exports of hides and skins were valued at £ 42,200,000, of which India's share was £ 14,000,000, or Rs 182,000,000 (over eighteen crores of rupees). In hides India represents about one-third of the total Empire exports (A. N. Duckham Animal Industry in the British India). Assam's share in the hide exports from British India must not be inconsiderable. These hides when tanned and made into leather are imported to this country in large quantity in the form of piece leather or leather goods. All the available hides in the province are never collected and a good many of them are wasted every year; so there is enough of possibility of doing a very profitable business with the material with proper organisation and training which will surely be at least of some help in solving the unemployment question among the young and educated men and also in improving the economic condition of the province.

The value of bones :—The chief value of bones is in its use as manure. Here also the owners of cattle in the province absolutely derive no benefit from it although annually bones of considerable value are merely wasted. Only a small portion of it is collected mostly by the chamars and sold at a nominal price to the purchasers who usually come from outside the province, generally from Bengal and Bihar. They carry it down by boats or by rail to Bengal and other places where there are bone mills and sell it at a decent profit. In the mills the bones are pulverised, sterilised and made into bone meals, the greater portion of which goes to foreign countries. In Assam only a small portion of it comes back again for use as manure chiefly in the tea gardens. Here is another avenue for starting a new industry which will not only give occupation to many unemployed youths but would be quite profitable and of considerable economic importance to the province. Many articles of daily use such as combs, buttons, handles of knives, paper cutters, etc., are made from bones, but manufacture of these things is unknown in the province, although there is no scarcity of the raw materials. Cottage industries for the production of these articles can very profitably be started in places by the unemployed youths. Bone charcoal is used in refineries.

Horns and hooves :—These have also great economic importance. From the buffalo horns combs, buttons, handles of knives, sticks, etc., can be made and this industry is carried on to some extent at Dacca and other places in the neighbouring province of Assam, but no such thing is known to exist in this province. It can be profitably adopted here also as a cottage industry with a very small capital and short training. Hooves and horns of cattle can be made into glue which has an extensive use and would fetch good price. In Assam these are almost entirely wasted which can be utilised with great profit. From all these it would appear that cattle even when dead do not lose in economic value.

Value of cow dung :—It is a very good manure. The cultivators here, poor as they are, cannot purchase costly

fertilisers. But almost every house has cattle and however degenerated the cattle of the province may be they are surely not inferior in any way to others in their yield of dung. So this manure is not required to be purchased by any in villages. The only thing to be done to derive full benefit from it is to keep it collected in a pit with a shed over it so that the manuring property of it is not washed away or otherwise lost. What a great importance has been attached to cow dung as manure can easily be understood from the fact that in the tea gardens where cultivation is carried on strictly scientifically, the coolies are allowed to keep cattle within the estate, even at some inconvenience, on the understanding that the entire cow dung is to be given for use in the tea garden. The cultivators here do not practically utilise it. As they get it without any cost or labour they least understand its value. Like other fertilisers if the value of cow dung as manure is ascertained its monetary value must be a huge sum and the amount of benefit from it in the form of yield of crops must be immense. In the Khasi Hills, where cattle are kept chiefly for dung, cow dung manure has regular sale and is sold at a decent price. Whatever it may be, cow dung is the only manure which all the cultivators can use with great benefit and without any cost. Though seldom used, it is the only manure which is used by the cultivators whenever manure is considered necessary. Where fire wood is costly or not available in sufficient quantity cow dung is often used as fuel after drying it mixed with paddy husk and waste straw, but this is economically unsound as its use as manure is more profitable. Cow dung is also used for plastering the floors and walls of 'Kacha' houses. Urine from the cattle has also much manuring properties.

Revenue from cattle grazing :—In the village grazing grounds cattle get free grazing, but in the Reserve grazing areas an annual grazing tax at the rate of Re. 1/- per head of cattle and Rs. 3/- for each buffalo is realised by the Government. Animals below 2 years of age are exempted from the tax. The total area reserved as grazing ground in the province at the end of 1936-37, was 2,69,460 acres and the total revenue realised from the graziers

during the year amounted to Rs. 2,82,356. As a matter of fact, this revenue was realised from the cattle population and surely it was not a mean contribution from them to the provincial revenue.

The value of the total livestock in cattle and buffaloes:— Perhaps it will not be out of place if we try to make a rough idea of the total value of livestock (cattle and buffaloes only), the profit annually derived from them and the amount spent towards their maintenance, welfare etc. For this we may take the cattle and buffaloes together and fix a very moderate and average value for them. For calculation we take the figures supplied by the census held in 1935 by the Department of Commercial Intelligence and Statistics, India. The calculation will be made for one year and as far as possible from the available statistics.

	Number.	Value in rupees.
1. Breeding bulls over 3 years (including buffaloes) at the rate of Rs. 20/- each ...	66,630	13,22,600
2. Working bullocks including uncastrated bulls and buffaloes used for work at Rs. 25/- each ...	21,57,999	5,39,49,975
3. Breeding cows (including she-buffaloes) over 3 years at Rs. 20/- ...	14,17,969	2,83,59,380
4. Cows used for work or not in use (including she-buffaloes) at Rs 10/- ...	5,55,188	55,51,880
5. Young stock up to 3 years including buffaloes at Rs. 10/- ...	17,83,835	1,78,38,350
	<u>59,81,621</u>	<u>10,70,22,185</u>

From this it would appear that the total value of livestock (cattle and buffaloes only) in the province is over ten crores of rupees. Now, we may try to find out the monetary value of the benefit we annually derive from them. As already said it is obviously very difficult to find out a definite monetary value of the cattle products and their labour. However, an attempt may

be made to have a rough and approximate idea of it as far as possible. Benefits from the cattle are really immense and many sided and so the estimation is sure to fall far below the actual. In the India Government Publication of 1930-31, it has been stated that the value of work performed by cattle in India for agriculture alone is reliably estimated to have exceeded Rs. 600 crores and if to this sum is added the value of the manure and other products of animal origin, such as, hides, bones, milk and dairy produce generally, which is also believed to have amounted to over Rs. 1,000 crores, the total money value of the products of the cattle maintained by the agricultural community in India comes to Rs. 1,600 crores. In addition the value of the products of its 66 millions of other farm animals and the value of the work done by cattle throughout India for non-agricultural purposes must amount to several crores of rupees. Therefore, irrespective of the essential importance of the products of cattle to the health and development of the people their monetary value appears to be greater than that of the total output of agricultural produce, not derived from stock, which was estimated by the Indian Banking Enquiry Committee to amount to Rs. 1,300 crores per annum. Profit from the cattle including buffaloes in one year in Assam.

<i>Production in one year.</i>	<i>Value in money.</i>
	Rs.
1. Milk from cows and buffaloes only @ Rs. 5/- per maund. ——— 33,99,000 maunds ...	1,69,95,000
2. Labour from working bullocks (including uncastrated males and also cows and she-buffaloes used for work) for cultivation, transport, etc., @ Rs. 20/- per animal on average. ——— No. 18,89,337 ...	3,77,86,740
3. Value of young stock received annually both from cattle and buffaloes ——— As already calculated ...	1,48,88,674
4. Value of hides and bones.— (Approximate) ...	1,00,00,000
Total Rs. ...	<u>7,96,70,414</u>

It is evident, therefore, that the money value of the products of cattle in labour, milk, hides, bones, etc., in the

province is about 8 crores of rupees per annum. This is equivalent to that of the total output of agricultural produce which is estimated to be Rs. 7,97,25,000 for the year 1935-36 after deducting Rs. 2,65,75,000 as value of cattle labour to agriculture in that year. There can be no question that these figures represent only a portion of what they would have been if with more fineness scientific attention could be devoted to the livestock of the province.

Expenditure on feeding, keeping, etc.

		Rs.
1. Expenditure on feeding and keeping (this is very negligible here as cattle mostly live on free grazing. So it will not perhaps be unfair if an average cost on these heads be fixed at Rs. 5/- per animal per annum.)	No. 59,81,621 ...	2,99,08,105
2. Wastage from epidemics etc.	(approximate) ...	2,17,000
3. Expenditure on Veterinary Service (1935-36)	...	1,83,097
4. Grazing tax paid to Government	...	2,82,356
5. Expenditure on livestock improvement	...	1,15,386
	Total Rs. ...	<u>3,07,05,944</u>

From this it is apparent that annually we are deriving benefit from the cattle of the province in milk, labour etc., after deducting expenditure on their feeding, keeping etc., which may be valued at Rs. 4,55,65,470 or over four and a half crores of rupees. This is the net annual monetary gain from the Bovine population of the province.

Veterinary organisation:—The Veterinary Department of the province is entrusted with the safety, general welfare, and improvement of a cattle population consisting of 59,81,621 animals in cattle and buffaloes only valued at over ten crores of rupees. During the year 1935-36, the total strength of subordinate Veterinary staff in the province was 60 Veterinary Assistant Surgeons, and 4 Veterinary Inspectors. Out of these Veterinary Assistant Surgeons one was kept attached to the Laboratory and two others to two hospitals, so there were in fact, 57 field workers including the Reserve Veterinary Assistant

Surgeons. From this it would appear how the Department is undermanned. On an average each Veterinary Assistant Surgeon had an area of about 1122 square miles under him with a cattle population of about one lac. In Assam the average expenditure on Veterinary Services and livestock improvement per head of cattle is 8 pies. (Dr. Wright's report). "As compared with other large stock-owning countries the care and development of livestock in India has always been most inadequately financed". India Government Publication:—"India 1930-31." The Royal Commission's recommendation on this was that "No satisfactory progress can be made in combating contagious diseases of livestock or even in dealing with the other ailments of cattle unless the staff of the Veterinary Departments in all provinces is very greatly expanded. The field of Veterinary activity is so vast that the measure of expansion required is a matter on which it is not easy to arrive at a definite decision. Our view is that the aim should be to provide on an average at least one Veterinary Assistant Surgeon for every 25,000 cattle." This recommendation was made about ten years ago, but our province could make but little progress in that direction. With the ever increasing demand for Veterinary aid the situation is becoming more and more difficult for the Department to manage with a very limited number of men under it. Often there are complaints against the Department but that is always not for the quality, but for the amount of service the people are receiving now. It can never be possible to render timely and adequate help to the people with such a limited number of men where the work is so unlimited and the demand for service so great. However, with this limited number of men the Department is doing rather more than what is usually possible. The Veterinary work in Assam compares very favourably with that of any other province in India if the amount of work and the number of men employed are taken into consideration. The amount spent on the Veterinary organisation here is always repaid by the Department many times the value of its expenditure. It has been stated in the India Government Publication of 1930-31, that "It has been authoritatively estimated that the gross cost of Veterinary

services are actually compensated for by the reduction of mortality affected by preventive inoculation against diseases." For this province, we may consider what an immense sum the Department is annually saving from loss due to one disease only, which is Rinderpest. This disease, no doubt, is very common and severe here and it alone is responsible for about fifty per cent of the total cattle mortality in the province. If we take into account what the Department did in respect of this disease in 1937-38, it would appear that it saved 1,13,233 animals from this disease by protective inoculation. If the average value of an animal at a very low estimation is fixed at Rs. 15/-, the total money value of the animals thus saved would come to Rs. 16,98,495 (about seventeen lacs of rupees). The inoculations were mostly undertaken in the actual seats of epidemics. It is true that all these animals would not have become affected with the disease or died had they not been inoculated against it. But Rinderpest, highly infectious and contagious as it is, generally do not spare any animal where it appears. However if one-fourth of them had died, which surely would have been, if not more, according to the experience in other places where inoculation was not undertaken, the loss would have been over four lacs of rupees. This is in respect of one disease only. From this it can easily be imagined what a huge sum the Department is saving annually from loss in cattle mortality, although the total expenditure on the Department for a year had always been below 2 lacs of rupees. If cattle are considered to be the only wealth of the masses, surely more attention is needed for their safety, particularly in this province where epidemics are so common and frequent. The Department needs an immediate increase in the number of its men and sooner it is done the better.

(To be continued).

EXPERIMENTAL TREATMENT OF HELMINTH PARASITIC INFECTION OF POULTRY WITH COLLOIDAL IODINE OR IODINE VERMICIDE

BY

S. K. ACHARYA, G.B.V.C., P.G., (Muk.),

Veterinary Surgeon, Calcutta.

Introductory. An obscure malady amongst the chickens of the Model Poultry Farm of the United Provinces Poultry Association, Lucknow, during the earlier part of the monsoon of the year 1934, assumed alarming proportions, causing enormous economic loss. Hundreds of young birds succumbed and a very large number was ailing. The management finding it impossible to control and diagnose the trouble, decided to destroy the affected ones and approached the department for formal approval. This afforded an unique opportunity to investigate and adopt experimental curative measures, and the object of this paper is to present a brief account on the work done in this regard.

All the available resources at our disposal were utilised to determine the exact cause of the trouble. Bacteriological examination of the materials from the affected chickens having proved negative and the clinical symptoms and post-mortem lesions failing to conform to the common prevalent affections of poultry, we were confronted with a problem *viz.*, Helminthiasis of poultry, of such a magnitude perhaps, for the first time in the history of the poultry industry in this country.

Colloidal Iodine or Iodine Vermicide. Through the courtesy of Dr. W. L. Chandler of the Michigan State College of Agriculture and Applied Science, samples of Colloidal Iodine or Iodine Vermicide, together with a dosing appliance were placed at our disposal by Messrs. Merck & Co., Rahway, New Jersey. The product is claimed by the discoverer (Dr. Chandler) to be very effective both against cestode and nematode infections of

poultry and is said to also increase the egg-laying capacities of the mature female birds.

In view of the uncertain and unreliable action of various other anthelmintics so far tried on poultry in different countries, particularly in the United States of America, it was decided to give this product (Colloidal Iodine) a fair trial with a view to test its anthelmintic action against worms in poultry in this outbreak.

Clinical Symptoms Observed. The onset of the symptoms in birds was indicated by dullness and indisposition to move about. Feathers became ruffled and lost lustre. Comb became pale. There was drooping of the wings and the birds rested their head under the wings. Bowels became irregular. In some cases the birds became off-feed while in others, although their appetite was maintained, there was gradual loss of condition, and eventually the birds with eyes half closed remained huddled up in a corner until death.

Postmortem Findings. Lesions of varying degrees of enteritis were evidenced in a large number of experimental birds on autopsy. In some cases lesions of Peritonitis were found due to the migration of the common round worms *Ascaridia lineata* in the peritoneal cavity and in some cases obstruction of the intestinal canal was observed, while in others varying degrees of perforation on the walls of the intestines were noted.

Line of action adopted. A faecal survey of all the experimental birds and postmortem examination on those that died constituted the preliminary method of establishing helminthic infestation, subsequent to the adoption of the process of elimination of other infection by bacteriological examination. The birds were divided into batches and the following procedure was adopted to test the anthelmintic efficacy of the Colloidal Iodine or Iodine Vermicide:—

1. Dosing of the birds with Colloidal Iodine and subsequent destruction at varying periods, to note the action of the drug on the worms.

2. Dosing of the birds after caging them separately and subsequent destruction to test the efficacy of the Colloidal Iodine by counting the residual worms in the intestines with those originally present, calculated by adding the number of worms expelled to those remaining in the intestines.

