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Editor :
P. SRINIVASA RAO, G.M.V.C.,
Veterinary Surgeon, Madras.
Office : 26, WALLAJAH ROAD, MOUNT ROAD, MADRAS (S. INDIA).

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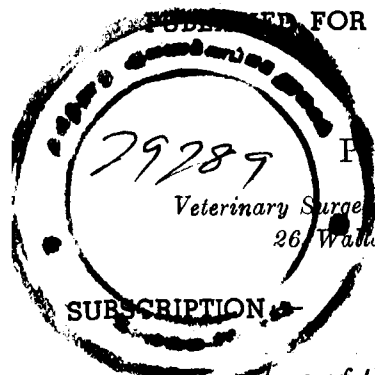
A Bi-monthly Record of Veterinary Medicine and Surgery
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EDITOR:

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

*Veterinary Surgeon, and Proprietor, Dr. Pangal's Veterinary Institute,
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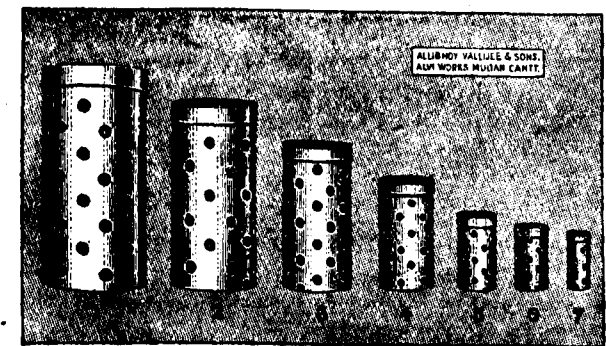
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THE
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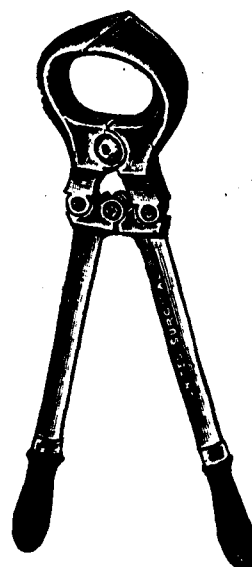
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THE Indian Veterinary Journal

Vol. XVI

JULY 1939

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General Articles

FOWL POX

BY

CHET RAM, L.V.P.,
Punjab Veterinary College, Lahore.

Success in poultry breeding depends among other things on the rapid growth of the bird, high laying power and last but not the least, longevity of the adult. Among the main problems confronting the poultry farmer, that of flock mortality is of first rate importance. A successful poultryman has not only to raise good flock but he must keep them alive and in good and productive condition. The main causes of mortality in poultry flocks are the infectious diseases, among which fowl-pox plays its own part. More than the losses due to mortality, a serious set back to the industry results when laying hens and pullets are attacked. In such cases production is either suspended for sometime or altogether ceased.

In devising ways and means for the effective prevention and control of fowl pox it is essential for the farmer as well as for the practitioner to have some knowledge regarding the etiology, methods of spread, symptoms and treatment of the disease.

Fowl Pox (also known as chicken pox, contagious epithelioma, roup, avian diphtheria and canker) is an infectious

disease of fowls characterised by the formation of catarrhal exudate in the nasal cavity and eyes associated with diphtheritic membranes in the mouth and eruptive lesions on the comb, wattles, external surface of the head and occasionally other unfeathered parts of the body. Any one or all of these manifestations may be present in an affected bird. The disease designated as "roup" is manifested mainly by catarrhal symptoms when eruptive lesions are absent.

Etiology.

The disease is caused by a filtrable virus which is present in the lesions and occasionally in the blood of affected birds. Various workers on the disease have expressed different views regarding the nature of the virus. Some have blamed protozoa to be the cause. Haring and Kofoid (1911) demonstrated certain minute cell inclusion bodies in the lesions of fowl pox. These bodies are found in the epithelial cells of the lesions. Woodruff and Goodpasture (1929) observed that these inclusion bodies when rubbed into a feather follicle, after removing the feather, of a healthy susceptible bird, produced a characteristic lesion of the disease. Kaura and Ganapathy Iyer (1936) have confirmed that the causal agent, which induces the cutaneous form of fowl pox is identical with the one found in the diphtheric form in the mouth. Panisset and Verge (1923) are of opinion that all the three forms of fowl pox are "experimentally interchangeable" and the causal agent is the same in all.