3. Dosing of birds in the runs and comparing the body weight taken before and at regular intervals after dosing, to note the improvement on the general condition of the birds.

Three batches of birds totalling 32 were taken up and caged separately, out of which 4 were kept as controls.

Subsequent to the dosing of each of the birds with 4 drams of Colloidal Iodine the worms expelled were collected which represented the Nematode worm *Ascaridia lineata* and cestode worms of two species viz. *Railletina tetragona* and *Cotugnia digonopora*.

The worms recovered were all stained and dead except in one case where a few worms were partially stained and living.

P. M. examination of the experimental birds showed no worms in their intestines, except in two cases where a few immature *Ascaridia lineata* and a few *Railletina tetragona* were found.

All the 4 controls succumbed and on autopsy they showed numerous *Ascaridia lineata*.

The result of treatment in the three batches enumerated above is noted in tables 1, 2 and 3.

One batch of 14 birds was taken up, and each of them was dosed with 4 drams of Colloidal Iodine and destroyed on different dates, subsequent to dosing.

The worms expelled or found on autopsy were all dead, except in 4 cases, where some of the worms were found living. Table IV describes the result of treatment on this batch.

Two batches of birds numbering 11 and 13 in each were dosed with Colloidal Iodine 4 drams each. These birds were in a hopelessly bad condition at the time of commencement of treatment on them, and were meant for destruction.

After the administration of Colloidal Iodine they began to show marked improvement in their general condition and gained weight. After an interval of a month another dose of Colloidal Iodine was administered and the birds were sold because they were in good health.

The result of treatment on these two batches is noted in Tables V and VI.

Preparation of dosing solution. Colloidal Iodine or Iodine Vermicide is supplied by Messrs. Merck & Co., Rahway, New Jersey, in one pound bottles of 12 fluid ounces. To prepare the dosing solution one pound of Colloidal Iodine is dissolved in 9 pounds of water *i.e.*, the strength of the dosing solution is 1 in 10. This quantity is sufficient to dose 100 birds weighing over 4 lbs. and 200 birds weighing under 4 lbs. and include an allowance for accidental waste.

Size of dose. Birds weighing over 4 lbs. require a dose of 1 ounce of the solution and those below 4 lbs. of weight require 4 drams. No fasting is necessary prior to dosing and no purgative is necessary subsequent to dosing.

Technique of administration. The birds are required to be dosed with the dosing appliance supplied by the firm, which is designed to ensure the administration of the solution right into the Gizzard. The appliance consists of a catheter-like tube, at one end of which, is fixed a rubber bulb, which acts both as an aspirator and expeller. By pressing the bulb and then relaxing it, the required quantity of the dosing solution is sucked into the rubber bulb. The tube is then inserted into the Gizzard past the Crop and the solution is then pumped slowly by pressing the rubber bulb.

The manipulation of the appliance becomes very easy with a little practice. One man holds the wings of the bird with one hand and the legs with the other. The operator has to stretch the neck in a horizontal position and then opens the beak with one hand and inserts the tube of the appliance with the other.

As birds are not naturally provided with epiglottis care has to be taken that the tube does not go the wrong way. When the

tube reaches the crop great care has to be exercised, as it is here that the appliance occasionally gives trouble. No force should be applied and there is the danger of rupturing the crop whose structure is very delicate. With a little practice it becomes easy to reach the Gizzard and no difficulty was experienced in dosing the experimental birds here.

Effect of the product in Vitro and Vivo. Colloidal Iodine or Iodine Vermicide is capable of destroying round worms and tape worms in between two to five minutes in vitro. The effect of the product in Vivo is also satisfactory. The experimental evidence gathered during the course of the preliminary work in this connection, is illustrated in Tables I to IV.

Cost per bird. The cost of Colloidal Iodine or Iodine Vermicide per bird weighing below 4 lbs. works out at an anna approximately. This is rather cheap in consideration of the fact that the product possesses combined vermicide action against both nematode and cestode worms and does not require a purgative, which is a distinct advantage over other vermicides.

Summary and conclusions.

1. 70 birds with gross helminthic infection were experimented upon with Colloidal Iodine or Iodine Vermicide.
2. Colloidal Iodine was found to possess vermicide action both against nematode and cestode infections.
3. The success of treatment with Colloidal Iodine or Iodine Vermicide with regard to vermicide actions on the experimental birds was found to be 89.4 per cent.

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TABLE I.
Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide.

Serial No.	Chicken No. with breed and age.	Dose of Colloidal Iodine administered.	Date and time of dosing.	Worms expelled after dosing.		Worms found on autopsy.		Date and time of autopsy.	Result of Microscopical examination of faeces by direct, Sheathers and Saline methods with dates.							Remarks.		
				Nematode.	Cestode.	Nematode.	Cestode.		10 ³ / ₃₄	11 ³ / ₃₄	12 ² / ₃₄	13 ³ / ₃₄	14 ⁴ / ₃₄	15 ³ / ₃₄	16 ³ / ₃₄		17 ³ / ₃₄	18 ³ / ₃₄
1.	No. 11, L.S., 4 Mths.	4 drachms.	13-7-34 7-30 A.M.	++	++	—	—	13-7-34 12-30 p.m.	—	+	+	—	—	—	—	—	—	Worms expelled all dead.
2.	No. 12, L.S., 2 Mths.	"	"	++	++	—	—	"	—	+	+	—	—	—	—	—	—	"
3.	No. 13, B.M., 4 Mths.	"	"	++	++	—	—	"	—	+	+	—	—	—	—	—	—	"
4.	No. 14, B.M., 4 Mths.	"	"	—	++	—	—	19-7-34 10-30 a.m.	—	+	+	—	—	—	—	—	—	"
5.	No. 15, W.L., 4 Mths.	"	"	+	+	—	—	"	—	—	+	+	—	—	—	—	—	"
6.	No. 16, B.M., 4 Mths.	"	"	++	—	—	—	"	—	+	+	—	—	—	—	—	—	No Worms. Improved in condition after dosing.
7.	No. 17, B.M., 4 Mths.	"	"	—	—	—	—	"	—	+	+	—	—	—	—	—	—	Worms expelled all dead.
8.	No. 18, R.I.R., 4 Mths.	"	"	++	—	—	—	"	—	+	+	—	—	—	—	—	—	No Worms. Improved in condition after dosing.
9.	No. 19, L.S., 4 Mths.	"	"	—	—	—	—	"	—	—	—	—	—	—	—	—	—	No Worms. Improved in condition after dosing.

1. L. S. = Light Sussex. 2. B. M. = Black Minorca. 3. W. L. = White leghorn. 4. R. I. R. = Rhode Island Red.

TABLE II.
Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide

Serial No.	Chicken No. with breed and age.	Dose of Colloidal Iodine administered.	Date and time of dosing	Worms expelled after dosing		Worms found on autopsy		Date and time of autopsy.	Result of Microscopical examination of faeces by direct Sheathers and Saline methods with dates.											Remarks.	
				Nematode	Cestode	Nematode	Cestode		21-7-34	22-7-34	23-7-34	24-7-34	25-7-34	26-7-34	27-7-34	28-7-34	29-7-34	30-7-34	31-7-34		1-8-34
1.	No. 20, R.I.R., 4 mths.	4 drams.	23-7-34 11-45 a. m.	+	—	+	—	—	3-8-34 11 a. m.	—	+	—	—	—	—	—	—	—	—	—	Worms expelled all dead
2.	No. 21, W.L., 4 mths.	"	"	++	—	—	—	—	"	—	+	—	—	—	—	—	—	—	—	—	"
3.	No. 22, W.L., 4 mths.	"	"	++	++	—	—	—	14-8-34, 7 p. m.,	—	+	—	—	—	—	—	—	—	—	—	"
4.	No. 23, W.L., 4 mths.	"	"	++	++	Not Destroyed	—	—	31-7-34, 11-30 a.m	+	+	—	—	—	—	—	—	—	—	—	Regained Normal Health
5.	No. 24, B.M., 4 mths.	"	"	++	++	+	—	+	8-8-34, 10-30 a.m	+	+	—	—	—	—	—	—	—	—	—	Worms expelled all dead
6.	No. 25, B.M., 4 mths.	"	"	++	—	—	—	—	31-7-34, 11-30 a.m	+	+	—	—	—	—	—	—	—	—	—	"
7.	No. 26, R.I.R., 4 mths.	"	"	++	—	—	—	—	11-30 a.m 2-8-34,	+	+	—	—	—	—	—	—	—	—	—	Worms expelled were dead and a few living.
8.	No. 27, L.S., 4 mths.	"	"	++	++	—	—	—	12-45 p.m 2-8-34.	+	+	—	—	—	—	—	—	—	—	—	Worms expelled all dead
9.	No. 28, L.S., 4 mths.	"	"	—	—	—	—	—	1-45 p. m.	—	—	—	—	—	—	—	—	—	—	—	No worms. Improved in condition after dosing

R. I. R. = Rhode Island Red. W. L. = White leghorn. L. S. = Light Sussex. B. M. = Black Minorca.

TABLE III

Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide

Serial No	Chicken No. with breed and age.	Dose of Colloidal Iodine administered.	Date and time of dosing.	Worms expelled after dosing.		Worms found on autopsy		Date and time of autopsy	Result of microscopical examination of faeces by direct, Sheathers and Saline methods with dates.															Remarks.
				Nem- atode.	Cestode	Nem- atode.	Cestode		12-9-34	13-9-34	14-9-34	15-9-34	16-9-34	17-9-34	18-9-34	19-9-34	20-9-34	21-9-34	22-9-34	23-9-34	24-9-34	25-9-34	26-9-34	
1,	No. 51, B. M., 3 mths.	4 drams	15-8-34 10 A.M.	++	—	—	—	1-9-34 6 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Worms expelled were dead	
2.	No. 52, B. M., 3 mths.	"	"	+	—	—	—	5-9-34 7 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
3.	No. 53, B. M., 3 mths.	"	"	++	+	+	+	Not destroyed	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Condition improved	
4.	No. 54, W L., 3 mths.	"	"	++	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Worms expelled were dead	
5.	No. 55, W. L., 3 mths.	"	"	++	—	—	—	14-9-34 7 P.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
6.	No. 56, W. L., 3 mths.	"	"	++	—	—	—	31-8-34 7 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
7.	No. 57, W. L., 3 mths.	"	"	++	—	—	—	23-8-34 8 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
8.	No. 58, W. L., 3 mths.	"	"	++	—	—	—	28-8-34 9 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
9.	No. 59, L. S., 3 mths.	"	"	++	—	—	—	26-11-34 9 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Do	
10.	No 60, L. S., 3 mths.	"	"	++	+	+	+	Not destroyed	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Condition improved	
Control																								
1.	No. 61, W. L., 3 mths.	Not administered		Died on 17 th		++		17-8-34 9 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	—	Worms were all living. Exhibited the symptoms described in the article before death.	
2.	No. 62, B. M., 3 mths.	"		Died on 28 th		++		23-8-34 9 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	+		
3.	No. 63, R.I.R., 3 mths.	"		Died on 11 th		++		11-9-34 12-15 P.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	+		
4.	No. 64, R.I.R., 3 mths.	"		Died on 27 th		++		27-8-34 9 A.M.	+	+	+	—	—	—	—	—	—	—	—	—	—	+		

B.M. = Black Minorca.

W.L. = White Leghorn.

L.S. = Light Sussex.

R.I.R. = Rhode Island Red.

TABLE IV

Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide

Serial No.	Chicken No. with breed and age	Date and time of dosing	Dose of Colloidal Iodine administered	Date and time of Post-mortem examination	Worms expelled and found on autopsy		Remarks.
					Nematode	Cestode	
1.	No. 288, W.L., 2 mths.	10-7-34 7-30 a.m.	4 drams.	10-7-34, 3 a.m.	++	++	Worms stained dead a few partially stained and living
2.	No. 978, W.L., 2 mths.	"	"	10-7-34, 9 a.m.	++	+	Worms all stained dead
3.	No. 307, W.L., 2 mths.	"	"	10-7-34, 10-15 a.m.	++	—	Majority of worms dead a few living
4.	No. 6, L.S., 3 mths.	"	"	10-7-34, 11 a.m.	++	+	Do
5.	No. 974, W.L., 2 mths.	11-7-34 11-30 a.m.	"	12-7-34, 11 a.m.	++	+	Worms all dead
6.	No. 910, W.L., 2 mths.	"	"	13-7-34, 10-30 a.m.	++	—	Do
7.	No. 970, L.S., 2 mths.	"	"	13-7-34, 11 a.m.	++	—	Do
8.	No. 905, W.L., 2 mths.	14-7-34 11-30 a.m.	"	14-7-34, 3-15 p.m.	++	+	Do
9.	No. 908, W.L., 3 mths.	"	"	14-7-34, 3-20 p.m.	++	—	Do
10.	No. 915, W.L., 3 mths.	"	"	14-7-34, 3-45 p.m.	++	—	Do
11.	No. 916, W.L., 2½ mths.	16-7-34 11 a.m.	"	16-7-34, 12-30 p.m.	++	—	Do
12.	No. 917, W.L., 2 mths.	"	"	17-7-34, 2 p.m.	++	+	Do
13.	No. 918, W.L., 2 mths.	"	"	17-7-34, 2-15 p.m.	++	—	Majority of the worms dead a few living
14.	No. 919, W.L., 2 mths.	"	"	17-7-34, 2-30 p.m.	++	—	Worms all dead

W.L. = White Leghorn. L.S. = Light Sussex.

TABLE V.

Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide administered on 31st July 1934 and 31st August 1934, at 8 a. m. in doses of 4 drachms each.

Serial No.	Chicken No. with breed and age.	Condition of the birds.	Comparative body weight with dates.												Remark.		
			31st July 1934.		15th Aug. 1934.		31st Aug. 1934.		15th Sept. 1934.		15th Oct. 1934.		15th Nov. 1934.			1st Dec. 1934.	
			lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.		lb.	oz.
1.	No. 30, R.I.R., 4 mths.	Emaciated and loss of feathers.	2	15	3	8	3	3	3	15	3	15	4	8	4	10	Regained normal health and sold out.
2.	No. 31, R.I.R., 4 mths.	"	2	3	2	3	2	4	2	11	2	11	2	12	3	—	"
3.	No. 33, R.I.R., 4 mths.	"	1	6	1	6	1	6	1	11	1	12	2	4	2	10	"
4.	No. 34, R.I.R., 2 mths.	"	—	15	1	2	1	2	1	8	1	8	1	11	1	14	"
5.	No. 38, R.I.R., 2 mths.	"	—	15	1	1	1	1	1	6	1	6	1	6	1	7	"
6.	No. 40, W.L., 4 mths.	"	1	9	1	12	1	14	2	1	2	6	2	12	3	4	"
7.	No. 45, B.M., 2 mths.	"	—	15	1	2	1	2	1	8	1	10	1	14	2	6	"
8.	No. 46, W.L., 2 mths.	"	1	2	1	7	1	6	1	8	1	8	1	8	1	10	"
9.	No. 48, R.I.R., 2 mths.	"	1	—	1	2	1	1	1	5	1	6	1	8	1	14	"
10.	No. 49, R.I.R., 2 mths.	"	1	1	1	7	1	6	1	8	1	8	1	11	2	—	"
11.	No. 50, R.I.R., 2 mths.	"	1	2	1	7	1	5	1	8	1	8	2	—	4	4	"

R.I.R. = Rhode Island Red. W.L. = White leghorn. B.M. = Black Minorca.

TABLE VI.

Experimental treatment on internal parasites of Poultry with Colloidal Iodine or Iodine Vermicide administered on 17th Sept. 1934 and 17th Oct. 1934 at 9 A.M. in doses of 4 drachms each.

Serial No.	Chicken No. With breed and age.	Condition of the birds.	Comparative body weight with dates.										Remark.		
			17th Sept. 1934.		1st Oct. 1934.		15th Oct. 1934.		1st Nov. 1934.		15th Nov. 1934.			1st Dec. 1934.	
			lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.		lb.	oz.
			lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.		lb.	oz.
1.	No. 12, B.M., 3 Mths.	Fair.	2	—	2	4	2	3	2	4	2	5	2	11	Regained normal health and sold out.
2.	No. 14, W.L., 3 Mths.	Fair.	2	—	1	15	2	—	1	15	2	—	2	3	"
3.	No. 15, W.L., 3 Mths.	Emaciated.	—	14	1	2	1	1	1	8	1	9	1	10	"
4.	No. 16, R.I.R., 3 Mths.	"	1	—	1	7	1	14	1	13	1	15	2	6	"
5.	No. 17, W.L., 3 Mths.	"	1	2	1	2	1	6	1	7	1	8	1	9	"
6.	No. 65, L.S., 3 Mths.	"	2	1	2	5	2	14	2	13	2	13	3	2	"
7.	No. 66, W.L., 3 Mths.	Fair.	1	3	1	4	1	5	1	8	1	9	1	10	"
8.	No. 67, W.L., 3 Mths.	"	2	2	2	6	2	6	2	8	2	9	2	12	"
9.	No. 68, W.L., 3 Mths.	"	1	5	1	7	1	6	1	8	1	8	1	14	"
10.	No. 69, R.I.R. 3 Mths.	"	3	6	3	14	3	14	4	3	4	5	5	3	"
11.	No. 70, W.L., 3 Mths.	"	1	14	1	14	1	14	2	2	4	4	2	6	"
12.	No. 71, B.M., 3 Mths.	"	3	3	3	5	3	5	3	6	3	8	4	2	"
13.	No. 72, R.I.R., 3 Mths.	"	2	11	3	—	3	—	3	4	3	6	4	2	"

B.M. = Black Minorca. W.L. = White leghorn. R.I.R. = Rhode Island Red. L.S. = Light Sussex.

THE DISEASES OF ELEPHANTS

BY

P. GOVINDA MENON,

Asst. Conservator of Forests, Mangalore.

To those who keep large numbers of elephants the diseases that these animals are subject to are often problems of grave concern. The etiology of many of the elephant diseases has not yet been worked out. The reason for this is that very few opportunities are available for studying these animals even in domestic life, much less in wild. The more common and frequent ailments are recognised and treated, but as regards the causes and prevention of other diseases there has not been much progress; for example, diseases of the eye. The only causes, I have, so far, seen attributed to these diseases are the much too obvious stick of the mahout or the much too vague *domestic life or food*. In the following paragraphs I venture to put forward certain theories. Perhaps they may be dubbed fancies, but let me assure the reader that they are based on years of close observation.

Before I start, let me indulge in a short preamble. To understand the ailments of elephants, as those of other animals, it is necessary to understand the animals themselves. I don't mean only their physical construction, but their life and mind. To one who has observed him and his ways closely, an elephant must appear very different from other domestic animals. He is social, but not in an instinctive herding sort of way. He picks and chooses his company and mates. He is capable of strong and lasting attachment or animosity. He misses his friends or mates when parted from them. He has a strong memory and is capable of feeling joy and sorrow in a much more lasting way than other animals which react mostly to short lived physical impulses only. In short, he like man, is cursed with a fairly developed *mind*. That mind reacts on body very greatly, is an accepted medical theory.

Diseases of the eye among elephants may be attributed to (1) direct injury and (2) indirect causes.

Direct injury is almost invariably accidental and happily, very uncommon. It is proclaimed by tell tale marks and needs no scientific investigation.

The indirect causes that gradually lead or contribute to diseases of the eyes may be classed as (1) remote injuries to the head or optic nerves and (2) the inevitable conditions of work and life of captive elephants.

Injuries to the head or optic nerves resulting ultimately in troubles of the eye are caused during capture and training and subsequently by occasional chastisement with unsuitable weapons. The head receives the brunt of the punishments inflicted during capture and training. Besides, the animal butts it violently against the walls of the kraal in its frantic efforts to escape or get at his persecutors. The superficial injuries are healed soon; but the internal damage often persists and crops up later as various diseases including those of the eyes.

As regards unsuitable weapons of chastisement, the hook though very effective is most dangerous, in that it could be abused with serious consequences. Good elephant-men seldom use it except when all other resources fail. Worse than the hook itself is its handle, often spiked, and occasionally used to prod or stab the elephant on his head. And, worse than the pain of the stab is the shock thereof. The effect of hitting on the head with the blunt edge of a bill hook is much the same. Sometimes it happens that the mahout carries a bill hook to cut his way and if it happens to be in his hand just when the elephant needs correction, instinctively he uses it for that purpose. Again, a broken stick is more dangerous than a whole one. The stump is useless to beat the elephant effectively on the trunk or forelegs. So it is used to prod him or beat him on the head or temples which are bony. If a hockey stick has ever caught you on the shin or a cricket ball on the skull you will know what it is. Much of the troubles from these causes could

be prevented if the use of the hook is prohibited, except on very unruly animals, and a long elastic stick prescribed. The stick should be long enough to hit the trunk or forelegs well below the eyes when the mahout strikes sitting erect on the neck of the animal. It should be elastic enough not to break easily and it should have a small knob at the end to prevent splitting.

Next, the mahout should never be allowed to carry a heavy bill hook. Long thin-bladed knives should suffice. Last, only men of proved ability should be employed as mahouts. A good mahout, like a good teacher, seldom uses the rod.

Observation and enquiry point to the following conditions of captive life as causes — contributing to ophthalmic disorders.

- (i) Working in the sun.
- (ii) Working with the tusks.
- (iii) Suppressed sexual instincts.
- (iv) Unsuitable food.

The elephant, it is well known, is a shade-lover. His haunts are cool shady forests and his delights mud and water. Water we know is cooling, but few have realised the significance of the mud bath. Mud is an excellent sun proof material and perhaps the elephant has discovered it. In captivity he can't enjoy shade always. His baths are when he needs them least, in the cool hours of the morning or evening. And, mud is taboo. He has often to work under the most trying conditions, in blazing sun in clear felled areas. All this must necessarily tell on his health and eyes. One who observes will note that eye troubles generally crop up in the hot weather or immediately afterwards. But we keep him for work and can't obviate these conditions altogether. The best we could do would be to take him off work throughout the hot weather; if that is not possible we might arrange his work so that it is confined to shaded areas in the hot season. Then, we could water copiously on his head during his baths. Many private owners give their elephants rest throughout the hot months and attach much importance to the water treatment. The bath is more important

to a captive elephant than even his food. So let it be long and thorough.

Nature has not meant the tusks of elephants to lift or carry heavy weights. But we have to employ our elephants to push, roll, or carry logs and to arrange and stack them in our depots, with their tusks. If we realise that the tusks are rooted deep up near the eyes we will understand that any strain on them means strain on the eyes as well. Even in man, eye trouble is frequently caused by the teeth — especially the long eye teeth. If we watch we will note that the eyes of an elephant start watering after he has been on depot work for some time at a stretch. One tusk is used most and the eye on that side is affected most. Again, we cannot altogether avoid this, for our depots must be arranged. But we need not employ the same animals on the job continuously. The elephant hates working with the tusks. So does the mahout. Both will therefore try to shirk it. This should not be allowed for the result will be that the best and most willing workers will get no relief. Frequent amputation of tusks may also be harmful as the sawing must necessarily jar on the nerve centres.

Suppressed sexual instincts may be another contributory cause of ophthalmic disorders. That musth is an acute manifestation of suppressed sexual instincts is too well known to need elaboration. It is also well known that the temporal glands swell and flow during musth and that the animal suffers from maddening headache. May there not be less acute but chronic forms of the same trouble? That the majority of captive elephants live a sexually abnormal life should be evident from the fact that breeding in captivity is the exception rather than the rule. The causes are varied, but it is not necessary to detail them here for the purpose of this article. Suffice it to say that there is suppression of the powerful sexual instincts and that this must react on the mind and body of the animal. If we realise that the sexual life of the elephant is very similar to that of man psycho-physical, selective, and unrestricted to periods of rut or heat — we can understand the intensity of the mental reaction and consequent nervous

break-down in an animal without any of the compensating preoccupations of civilised man. Add the direct reaction on the temporal glands, and my theory will not appear so far fetched as it might at first.

Food may have a relation only in cases where the animal is stall-fed or is kept in places away from its natural habitats. In his natural haunts when he is let to graze for himself the food factor will have no bearing. Under such conditions he can select and eat his natural food, which, if one has noticed consists mostly of monocotyledonous vegetation. No doubt he eats leaves (of trees) and barks but as a rule he prefers grass, reeds, bamboos, etc. Drastic changes may result in diseases and this must be borne in mind when he is stall-fed. It would be well to give mixed fodder or to change it frequently.

Practical preventive measures have already been indicated while discussing the causes. A brief summary may, however, help to focus attention.

(i) Prohibit the use of short, stumpy hard weapons of correction.

(ii) Employ competent mahouts.

(iii) Stop work in the hot weather, or at least confine it to shaded forests.

(iv) Cool the head well with water while bathing.

(v) Arrange depot work by shifts. If any animal shows signs of weak eyes take him off such work at once and don't put him on to it again if it could be managed without him.

(vi) As far as possible avoid cutting the tusks.

(vii) Give all possible facilities for sexual intercourse. This will help to prevent or arrest musth also.

(viii) Avoid Non-monocotyledonous food as far as possible and let the fodder be mixed or changed frequently.

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Editorials

CATTLE WEALTH OF INDIA

"The more I have studied the problems of the countryside and the life work of the Indian Farmer, the more I have been impressed by the urgent need for bettering the quality of the Indian cattle and for improving the practice of animal husbandry throughout the country. It is no doubt true that there are many directions in which the methods of farming and the prosperity of the farmer can be advanced. *I am however convinced that no particular line of advance offers prospects more attractive, or promises so early and so considerable on economic reward as the improvement of cattle and their better care.* Indeed, there is no Province or State in India where the improvement of the indigenous livestock does not hold out possibilities of an incalculable increase in the total wealth of the community." (Italics ours.)

In these significant words, H. E. the Viceroy addressed the inaugural meeting of the All-India Cattle Show Society held at Simla during the last week of July this year. It is a particular feature of this Viceroy's regime that His Excellency has never missed an opportunity to focus the attention of the public on the immense potentialities of the cattle wealth of this

country and also on the possible lines on which those potentialities might be exploited for the general weal of the country. The good old Tamilian saying that the strength of the country is the strength of the ryot and the strength of the ryot is the strength of his cattle has never been brought home so forcibly to every one concerned as during this Viceroy's administration. As a result, we notice a general awakening all round in this matter and a keen desire to do something to rehabilitate the livestock in the economic framework of the ryot. The organisation of the All-India Cattle Show has been one such effort 'to carry on sustained activities aimed at the improving of the stock and the realisation of allied objects'. The transfer of the livestock problems to the Veterinary Departments — atleast in some of the Provinces — has been another salient feature in this direction. But still there is a good deal of preliminary work that has to be done thoroughly so that the foundation for the future work may be laid truly and well. As the *Hindu* pertinently observes "India has always been well known for a variety of valuable breeds. But the difficulty has been that quality cattle were submerged in a vast ocean of C. 3 cattle. The mistake made by officialdom in the past was to denounce in season and out of season the improvidence of the peasant in keeping such a large and uneconomic stock which ate up his slender resources. Veneration for animal life, especially the cow, is so ingrained in Indian nature that such denunciations, unsupported by practical attempts to improve quality, generally left the peasant cold". And therefore like the ideal doctor who treats his patients, not by attending to the symptoms of the disease, but by rooting out of the cause of the ailment, we must try and counteract the causes that have been responsible for this deterioration of our cattle. Now what are these causal factors? Broadly speaking, they may be laid down as follows: Rapid increase of human population and consequent extension of cultivable lands at the expense of pasturage, the substitution of fodder crops by cash crops, a general indifference to livestock and problems relating to them and, lastly neglect of the extensive grazing grounds in and near forests. There are also other factors that are the accom-

paniments of modern civilisation like the increased and increasing use of mechanical transport which cannot be lightly ignored. The introduction of these kinds of mechanised vehicles has to a great extent limited the uses to which the cattle were being put. Still, to compensate for this loss of one sphere of their use, there is now the insatiable demand for more and more milk products. This has only increased the complexity of the livestock problem.

India is a vast country with varying physical features. Some parts of the country are deltaic, some are dry and rain-fed, while others are hilly and rocky. There are others again which are sandy or inundated. The agricultural operations in these places are as varied as their physical features. Naturally, the requirements of the ryot as regards his cattle power are also as varied. Again, some tracts are well provided with good roads and easy means of communication while others are far, far from the interior where the means of transport are still primitive over inaccessible roads and unfordable rivers and streams. Still again, there are places where there is a good demand for milk but no source of supply; there are others where there is ample scope for milk production without any means for their disposal. We are mentioning these facts just to show the diversity and complexity of the problem of cattle improvement, and also the necessity for adopting means and measures to meet the requirements of individual and particular localities. Of course, there are certain accepted principles which are of universal application, but the practical application of them to a particular locality is guided solely by the requirements of that locality.

It has thus become very obvious that the first and foremost preliminary work in tackling the livestock problem before launching on remedial measures is a general survey of the various tracts of the country. This survey must include not only the nature of the tract and the kind of animals required by the ryots, but also the availability of ~~or otherwise~~ adequate fodder and the facilities for the transport of milk and milk

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products. It should also include the reason or reasons for the general deterioration of the livestock in that locality. Such a survey is absolutely necessary if future work were to be on sound lines. This is a task to which the popular Provincial Government should apply their minds immediately in the general interest of the country, and we do hope they will start on it without any further delay.

RURAL UPLIFT WORK IN BOMBAY PRESIDENCY

We are given to understand that the Bombay Government are organising a Rural uplift propaganda Department with a view to improving the conditions of the people in the rural tracts. This is as it should be when a popular representative Government is in power. But we are painfully surprised that, in this new organisation, there is no representation of the Veterinary Department, although the Departments of Agriculture, Co-operative and Industries find a place therein. We would not have believed this information but for a Resolution which the Bombay Subordinate Civil Veterinary Officers' Service Association has thought necessary to pass and which is published in this issue of the *Journal*. It is an extraordinary state of affairs, because, if the Veterinary Officers are not included in rural uplift work, we wonder which other officers can effectively and usefully be in it. Cattle form the mainstay of the agriculturist. The maintenance of these animals in a state of good health, the warding off-contagious diseases amongst them by prophylactic measures and a study of the various problems affecting their breeding and management are the most important things affecting the rural parts; and it is these which have to be attended to in the first instance in any work of rural uplift. As H.E. the Viceroy has often said, it is the cow and the bullock that bear on their patient back the whole frame work of India's economy and the more one studies the problems of the rural tracts and the ryots, the more one is impressed with the urgent need for bettering the quality of the cattle. And who else is better fitted for this work than a Veterinarian?