The virus is very resistant to desiccation. Ward and Gallagher (1920) pointed out that the virus in scabs was capable of setting up infection even after exposure to sun-light for a period of two months.

Susceptibility.

The disease is very common in fowls and to a less extent affects turkeys. It has also been reported to affect pheasants, ducks, and certain wild birds. The disease also occurs in pigeons but is caused by a different strain of the virus. Human beings are not susceptible to infection with fowl pox.

Method of Transmission.

Natural infection occurs through a slight lesion of the skin or mucous membrane. Wounds of the mouth produced by eating grit and small wounds on the head are not uncommon. It has been demonstrated that mosquitoes are capable of infecting healthy susceptible fowls after they have fed on infected ones. Matheson, Brunett and Brody (1932) regarding transmission of fowl pox by mosquitoes, observed, that mosquitoes were able to transmit the virus of fowl pox to healthy fowls 27 days after feeding on cutaneous lesions of the diseased birds. The disease also spreads through contamination of soil by discharges from infected fowls.

Experimentally the disease can readily be transmitted to healthy fowls by smearing the discharges from the lesions of diseased birds over the scarified skin or mucous membrane.

Incubation Period.

The incubation period varies from 3 to 12 or even up to 15 days, depending upon the virulence of the infecting agent, method of inoculation and the power of resistance of individual birds. Certain factors such as insanitary condition of houses and inclement weather predispose the birds to disease.

Course and Mortality.

In peracute cases, the course of the disease may be so short that birds are found dead without exhibiting any symptoms sufficient to attract the owner's attention. In acute cases the affected fowls may die after resisting the attack for some days. In subacute and chronic cases the attack is milder and such cases linger for weeks showing typical symptoms, before ending in recovery.

Mortality varies in different outbreaks of the disease. The losses are great in some flocks, while in others the attack is mild with only a few deaths. Death rate largely depends upon the vitality of birds and climatic conditions. The disease occurs more severely during the fall and winter months.

Symptoms.

The clinical manifestations of the disease appear in three forms, viz., (1) oculo-nasal form, (2) a throat form, and (3) eruptive form. One or more of these forms with their accompanying symptoms may be found in the same fowl affected with fowl pox. The disease is usually ushered in by a thick discharge from the nostrils which occludes the nasal passages. Occasionally the earliest manifestation of the disease is seen in the eyes, where a sticky discharge is noticed causing the eyelids stick together. Inflammation of the eyes is usually seen along with the swelling of eyelids.

The affected birds appear dull and depressed from the beginning, and tend to segregate themselves from the rest of the flock. Temperature rises to a few degrees and the body surface, especially the head feels warm when touched. Diarrhoea is also frequently met with.

The eruptive form is characterised by the appearance of small vesicles in the early stage, later becoming wart-like nodules of brown colour, on the comb, wattles and occasionally also on the thinly feathered parts of the body. The nodules coalesce and form large patches.

In the throat form whitish or yellowish pseudo-membranes are developed in the mouth and pharynx.

Weather appears to play some part in the appearance of different forms of the disease. Beaudette (1929) has stated that while the skin form is most commonly met with in autumn and early winter, the mouth lesions are more frequently seen in winter.

Sometimes the birds die quite suddenly without showing any noticeable symptoms. Mild and chronic cases show little or no systemic disturbances and recover after exhibiting symptoms for several weeks.

Morbid Anatomy.

The superficial lesions found on the comb, wattles, head and in some severe cases on the skin of the body are rough wart-like nodules of dark brown colour. Pseudo-membranes of

white to pale yellow colour are found in the mouth, and a thick nasal discharge is usually seen which occludes the nasal cavities. Swelling of eyelids, which are gummed together by a yellowish discharge, is a constant symptom and sometimes inflammation of the eyes is also present.