None whatever. If the mainstay of the agriculturist is not attended to and kept in a state of optimism utility, then the whole of his frame work will crumble away to pieces. And, therefore, the non-inclusion of Veterinarians in this newly formed organisation is not conducive to its success. Probably this non inclusion was only an unintentional omission. Whether it is so or not, with the representation of the Association before them, the Government of Bombay should have no difficulty in acceding to their request and give the Veterinarian his right place in the rural uplift work

THE LATE MAJOR SIR FREDERICK HOBDAY. AN APPRECIATION.

BY

M. R. V. PANIKKAR, B.SC., M.R.C.V.S.,
Director of Veterinary Services, Madras

The news of the death of Sir Frederick Hobday was received with sincere regret and deep sorrow not only by Veterinarians all over the world but by all humanitarians and educationists. Little did we know when he was in our midst recently that the end of so great and useful a life was so near. With him has passed away an outstanding figure of the Veterinary profession.

Born in 1870 he had his early education at the Burton-on-Trent Grammar School and his professional training at the London College, from where he qualified himself as a Veterinary Surgeon in May 1892. He worked as Hospital Surgeon in the London College under Sir John M'Fadyean from whom he received the highest praise for his earnestness and industry and whom he later succeeded as Principal and Dean. He remained there till 1897, when he left it for private practice to return again in 1927.

A Surgeon of distinct ability he built up such a good private practice in Kensington that for many years he commanded a

most lucrative practice in London. He was a pioneer in teaching diseases of small animals like dogs and cats, and in small animal practice which was demonstrated by him to be an interesting line of specialisation for Veterinarians. He was famous as a 'skilful operator and consultant' and his treatment of roaring by operation has justly earned him a high name. He was also a pioneer in the use of anaesthesia in Veterinary practice.

Sir Frederick wielded the pen with as much dexterity as he did the surgeon's knife. He wrote a good deal on subjects of his special interest and his text-books are of immense value to students of veterinary science and general practitioners. In the sphere of professional journalism he took an important part and became the Editor of the 'Veterinary Journal' in 1906 which position he held with conspicuous ability till his death.

During the War he served in the fronts both in France and Italy and later in life toured extensively in Europe and America.

He had a warm heart full of sympathy for the animals, for the alleviation of whose suffering and for the promotion of whose interests he dedicated his life. He did much to create public consciousness in favour of animals and took an active part in all activities connected with animal welfare. He was chiefly responsible for the creation of the Section of Comparative Medicine in the Royal Society of Medicine of which he was the first Veterinary man to be president. For, the closer association of the two branches of medicine, human and Veterinary, was always his fond idea.

But the crowning glory of his life was his efforts for rebuilding the London College and placing it on a sound financial basis. The present buildings, opened by His Majesty the King will remain a visible symbol of the indefatigable energy and outstanding ability of Sir Frederick Hobday. From an 'old antiquated tumble-down' building he transformed it into a palatial structure worthy of the person to whose initiative and

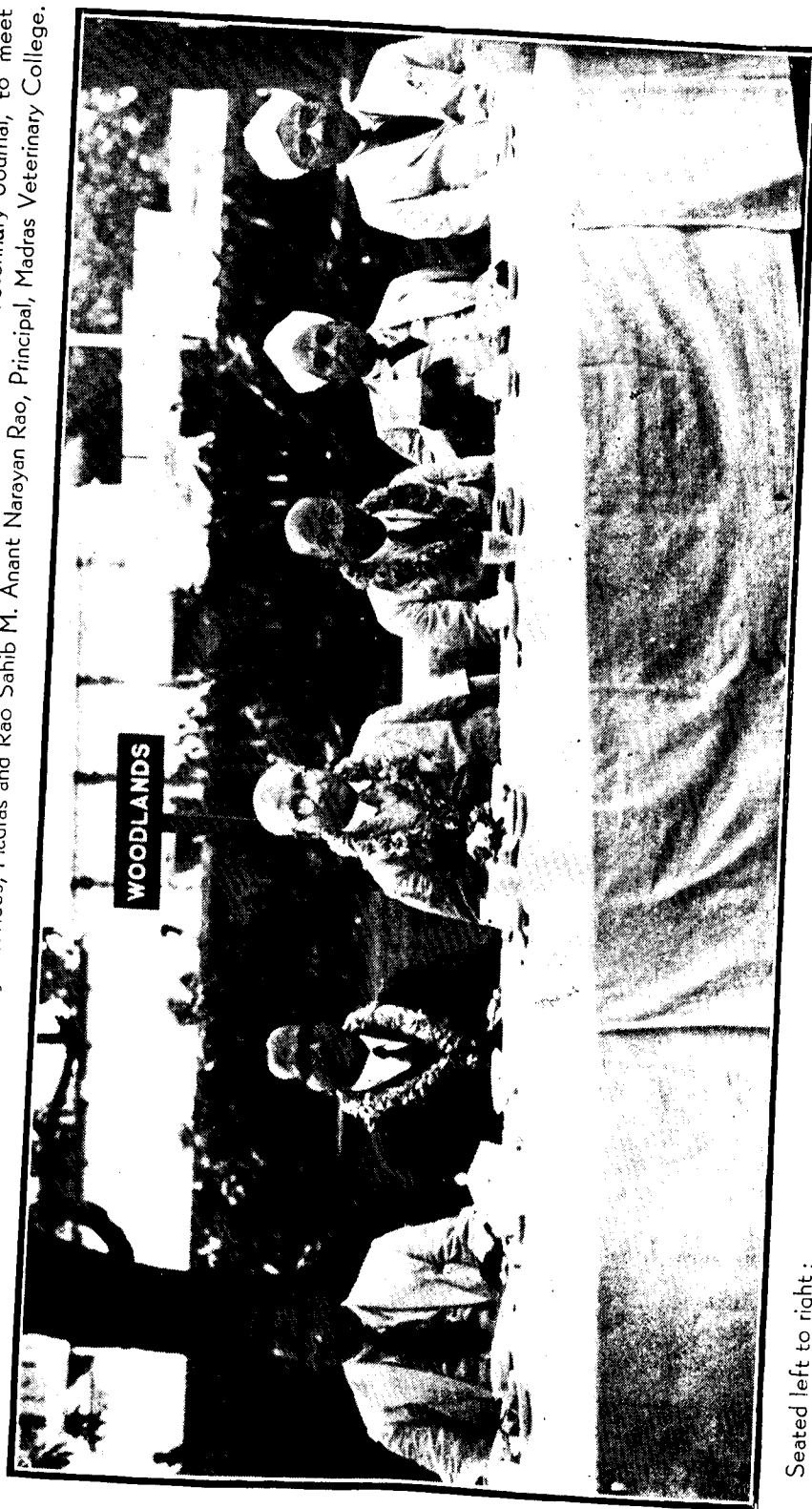


Late Sir. Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E.,
Doctor, Medicine Veterinary (Zurich),
Late Principal and Dean, Professor Emeritus of Surgery,
Royal Veterinary College,
Honorary Veterinary Surgeon to His Majesty the King.



P. T. Saunders, O.B.E., M.R.C.V.S., I.V.S.,
Director of Veterinary Services, Madras,
who retires in September 1939.

Group Photo taken on the occasion of an "At Home" given by Dr. P. Srinivasa Rao, Editor, The Indian Veterinary Journal, to meet Sri. M. R. V. Panikkar, Director of Veterinary Services, Madras and Rao Sahib M. Anant Narayan Rao, Principal, Madras Veterinary College.



Seated left to right:

Rao Sahib K. Kylasamier, President, All-India Veterinary Association, Madras Branch, Dr. M. R. V. Panikkar, Director of Veterinary Services, Madras, Diwan Bahadur V. N. Visvanatha Rao, Secretary, Development Department, Rao Sahib M. Anant Narayan Rao, Principal, Madras Veterinary College, Rao Sahib R. Ramaswamy Aiyangar, Asst. Secretary, Development Department and Dr. P. Srinivasa Rao, Editor, The Indian Veterinary Journal.

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energy it owes its existence. He retired from the principalship of the institution in November 1937 after having given it his parting gift that will pass down to posterity.

In recognition of his extra-ordinary abilities and the unique services he had rendered and the high esteem and affection in which he was held by the members of his profession and the public he was knighted in the New Year Honours list of 1933. His personal capacities were so widely recognised that he was created a Companion of the High Order of St. Michael and St. George, Fellow of the Royal Society of Edinburgh, Doctor of Veterinary Medicine of the University of Zurich and Honorary Veterinary Surgeon to His Majesty the King. He had secured some of the most coveted medals, *viz.*, Victory Medal and Steel Memorial Medal etc.

"Sir Frederick was a sincere well-wisher of Indian students abroad. I say this from my own personal experience as I had the proud privilege of moving closely with him and from what I have heard from others. He was also interested in promoting higher Veterinary Education in India. During his visit to this City in January 1938 a good deal of his time was spent at the Madras Veterinary College in getting at the details of the training given at the institution and he was really happy to realise that the standard aimed at for the B. V. Sc. Degree (5 years) course was of a high order comparable to that given in his own country. We should also be grateful to him for the advice given and the timely use of his good influence with the authorities concerned in attaining the object of making it the Premier Veterinary College in India."

He died full of honours and full of achievements. He was one of the most popular, learned and highly respected Veterinarians of his time. It is difficult to fill the gap created by the passing away of a man of his calibre and attainments. But the only consolation is that his life will always be an example to others and his memory an inspiration to all future Veterinarians.

RETIREMENT

OF

Mr. P. T. SAUNDERS, O.B.E., M.R.C.V.S., I.V.S.,

Director of Veterinary Services, Madras.

Mr. P. T. Saunders came to Madras and joined duty in the Indian Veterinary Service on the 25th December 1920. He was attached to the College as Professor of Surgery for a short while and when a new division was opened he became the 2nd Superintendent of the C.V.D. Madras and was stationed in Vizagapatam. Later he was again transferred to the College as Professor of Medicine and ultimately became the Principal of the Madras Veterinary College. In November 1929 he was appointed as the Director of Veterinary Services, Madras, he being the senior in the Department at the time. During his term of office as Director, many schemes of great importance to the Indian Veterinary Profession and the country which were formulated before bore fruit. The Serum Institute came into being, and the Madras Veterinary College became a constituent College of the Madras University when the B. V. Sc., degree course extending over five years was instituted. Simultaneously the Diploma course was extended over a period of four years and the Live Stock Development Section was transferred to the Veterinary Department.

On the 9th August 1939, *i.e.*, two days prior to his going on leave preparatory for retirement, a farewell function was held in the Madras Veterinary College and after tea the portrait of Mr. Saunders was unveiled by Rao Sahib K. Kylasamier, who recently retired as Principal of the Madras Veterinary College. In doing so the Rao Sahib spoke about the qualities of the head and heart of the guest. He also said that it would have been better if he had continued for some time longer as Director of Veterinary Services till a definite policy was laid down as regards improvement of live stock in South India.

Mr. M. R. V. Panikkar, the Principal of the Madras Veterinary College received the portrait on behalf of the College and said that it would adorn the walls of the Library for a long time to come.

Rao Sahib K. Kylasamier then presented the guest with a bound volume of the Annual Administration Report of the Madras Civil Veterinary Department pertaining to his period of service as Director, (1929-1938). Mr. Saunders appreciated very much the value of the souvenir presented.

We wish Mr. Saunders the best of luck in his retired life.

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Clinical Cases

THE TREATMENT OF PNEUMONIAS IN DOGS WITH M & B 693.

BY

R. SWAMINATHAN B.A., G.M.V.C.,
Lecturer, Madras Veterinary College.

AND

S. A. SASTRI, G.M.V.C.
Assistant Lecturer, Madras Veterinary College

The treatment of Pneumonias in dogs has always been a very unsatisfactory problem for a busy Veterinary practitioner having a large small animal practice. Good healthy surroundings, careful nursing and dieting and very little drugging — these have generally been the accepted principles of treatment in these cases.

But, they have not been enough either to cut short the course of the disease or its duration. The persistence of temperature inspite of injections of specific and non-specific remedies contributes a good deal to the weakness of the patient and incidentally to the anxiety of the practitioner; and therefore, any drug which can bring down the temperature to proper proportions is bound to help us a good deal in the treatment of this disease.

One such drug that has recently been tried with great success in human patients is a proprietary preparation known as May & Baker 693 (M & B 693). M. & B. 693, as the manufacturers say, is a new chemotherapeutic agent recently discovered in the Research Laboratories of May and Baker Ltd. at Dagenham, Essex. Its chemical name is 2-sulphanilylaminopyridine. Experimentally it has been found to exert bactericidal and bacteriostatic action against a number of pathogenic micro-organisms, in particular the pneumococcus, meningococcus and haemolytic streptococcus.

The Treatment of Pneumonias in Dogs with M & B 693 109

Its activity is maintained in the presence of body fluids; hence its use in the treatment of infections caused by one or more of these microorganisms.

We, therefore, decided to use this drug M & B 693 in the Madras Veterinary College Hospital, to see how far it was useful in Veterinary practice.

The following are some of the details of the cases treated during the last nearly 3 months.

1. A young Daschund dog — suffering from pneumonic form of distemper — was running a temperature of 104-105°F. for over a week in spite of every treatment.

4 tablets (each 0.50 gm.) of M & B 693 dissolved in an ounce of Glucose Saline were given by the mouth morning and evening. Next day, the temperature showed a decline to 103.8°F. and the tablets were given in doses of three, morning and evening. The 3rd day the temperature was 103°F. and two tablets were given morning and evening. On the 4th day, the temperature was normal. One tablet was given twice a day and continued for 4 more days, during which period the temperature continued to be normal. The dog made an uneventful recovery and was discharged cured after a week. This was the very first case on which the drug was tried. We had no idea about the dosage rate, and we simply used our discretion in adopting the above line of treatment.

2. A Golden Retriever pup — suffering from Distemper Pneumonia symptoms gradually subsided and the dog was discharged cured from the hospital in a very short time.

3. An Airedale dog with acute symptoms of Broncho Pneumonia and with a temperature of 105.4°F. was admitted on 15-3-39. It was straight away put on a course of M & B 693 — two tablets twice a day. Next day the temperature came down to 103°F. and on the 3rd day it was 100.8°F. This normal temperature was maintained till the date of discharge on 21-3-39.

4. A four year old Terrier dog was admitted on 25-5-39 with a temperature of 105·6°F. and symptoms of Pneumonia. Blood examination was negative. After the usual injections and febrifuge mixtures on the first two days, the animal was given M & B 693—three tablets morning and evening. After 24 hours the temperature came down to 102·8°F. when only two tablets were given twice a day. After another 24 hours, the temperature came down to 100·4°F. which was maintained until the dog was discharged on 30-5-39.

The above cases may not be enough to draw absolute conclusions, but still the way in which the temperature was brought down to normal within 48 hours and the manner in which the cases recovered—these have been beyond our expectations.

This drug M & B 693 is really very useful in treating Pneumonias in dogs. From the details given above, it would also be noticed that the period of stay of the animals in the hospital was considerably reduced and they were all fit to be discharged in a comparatively short time, which would not have been the case if the usual line of treatment had been adopted. We may also add that after the administration of the drug, the appetite of the animals returned and they voluntarily took any nourishment offered, which as every one will realise is a great point with our patients.

The drug is also said to be useful in cases of Streptococcal and meningococcal infections, but we have not so far tried it in such affections. No untoward results were noticed in any of these cases.

The one drawback with this drug is that its cost is rather high and not within the easy reach of people in less affluent circumstances.

IMPACTION OF THE RECTUM IN HORSE

BY

MANOHAR LAL SHARMA, L.V.P.,

Lahore

This condition is very rarely met with in horses. Williams (1909) records cases depending on degenerative changes in the rectal wall. Hoare (1915) also describes this condition as of rare occurrence. Two cases were recorded at the Punjab Veterinary College Hospital, Lahore, in the year 1938-39.

A chestnut entire, aged 6 years, used as pack pony was brought to the Punjab Veterinary College Hospital, Lahore, on the 11th October 1938, with the history that the horse was straining violently but could not pass dung. The animal had been fed on bhusa and rice husk for the last two months. As the animal was off food the owner gave gur and alum to tempt the appetite.

On examination the following symptoms were observed:—

Frequent attempts at defaecation, arching of the back, bending hind legs and straining violently with no passage of dung. The anus was congested and swollen. Rectal examination was difficult as the hand could be introduced only with difficulty owing to the violent straining. The rectum was all packed up with dung which was slightly blood tinged. Mucous membranes, respiration and temperature were normal.

The following treatment was adopted:—

11-10-38. Back-racking, soap water enema thrice a day; the following mixture was administered per stomach tube:—

Tr. Nucis Vomica	Zii
Tr. Zingiberis	Ozii
Spt. Chloroformi	Ozi
Ol. Simplex	Oi
	<i>M. Ft. Haust.</i>

12-10-38. Repeated the back-racking and enema as before and administered four drams of Tr. Nucis Vomica in a pint

of oil per stomach tube. Electric massage was given over the lumbar region. The animal was offered green fodder and allowed gentle exercise morning and evening.

13-10-38. Repeated the back-racking and soap-water enema three times a day and also the mixture. As there was no relief Arecoline $\frac{1}{2}$ gr. was injected subcutaneously.

14-10-38. Feeding slightly. Still no dung passed. Back-racking, cold water enema and above draught repeated. Also injected Strychnine $\frac{1}{2}$ gr. subcutaneously. Gentle exercise morning and evening.

15-10-38. Feeding better. Passed only a small quantity of hard dung. Repeated the back-racking, cold water enema and gave a pint of simple oil. Injected Arecoline $\frac{1}{2}$ gr. subcutaneously.

16-10-38. Appetite improved, but still no free passage of dung. Rectum emptied, gave an enema and ordered gentle exercise. Injected subcutaneously Strychnine $\frac{1}{2}$ gr.

17-10-38. Feeding well. Passed dung. Gave cold water enema and gentle exercise and injected Strychnine $\frac{1}{2}$ gr. subcutaneously.

18-10-38 to 21-10-38. Feeding quite well. Continued the treatment as above, the animal began to pass dung fairly regularly.

22-10-38 to 28-10-38. Appetite quite normal. Passing faeces normally. Cured.

29-10-38. Discharged as cured and advised the owner to feed the animal on green fodder and bran for some time.

Another case of Impaction of Rectum in a pony was brought to the hospital on the 15th November 1938 and was treated on the same lines.

REFERENCES

1. A System of Veterinary Medicine by Wallis Hoare (1915) page 215.
2. Principles and Practice of Veterinary Medicine by William Williams (1909) page 820.

A SUSPECTED CASE OF BACTERIAL FOOD POISONING IN A DOG

BY

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

Veterinary Assistant Surgeon on Glanders duty, Madras.

Subject: A Cross-bred Grey Hound pup aged 6 months.

History—The animal was sent to the writer with a complaint that it was going down in condition.

Examination of the faeces revealed the presence of round and hook worms. The animal was treated with a dose of oilum chenopodium and castor oil. To improve its condition, fresh raw liver was given daily in the empty stomach every morning and the animal was improving quite satisfactorily in condition.

One day the boy who used to get the liver was not able to get the same. He was a bit late in going to the market and by the time he went fresh liver had been sold out. So the boy bought some raw meat (beef) without the writer's knowledge and gave it to the dog at 10 a.m. Generally the animal used to get his liver between 7 and 8 a.m. and its usual food of milk and rice at 12 noon.

Symptoms—The writer was informed that the same evening the animal refused its food. It was found a bit dull. A slight discharge also was noticed in the right eye. As the writer came late in the night he did not examine the dog in the night. Next morning when the animal was examined, the place where the animal had been kept was found flooded with high coloured urine. The animal was found lying on its chest with an anxious expression, very dull and weak and not willing to move from its place. When lifted up, it was not able to stand on its legs and went down again. Temperature was 104.2° F. The right eye was completely opaque with an ulcer in the cornea with plenty of discharge from the eye and photophobia. The animal was found frequently rubbing its affected eye with its leg, (showing some irritation and pain in the eye).

Visible mucous membrane was found congested. Some milk was offered but the animal refused the same.

Diagnosis—Suspected for food poisoning due to contaminated meat (beef).

Treatment—The animal was given a dose of castor oil with olive oil. The eye was cleaned with normal saline and commercial cod liver oil was dropped. It had 3 good motions with stinking smell. In the evening the temperature came to normal. The animal was offered some milk with 10 grains of Sodium Citrate in it. It drank some milk. Next day the animal looked bright and began to take its normal food and the temperature was also found to be normal. The sodium citrate was continued in feed for another two days and the cod liver oil treatment to the eye was continued for another 5 days. The eye became completely normal, the health of the animal was restored and it began to improve in its condition daily. It was sent back to the owner in a fit condition after 20 days.

Conclusion—Cases of Bacterial food poisoning in animals especially dogs are not uncommon but the interesting point in this case is the manner in which the eye was affected. This is rather peculiar and, so far, there does not appear to be any record of such an uncommon symptom in Veterinary patients, although such affections appear to have been occasionally met with in human beings.

Incidentally the writer wants to record his experience about the efficacy of the cod liver oil treatment in such eye complaints. The writer has tried the cod liver oil treatment in 8 cases (horses) for complaints of opacity of the cornea, ulcer of the cornea and injury to the eye. In 6 out of 8 cases treated, the complaints were of recent origin and they yielded to the cod liver oil treatment beautifully well. In the remaining two cases the complaints were in two remounts which came from Calcutta and they were of longer duration; and the treatment had practically no effect. Hence the writer had to resort to other treatments like subconjunctival injections of normal saline etc.

A CASE OF MONSTROSITY IN A CALF

BY

S. VENKATA RAJU, G.B.V.C., M.R. SAN. I.,

Veterinary Surgeon, Trivandrum.

On the afternoon of 20th December 1938, a small local bred cow was brought to the Government Veterinary Hospital, Trivandrum with a history of difficult parturition. With the usual antiseptic precautions the cow was examined and it was found to be one of posterior presentation with the hind legs and tail of the foetus in the passage. As the natural passage was small and as the pains were practically absent, a fairly large quantity of emollient was syringed in. With steady continued traction the calf was pulled out, but while half way through, it got stuck up



again. Further examination revealed the existence of Hydrocephalus. Attempts were made to puncture it but with no success. More emollients were put in and with judicious traction a dead calf was pulled out. The mother was very much exhausted during this ordeal but with careful nursing and dieting she was discharged cured on the fifth day.

As will be seen from the above photograph, the calf was a monstrosity with Hydrocephalus and exostoses. It had also all the 8 incisors which looked as big as permanent ones.

A CASE OF SUSPECTED SNAKE BITE POISONING IN A MARE AND A SUCCESSFUL CURE*

BY

JAGAN NATH BANSIL, L.V.P.,
Veterinary Assistant Surgeon, Patti, Lahore

Subject:—An average sized chestnut mare, in-foal, aged 9 years.

History:—The owner stated that the mare had been bitten by a snake in the morning between 5 and 6 o'clock. A few minutes after the bite, she began to rub her upper lip against different objects such as manger, wall etc. She perspired profusely and rolled about vigorously. She was therefore brought to the hospital which she reached with difficulty at 10 A.M., covering 6 miles in 4 hours. On the way her nostrils got blocked up with froth which had to be removed now and then.

Symptoms:—When she reached the hospital, her head was outstretched and her nostrils dilated with a light red frothy discharge from them. The respirations were laboured and numbered 36 per minute. The temperature was 100, pulse 40 and irregular, M.M. dirty and yellowish. Rectum and bladder were empty. The upper lip was hard and swollen but no wound could be seen, firstly because the patient was objecting to minute examination of the lip and secondly because the case was at such a serious stage that much importance could not be attached to the wound. Violent coughing was set in when her lip, throat or chest were slightly touched for examinations. *A few minutes after her arrival in the hospital, she staggered and lay down.*

Diagnosis:—The history and the sudden onset of symptoms directly pointed to snake bite poisoning.

Treatment:—The treatment adopted in this case was a most striking one. As the poison had already got into the

* Appeared in the Urdu Section of Punjab Veterinary Journal October, 1937.

A Case of Suspected Snake Bite Poisoning in a Mare 117

system and the patient was in extremis, local treatment was considered absolutely useless. And it was therefore decided to adopt some immediate general treatment. She was given support and made to sit up. Ten grains of Pot. Permanganas dissolved in 100 c. c. of sterilized distilled water was injected intravenously preceded and followed by 50 c. c. of Normal Saline Solution. This drug acted as a miracle. After 2 minutes the mare did not require support; she looked bright, rested her muzzle on the ground and froth ceased to come out of her nostrils.

After 5 minutes she raised her muzzle from the ground and neighed. After 10 minutes she took a little gur and kara (crushed grains), which was given in her mouth. Immediately after that she was offered a little green fodder which she took voluntarily. After 15 minutes or so at (11 A.M.) she got up and remained standing till night. She also took some more green fodder. She was occasionally turning her upper lip up and down. At 12 noon she urinated. The respirations were still hurried but not so difficult. She took a little water. At 2 P.M., the respirations were still slightly quickened. She was given one seer kara which she took. At 7 P.M., the respirations continued to be slightly quickened, but thoracic only. Temperature was 101.2°F. The animal took sufficient quantity of green fodder. During the night she passed dung and urine twice, and violently coughed a few times. Next morning she was practically normal and was therefore discharged with a few doses of salines and Electuary to be administered at home.

A few days after she aborted. Now she is alright.

Conclusions

Pot. Permanganas may be given intravenously at the rate of 2 grains per 100 pound body weight with advantage in cases of suspected snake bite poisoning. There was no sloughing at the site of injection and no ill effects were noticed. The abortion that occurred in this case should not be put down to the injection of Pot. Permanganas. It was in all probability to the violent rolling of the animal.

Translation

"ASVAVAIIDYAKAM"

BY

S'RI MAHASAMANTA JAYADATTA.

Translated from the original Sanskrit with Notes and Commentaries.

BY

NRIPENDRA NATH MAJUMDAR

(Late of Veterinary Service).

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Continued from Page 34, No. 1, Vol. XVI.

CHAPTER X.

Sūtikopacāra — Nursing of the new born and its mother.

- Sl. 1. Wash the foetus with water as soon as it comes out. The intelligent should use hot or cold water¹ according to season, or use hot and cold alternately² (according to circumstances).
- Sl. 2. Then wash the breast of the mother and (allow) the young to take the nipple and suck. (If) the young remains joined to the uterus, *i.e.*, the placenta does not come off (in due time).
- Sl. 3. Then the intelligent physician should think of medicines. Jyotiṣmatī (Cardiospermum Helicacabum), Tejabatī (Gajapippalī — Scindapsus Officianallis), Sankhapuṣpi (common

1. In winter hot water is to be used and in summer, cold.
2. If the conditions justify, *i.e.*, if the young appears to be inert or motionless, it should be washed or dipped into hot and cold water alternately, and slapped on the chest to induce normal breathing.

name Dānkunī — Canscora Decussata), S'atābarī (the well-known S'atamūlī — Asparagus Sarmentosus).

- Sl. 4. Bhārgi (common name Bamanhati — Clerodendron Siphonanthus), Vaca (Acorus Calamus), Visalyā (Dantī — Baliospermum Montanum), Lāngalikā (Bish-lānguli — Gloriosa Superba)¹,—these are to be collected, powdered and with rape-seed added to these, should be made into three bundles or packets in cloth.
- Sl. 5. Then (these bundles or packets) are to be tied to the head, neck, and tail. Then give a drench of Bish-lānguli, Bel and Vaca in water².
- Sl. 6. By doing these the uterus is cleansed and the placenta drops. Then the following (Pratipāna (counter drench) should be given for cleansing the bowels.
- Sl. 7. The mare should have a drench in the morning of S'idhu³, Trikatu and honey. Or,

1. Equal quantities of all these are to be taken. It is interesting to note here that no mention of Apāmārga (Apāng-mūl — root of Apāng) has been made. There is a practice among the villagefolks to tie a piece of this root to the hairs of a woman in case of difficult parturition. Whether it is a coincidence or not, it has been found to produce the desired effect in some cases.
2. The drugs are to be powdered and equal portions of each are to be taken to make a pala — $\frac{1}{2}$ powa, water — $7\frac{1}{2}$ seers. These are to be thoroughly mixed and an appropriate dose given.
3. S'idhū is a kind of wine prepared from the juice of sugar-cane. It is of two kinds — Pakkarasa and Sitārasa the former is made of boiled or cooked juice while the latter is made from raw juice. The former is said to be the better of the two. Two seers are to be taken. Trikatu is the three hots — Ginger, Piper longum and Black Pepper. Half a powa in all is to be taken. Honey $\frac{1}{2}$ seer.

- give a mixture of Paṣṭiki¹ or country arrack, oil and honey.
- Sl. 8. The mare should be given food after the Pratipāna has been properly assimilated. Do not give any milk for one night.²
- Sl. 9. On the fourth day (after delivery) give (the mare) warm water to drink³. Then there will not be any watery or frothy discharge from the female organs.
- Sl. 10. Because of the fact that the Vāyu⁴, governing the abdominal cavity of an animal that has just delivered, gets very much disturbed, such animal should be given ghee⁵.

-
1. This is another formula. Paṣṭika is a kind of wine prepared from paddy. Oil is gingily oil. Two seers of wine, one seer of treacle and oil — half a seer.
 2. The meaning of this sentence is not clear. The word Trikonidhi used in the text is meaningless. Copying mistake. Possibly what is meant to be conveyed is that — cold water for drink should not be given during these days. This will be evident from the next sloka.
 3. This in a way prohibits the use of cold water on the preceding three days and that is what was meant to be conveyed in the misprinted last line of the preceding couplet. It may also be inferred from the following sentence that by the ingestion of cold water during these three days, such discharges may be induced.
 4. Vāyu is one of the three humours or vital forces of the animal body. Vāyu includes the nervous system. There are five kinds of Vayu — Prāna, Apāna, Samāna, Udāna and Vyāna. Of these the Apāna vāyu governs the abdominal cavity with all the organs contained in it. This Vāyu is disturbed by the sudden changes, viz., the sudden evacuation of the uterus, and ghee is given to bring it to its normal condition. See also foot note on sloka 11, Chapter I.
 5. The usual dose of ghee is half-a-seer (As'vaidyaka seer is 42½ tolas while current bazaar seer is of 80 tolas. These will be explained in the next chapter when we come to it.)

- Sl. 11. (Then the mare should be given a feed of) Barley, Dub grass which is good for all and Kulthi mixed with ghee¹. On the tenth day bathe the mare with the foal.
- Sl. 12. Fumigate with incense and offer flowers and perfumes.
- Kṣīras'odhanam — Purification of the milk. Now I shall say about the purification of defective milk (of the mare).
- Sl. 13. Give the mare a drench of an astringent decoction² of Jambu (Eugenia Jambolana) with Kṣaudra³ honey.
- Sl. 13 & 14. The physician should take Pancabalkal⁴ and after cleaning and pounding them, boil the whole in water and after keeping it in the open (dew) over night, give it to the mare in the morning with sugar and honey.

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1. Possibly this is the way in which ghee is intended to be given.
 2. The decoction is to be made thus;— take half a pawa of the bark of the common Jamun tree and boil it with 8 seers of water. Take off the fire when two seers remain.
 3. Kṣaudra is that class of honey collected by a species of bees that are very small in size. (Kṣudra=small). There are eight kinds of honey described in Ayurveda — Māhṣika, Bhrāhmara, Kṣaudra, Pauttika, Arghya, Chātra, Audālika and Dāla.
 4. This is another formula. Panca= five, and Balkala=bark; the five barks, i.e., the barks of the Banyan, the holy fig (Ficus religiosa) the Bakula (Ficus venosa), the Jainadumbura (the glomerous fig — Ficus glomerata) and Vetasa (the common cane — Calamus rotong). In the place of the Cane, some take the Parissa (commonly known as Palās' pipul — Thespesia populusa) or the heart-wood (Hibiscus populnea). They are said to have the properties of the Ficus. These should be taken in half-a-powa doses and boiled in 8 seers of water. Boil down to one-fourth. Sugar and honey — half-a-seer each.

Sl. 15 & 16. (Take) Ajāji¹ (Kālājira — Cumin seed), Bhadrāmustā — (Cyperus Rotundas), Srngavera (Ginger), Sarṣapa — (Rape seed), Tumburu — commonly known as Tambul — Zanthoxylum Alatum), Viṅga — (Embelica Ribes and E. Robusta), Citraka — (common Chita — Plumbago Zeylanica — the root is used), Devadāru (Pinus Deodara), Piper Longum, Haridrā² (common turmeric — Carcuma Longa), Dāruharidrā (Berberis Asiatica), Pāthā (commonly known as Akānādi — Cissampelos Hermandifolia) and S'igru Sajina) — Moringa Pterygosperma — the bark is to be taken here). All these should be ground and (given to the mare) with Soubiraka.

Sl. 17. Or, give a drench of Country-wine (Arrack) with treacle and oil³. These mixtures correct the defects and increases the yield of milk.

Kis'oropacāra - prakaram. — Section on Rearing of the colt.

Sl. 18. Give the colt a mixture of fresh butter and honey⁴ to lick. Feed the colt in this way till it is a month old (after which) proper feeds are to be given.

1. This is the third formula. All the ingredients are to be taken in equal portions to make one pala — half-a-powa. All these are to be well-ground with a little water so as to form a paste and then to be mixed with Soubiraka which is a kind of Kanji made of Barley and eight times the quantity of water.
2. In the text the word used is Haridre, i.e., in the dual form to indicate the two Haridrās — Haridra, common turmeric and Dāruharidrā — Berberis asiatica.
3. This is the fourth formula. The mixture is to be prepared thus:— Arrack — 2 seers; Treacle and gingily oil — 1 seer each.
4. Honey — about half-a-seer and butter — half-a-powa.

Sl. 19. The food that is commended for colts is (a mixture of) thoroughly boiled wheat and barley mixed with milk, honey and ghee.

Sl. 20. Or, give the colt whey or butter-milk mixed with ghee, or whey with milk and honey; this increases the strength instantaneously.

Sl. 21. By (feeding in the above way) the colt grows admirably and becomes very strong too.

Sl. 21 & 22. Because of the fact that the body, the organs, the constituent parts (blood, flesh, etc.) of the body, the digestive heat (power), the three humours or vital forces, the natural disposition and force or strength, are the same as in horses, the diseases (of colts) should, therefore, be treated similarly as those of horses.

Sl. 23. The Vāyu¹, Pitta, Kapha and the blood are also the same; and it has been said that the difference is only in the doses.

End of Chapter X — Nursing of the new-born and its mother in the *Treatise in Equine Science* by s'ri Mahāsāmanta Jayadatta.

(To be continued).

Chapter XI — Articles and their doses will follow.

1. For explanation of Vāyu etc., — See foot-note on sl. 11 of Chapter I.

News and Notes.

A press note issued by the Imperial Dairy Institute says, a new batch of students will be taken this year at the Imperial Dairy Institute, Bangalore, for its Indian Dairy Diploma course which commences in November and lasts for two years. The course includes technical and practical training in Dairy and Animal Husbandry subjects, management of dairy farms, co-operative milk unions, etc. The Institute also arranges for a post-graduate course for agricultural and veterinary graduates and for officers working in the allied Government Departments in advanced research in animal Husbandry. Short period training courses, essentially practical in nature, running from one to six months are also provided at the Institute for the benefits of men in dairy business. Practical demonstrations in the different dairy operations are also given to batches of Indian soldiers as part of their training for rural reconstruction work.

Hindu, August 12, 1939.

An improvement in the breed of cattle in Baroda is being secured along with other methods by the adoption of what is known as "the Premium Bull System," whereby half the cost of the bull is paid by the Department of Agriculture and half by the village provided with the bull. For three years the Department undertakes to pay at the rate of Rs. 5/- per mensem towards the cost of the upkeep of the bull if on periodical inspection the animal is found to be adequately cared for. At present 12 such bulls of Gir breed have been placed in villages in Kodinar and a number of Kankrej bulls have been taken up in Navasari.

Hindu, August 22, 1939.

In the vacancy caused by the retirement of P. T. Saunders, Esq., O.B.E., M.R.C.V.S., I.V.S., Director of Veterinary Services, Madras, Sri M. R. V. Panikkar, B.Sc., M.R.C.V.S., who was the Principal, Madras Veterinary College, has been appointed as Director of Veterinary Services until the return of Mr. T. J.

Hurley, from leave. Sri Rao Sahib M. Anant Narayan Rao, G.M.V.C., Lecturer in Parasitology and Personal Assistant to the Principal has succeeded Mr. M. R. V. Panikkar as the Principal, and Sri H. N. Chelva Iyengar, G.M.V.C., Lecturer in Anatomy has, in addition to his duties, been appointed Personal Assistant to the Principal.

Sri. M. R. V. Panikkar is the first Indian to be appointed as Director of Veterinary Services, Madras, and we heartily congratulate him on his appointment. He was greeted with a round of entertainments, of which the most important was the one given by Dr. P. Srinivasa Rao, Editor, *The Indian Veterinary Journal*. A pleasant 'At Home' party was given at "Woodlands" on 22nd August, 1939. The function was very largely attended by almost all the Veterinarians in Madras and the suburbs and also by Diwan Bahadur V. N. Viswanatha Rao and Rao Sahib R. Ramaswamy Iyengar, Secretary and Assistant Secretary of the Development Department respectively. Some details of the 'At Home' may be found under Extracts in this issue.

Another was a 'Dinner' given by the staff of the Madras Veterinary College on Sunday the 20th August, 1939, at "Woodlands" which was also largely attended.

The third one was an 'At Home' given by the Superintendent and staff of the Serum Institute, Madras, on 26th August, 1939 at the Serum Institute.

The undermentioned Veterinary Assistant Surgeons are undergoing Post-Graduate course at the Madras Veterinary College from July 1939.

1. Sri. T. L. Anantaraman,	}	Madras C. V. D.
2. „ K. Narayanaswamy Ayyar,		
3. „ T. A. Ratnaswamy Ayyar,		
4. „ V. V. Venkatachala Ayyar,		
5. Mr. T. G. Rozario,		
6. „ G. Theophilus.	}	Hyderabad-Dn. Travancore.
7. „ B. K. Deshpande,		
8. „ V. R. Mudaliar.		
9. „ Fernandez.		

The numerous friends of the late Mr. S. Ramanathan, G.M.V.C., Veterinary Assistant Surgeon, Madras Civil Veterinary Department, will be glad to hear that his wife Dr. C. V. Sankarambal who is employed in Cochin State has passed her F.R.C.S., Examination, London. She is the second Indian lady to pass this examination. We heartily congratulate her on this distinction.

We draw the attention of our readers to a thought-provoking article "On the problem of Private Practice in India with special reference to rural places" by Sri. M. V. Pillai, G.B.V.C., Federated Malay States. The article contains many valuable suggestions which we would very much like to be discussed in this *Journal*. We will gladly publish any valuable criticisms from our readers.

Mr. E. O. Longley, B.Sc., M.R.C.V.S., Lecturer in Pathology and Bacteriology, Madras Veterinary College, finishes his term of contract by 31st August 1939 and in his place Sri. M. Y. Mangrulkar, M.Sc., M.R.C.V.S., D.T.V.M., Assistant Pathologist, Imperial Veterinary Research Institute, Muktesar, has been appointed to act in category 4 (Lecturers in the Madras Veterinary College), Class 1 of Madras Veterinary Service and he has joined duty on 25th August 1939.

We are very sorry to hear that owing to absence of rains in Sind and Rajputana and consequent scarcity of fodder and water, there has been a very heavy mortality among cattle in those areas. But we are relieved to learn that the concerned Government are taking every possible steps to meet this unexpected situation.

SILAGE PITS FOR FODDER

(Scheme Begun in Nellore.)

Following the success that has attended the storage of fodder in silage pits in Cuddapah and Kurnool districts, the Chief Conservator of Forests suggested the construction of silage pits

in this district also and he requested the co-operation of the Revenue Department who could arrange the formation of silage pits in villages with the help of their sub-ordinates.

The matter was taken up at the last meeting of the Nellore District Economic Conference under the presidency of Khan Bahadur M. Humayun Sahib Bahadur, at which it was resolved to request the several district officials to select suitable areas for silage pits in their respective jurisdiction.

The first step in this direction was taken yesterday morning when a silage pit was constructed in the limits of the Nellore Forest Panchayat Board under the direct supervision of the Tahsildar, Nellore. The pit was filled up with edible leaves and was closed up according to the prescribed method. The District Collector paid a visit yesterday to the area and was satisfied with the construction.

It is expected that some more silage pits will be formed shortly and that the ryots will be encouraged to construct them so as to keep reserves of fodder in times of want.

Another scheme which is expected to benefit the ryots is the construction of sheds over the manure pits in the rural areas in pursuance of the suggestion made by the Assistant Director of Agriculture, Nellore. As it was found that ryots were reluctant to provide for themselves these sheds without satisfying themselves as to its utility and as in some cases they were not able to incur the expenditure involved, the Collector addressed the local Government that in the interests of propaganda and demonstration purposes, about fifty sheds might be constructed in this district in suitable places and requested their permission to grant three palmirah trees and 250 palmirah leaves for each shed free of cost.

Orders have been received from the Government sanctioning trees and leaves for ten sheds which can be given only to poor and deserving people. Following the receipt of the order the District Collector has addressed his subordinates to send proposals to select suitable places for the sheds in consultation with the agricultural staff.

Hindu, 25th August 1939.

Communications.

(The Editor does not hold himself responsible for the views expressed by the correspondents.)

To

The Editor,
Indian Veterinary Journal.

Sir,

Please publish the following in your *Journal* and oblige.

Yours Sincerely,
P. V. NAGARSHETH.

Nagarsheth Street,
Broach, 9th August 1939.

From

P. V. NAGARSHETH ESQR., G.B.V.C.,
President, Bombay Subordinate Civil Veterinary
Officers' Service Association,
BROACH.

To

The Honourable Minister,
In charge Revenue Department,
Government of Bombay,
POONA.

Subject:—Appointment of Veterinary officers for propaganda work in connection with the Rural Development Department.

Honoured Sir,

I have the honour to approach your Government and submit the Resolution (copy attached) of the Managing Committee of this Association for this Province of the 24th ultimo for your favourable consideration.

2. It is heard that a large number of Senior Officers from the Agriculture, Co-operative and Industrial Departments are specially appointed for Propaganda work in the newly organised Department by the Government for Rural uplift Propaganda work but the Veterinary Department has yet remained unrepresented. I may bring to your notice that the Veterinarians are the proper persons to look after the welfare of cattle on which the Agriculture of the Province chiefly depends.

3. At present the Veterinary staff is over-worked as there is no Veterinary Dispensary in each and every Taluka and one man has to look after two or three big Talukas except in four Districts of this Province. The people are still very slow in reporting outbreaks of contagious diseases and are not freely and whole heartedly accustomed to have their animals immunised by preventive and curative inoculations. Also many useless male animals require to be castrated for producing better strain of cattle. Hence much spade work requires to be done in order to save thousands of cattles from the ravages of contagious diseases, and for better breeding. Hence the appointment of propaganda officers of the Veterinary Department is a sheer necessity and my Association requests your honour to strongly recommend for the appointment of one Senior Veterinary Officer for each District, in the grade of Veterinary Inspector.

4. I have to further request your honour that my Association wishes to wait on deputation on you to represent matters personally, to suggest ways and means of Propaganda work and to convince your honour of the sheer necessity of their appointments. Hence I request your honour to please inform me the time and place where we may wait upon you.

I have the honour to be,

Sir,

Your most obedient servant,

(Sd.) P. V. NAGARSHETH,
President, Bombay Subordinate Civil
Veterinary Officers' Service Association,
BROACH.

Respectfully submitted through the Director of Veterinary Services,
Bombay Presidency, POONA.

**Copy of Resolution passed by the Managing Committee of the
Bombay Subordinate Civil Veterinary Officers' Service
Association on the 24th July 1939.**

*Resolution:—*This Association resolves that Propaganda officers should be appointed for Rural Development Department from the Veterinary Department as there is much scope for educating people in Veterinary matters such as hygienic conditions of stable, Dietetics, Castrations, diseases etc., steps to be taken for first aid in common diseases, precautions to be observed for prevention and spread of contagious diseases etc. Hence one Senior Officer of the Inspector's grade be appointed in each District specially for Propaganda work and find out the spread of contagious diseases and persuade people for getting their animals inoculated. A copy of this resolution be sent to the Honourable Minister in Charge Revenue Department and if necessary

a deputation of six to eight members of this Association should wait on him to convince him of its necessity.'

P. V. Nagarsheth.

(True Copy)

To

The Editor,
Indian Veterinary Journal.

Sir,

Please publish the following in your *Journal* and oblige.

Yours Sincerely,

M. V. PILLAI.

THE PROBLEM OF PRIVATE PRACTICE IN INDIA WITH SPECIAL REFERENCES TO RURAL PLACES

BY

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

(Late Assistant Municipal Veterinary Surgeon, Penang.)

It is a matter of deep regret that, in India, a land of eight lakhs of villages with a cattle population of 215,000,000, the problem of Veterinary private practice, has not been so far given any serious consideration or importance by the members of our profession. Considering the extensive area of our country and the enormous number of animals, a sparing number of practitioners in big cities like Calcutta, Bombay and Madras, is nothing but a drop in the ocean, so much so, that India occupies a most insignificant place in the private practitioners' map of the world. This grave defect cannot be remedied easily unless some arrangements are made by the authorities to encourage veterinarians to take up a bold policy of "Go back to the villages" and stand upon their own legs for an independent and honourable living. If such a policy is pursued we will be doing a really incalculable service not only to our own selves but also to the millions of our dumb animals in the rural tracts which are at present so very cruelly neglected.

Let us for a moment examine and compare the main advantages of Veterinary private practice existing in Europe particularly Great Britain. Private practice in these countries is one of the opportunities of earning a decent livelihood. An intelligent and enthusiastic practitioner has a recognised standing socially and professionally. The people in England are great lovers of

animals; they have the best breed of livestock in the world; they recognise the importance of a modern Veterinarian not only as a doctor for animals but also as an adviser to stock owners regarding the dieting, breeding and rearing of animals. Animal Husbandry is well organised and more systematically carried out because of the returns from the animals and animal products are more profitable. On account of these reasons a practitioner has always an important place and a great responsibility in that he contributes to building up fine healthy herd of cattle, sheep, horses, pigs and dogs and thereby help to increase and develop the economic welfare of the people.

Unfortunately in India such opportunities are practically non-existent, mainly due to the economic condition of the people who do not realise the importance of healthy animals for successful agriculture and milk production. Probably there is also the inherent craze of Veterinary graduates for Government employments. Unless these impediments are remedied by the combined co-operation of the present Government and the people there is no way of either improving or developing the condition of our cattle or raising the economic status of the cattle owners.

The importance of cattle in India for the economic welfare of the agriculturists, who form the majority of our population, cannot be over emphasised. No less a person than Mahatma Gandhi, the greatest Indian leader and saint at the present moment has once expressed, "the cow to me means the entire sub-human world; man through the cow is enjoined to realise his identity with all that lives; she is the mother to millions of Indian mankind; protection of the cow means protection of the whole dumb creation of God; cow protection is one of the most wonderful phenomena, in human evolution". These sayings are so very pregnant with ideas that it is a pity that the attention of our leaders have not been drawn to them.

As regards the present condition of our cattle the less said the better. When I remark that our motherland has the reputation of having the greatest number of poor and degenerated animals, there is no shame. When I repeat that they are emaciated, under-fed and under-sized, with low productivity and high susceptibility to all sorts of diseases under the sun—contagious and parasitic—which carry away thousands and thousands every year making their owners economically crippled, there is no exaggeration. When I express that child mortality and malnutrition among our people is greatly due to scarcity of milk for daily consumption, I am only stressing a proved fact. It is not more useless cattle that we require, but few better and healthier ones. Healthy animal means better turnover of agricultural products and plentiful supply of fresh milk and its products without which no country can attain prosperity and happiness. Health of animals therefore is as important a factor as human health. The improvement of animal and human health must necessarily go hand in hand in the programme of rural reconstruction that is being much talked of in press and platform all over India.

The Veterinary Departments of the respective provinces have been responsible during all these years to render the best possible Veterinary aid to town and rural dwellers through the medium of their officers concerned. It has been found by experience that the present available institutions are too inadequate to deal with the problem of cattle improvement. The Veterinary hospitals established in towns do not seem to be very beneficial for the rural dwellers. There are Laboratories in provinces for research work; there are investigation officers and other experts to survey the nature of diseases; there is a well reputed central research Institute at Muktesar, where experiments and investigations are being carried out by highly trained experts; over and above this a Nutrition Institute has been added recently to investigate the question of malnutrition which is the sole cause of all our troubles. With all these paraphernalia and with all the money they have spent in maintaining these costly institutions, cattle diseases have not been completely eradicated, cattle mortality and the drain of wealth have not been reduced. It cannot be forgotten that Laboratories and research workers are absolutely essential because they help a good deal in finding out the nature of diseases and enable us to adopt measures of controlling them.

Few public men in India until a few years ago had bestowed any serious study upon the problem of improvement of livestock which comprises the main wealth of the nation. A new era however dawned since His Excellency Lord Linlithgow, an ardent advocate of animal Husbandry, took over the reigns of Viceroyalty; livestock problem has become a subject of great importance and publicity. The movement started through the efforts of His Excellency and the deep interest he has taken on various occasions has brought the tremendous change and infused a new life in the minds of the people.

The problem of improvement of cattle cannot be lightly brushed aside. It is a major problem now that requires skilful and systematic handling and on its solution alone depends the prosperity and happiness of our country. No sacrifice on the part of the Government and the people should be deemed too great to bring about a desired object. In these days when the Congress governed provinces are facing grave economic crisis due mainly to prohibition and introduction of various reforms for the benefit of the masses, the policy of appointing more Veterinarians to Veterinary institutions in towns has no justification; it may not be the kind of real Veterinary aid to rural dwellers. In these circumstances it is necessary to solve this problem as economically and efficiently as possible so that the rural dwellers may have the full advantage of Veterinary aid. To achieve this broad object without over-burdening the present Government no other scheme seems to be more valuable, useful and effective than the scheme similar to the one recently published by the

Government of Madras to promote medical relief to rural people by starting health societies on co-operative basis. It may not be out of place to mention here that this scheme was originally introduced and worked out as an experimental measure in Yugoslavia in 1921 with great success. This same scheme was introduced by the Rural Reconstruction Institute, Srineketan, Visva-barathy with equally satisfactory results. If this scheme has been of immense use to human beings there is no reason why a similar one should not be safely worked out to improve animal health in villages. It is highly necessary that the authorities of rural reconstruction work should include animal husbandry work and control of animal in their programme on the following lines:

A qualified Veterinary Graduate with a training in animal husbandry should be engaged in a group of villages on co-operative basis. He should be given a reasonable allowance with provision for a small office, surgery and medicines. The funds for these must be raised by voluntary contributions from members of the society, annual subscriptions, donations from charitable institutions and philanthropic gentlemen and annual recurring grant from the Government and District Boards. Every member of the subscribing unit is entitled to get treatment for his animals on payment of a nominal fee, while poor people will be entitled for free treatment. A Veterinarian so employed may not be prevented from making a little addition to his income by way of private practice, of course taking care not to tax the people too much. The greatest qualification of such a man should be love for the profession, spotless sincerity, and a spirit of true service and sacrifice. A well experienced officer of the Veterinary Department should undertake to supervise the work of these subsidised practitioners by periodical inspections.

The duty of such a Veterinarian will be not only to treat the different diseases of animals in the villages but also to educate the poor cattle owners on the advantages of scientific breeding, feeding, rearing and management.

During the occurrence of any contagious disease his services will be readily available to control the outbreak by adopting preventive measures and prevent them from spreading to neighbouring villages.

In the field of public health activities, a veterinarian and a medical man are equally useful and they should pull together and mutually work on problems connected with public health. Since there are many diseases of animals communicable to human beings such as rabies, anthrax, foot and mouth, glanders, skin diseases the Veterinarian is the only man who is qualified to find out such diseases and do the needful. Collaboration of these two professional men is a great necessity for the welfare of the villagers.

By mutual contact and personal conversation with the rural people a Veterinarian will be able to win the confidence of the villagers to a very great extent.

When the much talked of "Wardha Scheme of Education" comes into force, a veterinarian's place in the school as a teacher in animal husbandry and hygiene and other subjects related to animals, will be more responsible and important.

Every group of village should have a model dairy farm, poultry farm and goat breeding farm under the control and supervision of the said veterinarian so that the surrounding villagers may have every facility to see and study practically how animals are bred, reared and fed. If the veterinarian is a man of means he can as well open the farms on his own expense which will be an additional source of income to him.

The above are some of the outstanding advantages of having a Veterinarian in rural places and it is my considered opinion that if this scheme, which may at the outset appear to be insignificant, unimportant and unworkable, is taken up seriously by our leaders and introduced as an experimental measure in some selected places, a rapid improvement of our much neglected cattle can be effected, the burden of expenditure of the Government can be relieved and the unemployment among the veterinarians can be reduced.

MAJOR P. T. SAUNDERS RETIRES

BY

A VETERINARY CORRESPONDENT

"Everything in this world must come to an end. So, my service has come to an end and I wish you all good-bye" said Mr. Saunders with apparent grief at the farewell function got up in his honour at the Madras Veterinary College on the 9th August 1939. It was a representative gathering that met there that evening. Partings are no doubt common in this world, but some are more felt than others. Here was an officer who gave "a big slice of his life" (to use his own words) to this part of our country and was leaving the shores of India perhaps never to return again; and it was but natural that 'grief' should have been writ so large on the faces of those that gathered there.

Rao Sahib K. Kylasmier who presided on the occasion was right when he said that Mr. Saunders has had many achievements to his credit as the Director of Veterinary Services, Madras. The Rao Sahib referred to the opening of the Serum Institute, the institution of the B.V.Sc. course, the general expansion of the College and the Department, as monumental

achievements of which Mr. Saunders can rightly be proud. Only a few people seem to be fortunate to enjoy the privilege of achieving such deeds of outstanding merit within the proverbial span of life that is ordinarily given to a man in this world. Mr. Saunders is one such. During his tenure of office, the live-stock section has also been transferred to the Veterinary Department and it is a great pity that before he could perfect that section he has had to retire.

Rao Sahib K. Kylasamier said that Mr. Saunders left the department better than he found it and that is the greatest thing that can be said of any administrator. "To see the best of an Englishman, one ought to meet him in his own country" said the Rao Sahib and claimed to have had that privilege as well. Even this side of Suez Canal, Mr. Saunders was nothing but a perfect gentleman and that accounted for his popularity a good deal.

His portrait was unveiled on the occasion and now adorns the walls of the Madras Veterinary College. Mr. M. R. V. Panikkar in accepting the portrait on behalf of the College, paid a glowing tribute to the retiring Director and said "the portrait would serve as a source of inspiration and guidance to generations yet unborn."

A souvenir, in the form of a bound volume of the administration reports of the C.V.D., Madras for the period for which Mr. Saunders was the Director, was also presented to him, which he valued much.

Association News.

THE INDIAN VETERINARY JOURNAL (VOL. XV).

Receipts and Disbursements Account for the year ending 30th June 1939.

		Rs. A. P.		Rs. A. P.	
To Balance on 1-7-1938		2180	4 11		
" Subscriptions	...	4228	0 0		
" Advertisements	...	634	12 10		
" Interest	...	50	0 0		
" Reprints	...	113	14 1		
TOTAL		Rs. 7206 15 10			
By Establishment:—					
Rent	Rs. 480	960	0 0		
Salary	Rs. 480	1000	0 0		
Honorarium		1760	10 2		
Printing (Journal)		3	12 0		
Railway freight		17	0 0		
Binding Books		981	5 0		
Postages		15	14 0		
Printing and Stationery		55	7 0		
Furniture		2	10 0		
Bank charges		25	0 0		
Audit Fee		41	4 0		
Commission for local Advertisements		23	10 0		
Repairs to Typewriter		1	9 6		
Books		2318	14 2		
Balance on 30-6-1939				TOTAL	Rs. 7206 15 10

Examined and found correct.

20, THAMBU CHETTY STREET,
MADRAS,
25th August 1939.

K. GOPALAKRISHNA RAO,
Registered Accountant, Auditor.

The Indian Veterinary Journal

Extracts.

CATTLE WEALTH OF INDIA

Place in Rural Economy

Lord Linlithgow's Appeal

H. E. the Viceroy, addressing the inaugural meeting of the Committee of the All-India Cattle Show Society this morning, visualised the eventual development of the Society into a central organisation in India, directing and assisting similar efforts in the various provinces and States, fostering the highest standards in breeding and management and setting the seal of its approval upon the careful, conscientious breeder and including in its scope other animals of importance in India's rural economy, such as, sheep, goats, camels and poultry. His Excellency said:

"It is a great pleasure for me to be with you to-day at this inaugural meeting of the General Committee of the All-India Cattle Show Society.

"It is now some years ago since I had first an occasion to apply my mind to the rural economy of India. The more I have studied the problems of the countryside, and the life and work of the Indian farmer, the more I have been impressed by the urgent need for bettering the quality of India's cattle and for improving the practice of animal husbandry throughout the country. It is no doubt true that there are many directions in which the methods of farming and the prosperity of the farmer can be advanced. I am, however, convinced that no particular line of advance offers prospects more attractive or promises so early and so considerable an economic reward, as the improvement of cattle and their better care. Indeed, there is no province or State in India, where the improvement of the indigenous livestock does not hold out possibilities of an incalculable increase in the total wealth of the community. For that reason I wholly endorse Sir Jagdish's claim that the all-India character of your membership constitutes the happiest augury for the future of your society.

"Cattle shows — or more frequently cattle fairs — are a common feature of Indian life. There can be no doubt that these fairs have done much to maintain and stimulate interest in the quality of livestock in India. But the contribution that local fairs or shows can make towards breed improvement, the standardisation of breed characteristics and the popularising of successful types, is plainly limited. What is required, if the best results are to follow, is an Exhibition which presents to the interested public the opportunity of viewing, at some convenient centre, the best and most typical animals representing as many as possible of the famous breeds of Indian cattle. Those are the conditions which are capable of attracting experts from every part of the country as well as from overseas; and which give to breeders the chance to develop their critical faculty and a keen eye for quality.

"The first All-India Cattle Show held in New Delhi in 1938 was admittedly an experiment. It proved a substantial success and so also did the

Show in 1939. They plainly indicated that they were something that everybody wanted, whether farmer, breeder, dealer or the ordinary public. To give you one example of a sphere in which they were successful, sales during the Show are, of course as you know, forbidden but it is known that sales of a considerable total value resulted directly from the Show. This is eminently satisfactory.

"I think too, I may safely say, that these Shows have placed Indian Cattle on the world cattle map. Apart from the fact that illustrated articles regarding Indian cattle are now frequent in journals throughout the world, inquiries have been received from South America, West Indies, the Philippines, the Straits Settlements, East Africa, and Iraq regarding Indian cattle."

The Hindu, 22-7-39.

IMPROVEMENT OF LIVESTOCK

Viceroy on Work Ahead

Increasing Rural Wealth

Cattle Breeding as an industry

"The experience gained from these shows gave warrant for the setting up of a permanent organisation whose function is to be the conduct year by year, of the All-India Cattle Show and the carrying on of activities connected therewith, including the furtherance of cattle breeding and the improvement of stock, and ultimately also the conduct of similar activities and organisation of shows in regard to other animals and poultry.

"The objects of the Society indicate that, for the present your main attention is directed—as indeed I am well aware—to all the activities which, in the cattle-breeding areas, are contributing towards the steady improvement of breeds. In this connection, I was particularly pleased to hear from Sir Jagdish Prasad that as a result of the two shows already held, one breed society has already been formed. I hope it will not now be long before those interested in other breeds will follow suit. I am glad to learn that provincial livestock improvement associations, district associations, and village improvement societies are playing an important part in this work in many Provinces and States. In the Punjab alone, I am told there are 719 cattle improvement societies with about 15,000 members. This is admirable. Where such organisations are not available the Imperial Council of Agricultural Research are giving their assistance in the establishment of suitable agencies.

Future Work.

"The great importance of breeding from selected sires is everywhere recognised, and in this connection you may be interested to hear the present position in regard to the appeal for the provision of stud bulls, which I myself launched in 1936. The total number of approved bulls donated in response to that appeal is now estimated at 3,400. In addition, the authorities throughout India have already provided or have approved schemes for the provision in the near future, of about 8,000 approved bulls. Needless to say, it is not sufficient merely to provide a bull. Money must be found and the necessary attention given to maintain the animal in optimum condition. This, I am glad

to say has been arranged in all cases. Again, even this by itself is not sufficient. It is vital to the success of these endeavours that adequate records should be kept of the progeny of approved sires, so that a sustained effort may be made to secure, that with due care in subsequent matings the improved strain may be used to the best purpose for raising the general level of the breed. The ultimate success of all our efforts towards breed improvement is entirely dependent upon the maintenance of sufficient and accurate records. Without such records of pedigree and performance, the impulse will wane and such improvement as may already have been obtained will be irretrievably lost. In matters like this, your Society can do work of the utmost value."

"During 1938 and 1939, classes at the All-India Cattle Show have been limited to cattle and buffaloes. That I think has been a wise decision but I am glad to see that your constitution does not prevent your extending your activities at a later date to other kinds of livestock. I have no doubt that, through the Animal Husbandry Commissioner, your Society will be kept in touch with developments in this connection and will be informed when a stage has been reached, where you can be of assistance. There are other animals of importance in India's rural economy, sheep, goats, camels and poultry and I have no doubt that, as your Society develops, you will consider whether it is possible for you to include them also. You will not understand me as suggesting that your Society and your show should immediately undertake these additional activities. I am satisfied that you are not yet in a position to do so. But it is desirable to bear in mind the immense possibilities for good which are latent in a society such as yours. It is not unreasonable to look forward to the day when you will develop into the central organisation in India directing and assisting similar efforts in the various Provinces and States, fostering the highest standards in breeding and management, and setting the seal of your approval upon the careful, conscientious breeder by your selections from the finest animals in the whole country.

Need for Financial Assistance.

"I do not overlook the fact that the forecast I have made involves the material consideration of finance. You will, I think agree that the Central Government have not been ungenerous. They financed the first show with a grant of Rs. 25,000 and have now placed a lumpsum of Rs. 2½ lakhs at your Society's disposal. Admittedly, expenses in the first year or two are likely to be a trifle inflated by what we should ordinarily call non-recurring expenditure. The financial statement, which has been placed before you shows, however that you are not likely to bring your annual charges below about half a lakh. I am, indeed, glad to hear of the generous donations, both of cups and of money which you have received. You must also be grateful to the Punjab Government which has set aside Rs. 8,000 on each occasion and has rendered valuable assistance in personnel and material. Considering the extent of the problem with which you deal and its immediate interest to almost every part of India, Rs. 50,000 a year is not a large sum divided among all the Provinces and States concerned, and I am confident that the appeal for annual contributions which is being made, will meet with a ready and generous response. Given adequate finance and continuance of interest—which, as long as India maintains so vast a cattle population and her peoples are so dependent on its quality, must continue—I foresee unlimited scope and usefulness for your Society. It is my constant conviction that those privileged to minister to the true interests of the cultivator have it in their

power to strengthen the very life centres of this great country. Therefore, I cannot overstate my sense of the value and importance of your mission and I trust that the highest success may reward your labours."

PROBLEM OF MILK SUPPLY

Sir Jagdish Prasad's Speech

Sir Jagdish Prasad, in requesting His Excellency to inaugurate the meeting, emphasised the vital importance of the Society's objectives to Indian agriculture and to the better nutrition of the people. India possessed the largest cattle population in the world — nearly a third of the world's total cattle population. It was notorious, however that a large proportion of it consisted of inefficient and diminutive cattle which imposed a serious strain on the fodder resources of this country in which the supply at certain seasons of the year was so scarce. It had been surmised that instead of the estimated five million breeding bulls in India, we could, with proper management, do with a million. While there was such a large surplus of inefficient bulls, the number of pedigree and approved bulls was only about one per cent of the number required.

Our milch cattle, said Sir Jagdish, could not economically produce more than half the milk which, even with a fairly low standard of nutrition, was necessary for the health of our people. The problem in India was not merely to increase the supply of milk but to do it at prices within the means of the ordinary consumer. This implied improved breeding which again depended on better feeding and better protection against disease. Fodder crops for animals in India formed only about 4 per cent of the cultivated area as compared with 25 per cent in England and Wales and 16 per cent in Egypt. For protecting our cattle from disease, we required one veterinary assistant for 25,000 cattle: at present we had only one for 85,000.

Sir Jagdish Prasad referred to the interest stimulated by the last Cattle Show and said that interest in Indian cattle was not confined to India: there was a steady and increasing high demand for high class Indian cattle in other tropical countries such as South America, the East Indies, the Philippines, Malaya, West Africa and Iraq.

The Hindu, 23—7—39.

ANIMAL HUSBANDRY.

It is no small achievement that the All-India Cattle Show, which was inaugurated only last year, should have so soon led to the setting up of a permanent organisation which will, besides conducting the Show every year, carry on sustained activity aimed at the improving of stock and the realisation of allied objectives. The success is not a little due to the enthusiasm of the Viceroy himself and the generous example he set in initiating the scheme of presenting pedigree bulls; the total number of approved bulls so donated is now estimated at 3,400. The authorities throughout the country have adopted schemes for providing 8,000 more such bulls. And the Cattle

Show itself has, as Lord Linlithgow put it, served to put "Indian cattle on the world cattle map"; Sir Jagdish Prasad has testified to the fact that there is steady and increasing demand for high-class Indian cattle in other tropical countries. India has always been well-known for a variety of valuable breeds. But the difficulty has been that quality cattle were submerged in a vast ocean of C 3 cattle. The mistake made by officialdom in the past was to denounce in season and out of season the improvidence of the peasant in keeping such a large and uneconomic stock which ate up his slender resources. Veneration for animal life, especially the cow, is so ingrained in Indian nature that such denunciations, unsupported by practical attempts to improve quality, generally left the peasant cold. But, while it is true that bad cattle tend to drive out good, it is equally true that sustained attempts to improve quality which show practical results will be more effective than any amount of argument. For your peasant is nothing if not a pragmatist and if he finds that, for little additional expense, he can keep a cow which will give a milk-yield double that of the star eling creature that he has been maintaining merely because it was born in his shed, he is not likely to waste money on breeding more of the latter type, though he may not have the heart to drive the poor animal he already has to the butcher. In this way there may come about a revolution in habits of the people, though slowly. Well-directed propaganda will be of incalculable value in hastening this change.

From this point of view the Cattle Show has justified itself. In Lord Linlithgow's words the two Shows held so far "indicated that they were something that everybody wanted, whether farmer, breeder, dealer or the ordinary public." Already, as the result of these shows, a breed society interested in a particular breed has been formed. Numerous local organisations have been formed for improvement of livestock, the Punjab alone having 719 societies with a membership of some 15,000. While money is necessary for financing such reforms, sustained and intelligent interest is even more necessary. "The ultimate success of all our efforts towards breed improvement", said the Viceroy, "is entirely dependent upon the maintenance of sufficient and accurate records". And he advised the Society that, while it would be wise to limit its immediate activities, it should not lose sight of the ultimate aim of developing "into the central organisation in India, directing and assimilating similar efforts in the various Provinces and States, fostering the highest standards in breeding and management". It is to be hoped that his appeal for generous support in aid of such a worthy cause will meet with widespread response.

The Hindu, Editorial, 24—7—39.

VETERINARIANS AND PUBLIC HEALTH

Plea for Adequate Recognition

Party to First Indian Director

A select gathering of veterinary officers and officials connected with the Department responded to the invitation of Dr. P. Srinivasa Rao to meet Mr. M. R. V. Panikkar, Director of Veterinary Services, Madras, and Rao Sahab M. Anant Narayan Rao, Principal, Madras Veterinary College, last evening, at "Woodlands," Royapettah.

After tea, Dr. Srinivasa Rao welcomed the gathering and said that it was the first time an Indian had been appointed Director of Veterinary Services in Madras and they were all proud that Mr. Panikkar was thus honoured. The speaker wished him a long period of useful service to the profession and to the country. He also congratulated Mr. M. Anant Narayan Rao, who, he said, was well-known for his research work, on his elevation as Principal of the Veterinary College.

The veterinary profession, Dr. Srinivasa Rao continued, had practically no independent existence. Almost all the members of the profession were in Government service. He was the only private practitioner in Madras. Through *The Indian Veterinary Journal* he was editing, he had been endeavouring to deal with the necessity for an expansion of the profession and the various ways in which the services of its members could be utilised by the Government and by local bodies. He had also tried to explain that the veterinary profession had a vast field of work on the preventive side. The decay of Indian villages had started the moment cows and bullocks began to be neglected. To rehabilitate the villages, it was essential that livestock was carefully attended to, fostered and improved. None could do this better than the veterinarian. The profession, therefore, deserved more encouragement than had been given to it at present. It had been a great disappointment to them that in the recently enacted Public Health Act, the veterinarian had not been given his proper place. The inspection of animals and animal products, which was rightly his work, had been denied to him. This was probably due to the fact that members of the profession had an uncanny habit of hiding their light under the bushel. He would, therefore, appeal to the members of the profession to shed their aloofness and come together.

Mr. M. R. V. Panikkar, after thanking Dr. Srinivasa Rao for enabling them to spend a pleasant hour, said that veterinarians had a great part to play in the matter of public health. Milk, for instance, was an essential food and it was the veterinary men who would be able to help the public to secure good milk, free from contagion. This had been recognised all the world over and in England and other Western countries, most of the bodies connected with meat and milk inspection were constituted with a majority of veterinarians. Their importance in any scheme of public health, he hoped, would be recognised in India, too.

Mr. Anant Narayan Rao also endorsed the plea for associating veterinary men with public health schemes.

Dewan Bahadur V. N. Viswanatha Rao, Secretary to Government in the Development Department, speaking next, said that it had been pointed out that in the annals of the Department, an Indian had come to be at the head for the first time. There would possibly come a time when the Department would be entirely manned by Indians. In that connection, he would like to emphasise the "duty" aspect of the change that had now come about more than the "right" aspect of it. "On you", he said, "in future rests not merely the duty to obey, the duty to carry out the policies laid down by another but also the duty of formulating policies and carrying them to successful results and making the Province and India and the rest of the world realise that you have not let down the Department or the future of the Department as a result

of the change. I have not the slightest doubt in my mind that you will rise to the full stature of your being and that you will inaugurate an era in which the scientific knowledge within you is more dynamically utilised for the improvement of livestock as well as for the curative aspect of your profession."

Till a few months ago, Mr. Viswanatha Rao continued, the Livestock Department was under the Department of Agriculture. Now it had been transferred to the Veterinary Department. It was difficult for veterinary doctors suddenly to become cattle-breeders. Doubts had been expressed in certain quarters whether the change-over of the Livestock Department to the Veterinary Department would be an unmixed success. "It is for the Veterinary Department, under its able Indian Director and with its present predominantly Indian element, to disprove all such doubts."

The gathering dispersed after spending sometime in conversation.

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Reviews

Index of Diagnosis (Clinical and Radiological) — By HAMILTON KIRK, M.R.C.V.S., Illustrated. Pp. vi 561. Price 30s. net. Published by Bailliere, Tindal & Cox, London, W. C. 2.

We are very glad to review the above book — "Index of Diagnosis for the Canine and Feline Surgeon."

It has really fulfilled a long felt want of the Canine Surgeon who is often at his wit's end in the presence of many obscure maladies of Canines having objective symptoms which are common to several ailments.

The various objective symptoms important in differential diagnosis have been ably written by the author, an expert in his line. The causes of individual symptoms or abnormalities as distinct from those of specific or classical diseases have been dealt with in great detail. In addition a brief summary of the latest and most appropriate treatment and dietary has been appended. The book is well illustrated with 300 photos. 120 radiographs of various obscure conditions meet fully the requirements of the readers.

Various tables are contained in the book, for example:—

1. Differential Diagnosis of Convulsions
2. " Cough
3. " Chest diseases
4. " Dyspnoea
5. Diagnostic table of foecal Discoloration
6. " Cardiac Diseases
7. " Micturition
8. " Abdominal Distension

70 pages in the end of the book have been devoted to X Ray diagnosis.

The examination of urine, faeces and microscopic appearance of various protozoa, bacteria and ova of helminths have been very well described, with illustrations.

The writer has given the details and readings of Tuberculin test in dogs which we don't find in many other works.

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Under Protozoan organisms, no mention is made of *Babesia gibsoni* and *Hepatozoan canis* — which are rather widely prevalent in tropical countries.

Page 60. The author's observation that "anaphylactic symptoms are much more liable to follow intravenous injections," "anaphylactic attacks are rarely dangerous or severe especially as therapeutic sera are generally injected subcutaneously" are very instructive.

Page 72. Smears of Saliva or preparations of brain or other tissue may be examined for Negribodies, although it is recognised that should these remain undetected, one cannot give a definite negative diagnosis.

Pages 83-86. The Pathological changes in the Blood in the various diseases is very helpful for the practitioner to know and is explained lucidly.

Page 149. Although distemper was not suspected and none of its symptoms were in evidence, the persistent high temperature would be very suggestive. If then, the injection of 10 c.c. of Anti Distemper (Dog) serum succeeded in lowering the temperature, one is almost sure of the diagnosis.

The above quotations illustrate few of the several suggestions the author gives which will be of inestimable value for the rapid diagnosis of obscure maladies.

The canine surgeon and the student are highly indebted to the author for so excellent a book as the one under review. In this, we find no room for taking notes as every line of the book is of absorbing interest and deserves to be gone through over and over again.

We are sincerely of opinion that no student or practitioner can be without this volume and the amount spent on its purchase would be amply repaid by the timely help and suggestion given therein towards treatment of diseases.

The printing, and get up of the book, as usual with the well known publishers (Bailliere, Tindall & Cox), are excellent.

To be of greater use and at the same time be within easy reach of several practitioners with moderate income and also for the students, and thereby ensure a quick sale we would greatly wish that the cost of the book be fixed at 20s. or thereabouts.

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OBITUARY.

Dr. CHARLES E. SALSBERY.

The Jensen-Salsbery Laboratories announce with profound sorrow the death of their Vice-President Dr. Charles E. Salsbery beloved officer and Veterinarian on Friday, the Seventh of July, 1939, Kansas City, Missouri, U.S.A.

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

Mr. S. VEERABAHU PILLAI, G.M.V.C.

We regret very much to record the untimely demise of Mr. S. Veerabahu Pillai, G.M.V.C., who was Veterinary Assistant Surgeon at Salem, on 18th July 1939, under tragic circumstances.

While going from Salem to Tinnevely to attend a social function, he got down from the train at the Kadambur Railway Station platform, where, while attempting to get into the train, he fell down between the platform and the train and sustained injuries on the head and legs. The same evening he was admitted into the Head Quarters Hospital where after five days he succumbed.

He leaves behind him, his wife and brother Captain S. Kanthimathinathan, who is Civil Assistant Surgeon at Virudhunagar. We offer our heartfelt condolences to the members of the bereaved family.

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