Differential Diagnosis.

(1) Simple or nasal catarrh: This condition is very commonly met with among fowls and is caused by chill. The birds are in rather poor condition and catarrh of the eyes and nostrils, with the accompanying discharge is frequently seen. In such cases the discharge stops soon.

(2) Canker lesions caused by injuries and foreign bodies are found in the eye or mouth. There is no general systemic disturbance and sometimes foreign bodies are found in the lesions.

Treatment and Prevention.

No medicinal agents are known to be of any value in this disease, although local treatment of nodules which interfere with feeding of birds may give some relief. Such nodule should be removed and the raw surfaces dressed with some suitable antiseptic dressing.

In an outbreak of the disease all infected fowls should be destroyed and the carcasses properly disposed of by burning. Vaccination of the rest of the flock should be resorted to without delay. The pigeon pox virus in its unaltered form is used as vaccine in natural outbreaks of the disease. This is prepared by inoculating the pigeons with pigeon pox virus, and collecting the crusts from the lesions between the ninth and twelfth day. The crusts are dried in a desiccator and ground into powder. The vaccine consists of an one per cent suspension of powdered virus in sterile normal saline solution, to which ten per cent glycerin is added. The site of inoculation is the front of the thigh a little above the tibio-tarsal joint, and the vaccine is applied with a stiff brush after removing some feathers. It is

necessary to keep the vaccinated fowls isolated from the infected ones for a fortnight as the immunity is not produced immediately after vaccination.

Preventive measures are highly important. Isolation of all new purchases before allowing them to run with the home flock for a period of three weeks is important. During this period a thorough examination of the birds should be made daily for any lesions of the disease. Doyle and Minett (1927) carried out experiments on transmission of fowl pox and found that "direct contact" between the affected fowls and healthy susceptible ones was essential for disease dissemination and also the fact, that "disease carriers" did not exist, was proved experimentally. These facts are of very great importance and should be borne in mind while considering the methods for the prevention and control of fowl pox.

Following an outbreak, thorough cleansing and disinfection of the place, utensils etc., daily removal and burning of litter should be carried out. All birds should be removed from the contaminated place, which should be left vacant for a period of six months after dressing it with fresh quick lime.

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INCIDENCE OF HELMINTH PARASITES IN INDIGENOUS DOGS AND JACKALS WITH SPECIAL REFERENCE TO HOOKWORMS

BY

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

The present paper is the outcome of an investigation on the different types of Helminth Parasites in Pariah dogs and jackals. The autopsy of 200 dogs and 10 jackals revealed many interesting findings. 87.5 per cent. of the dogs and 60 per cent. of the jackals were affected with Hookworms. The species found in the dogs were *Ancylostoma caninum* and a few species represented condition suggestive of *Ancylostoma duodenale* viz. reduction in size of the anterior tooth.

The species of Hookworms found in jackals were (1) *Ancylostoma caninum*—a form also found in dogs but the striking feature of these forms is that the paired teeth are graded in size. The second is *Ancylostoma braziliense* with one pair of large teeth and one pair of very small teeth.

The apparent increased incidence of the Ancylostomes in dogs compared with jackals is due to the domesticated condition of the former and the wild state of the latter. This results in the diminished vitality and resisting power of the dog over those of the jackal.

The frequency of various other worms found on autopsy is given in the enclosed tables but mention may be made of one nematode worm *Chlamydonema* sp. recovered from the stomach of a dog which has proved very interesting in that no species of this genus has hitherto been recorded from the dogs. The specific identity of this worm has not yet been determined. The worm was found firmly hooked to the mucous membrane of the stomach and is distinctly pathogenic, causing a marked inflammation of the stomach.

The other nematode worms found in the dogs were *Toxocara canis* (*Belascaris marginata*) and *Spirocerca sanguinolenta* found in the tumours attached to the external walls of the oesophagus, also free in the lumen of the oesophagus and some times in stomach. Young forms of this worm were found in the nodules attached to the walls of the Aorta. The species of tape-worms found in the dogs were *Dipylidium caninum* (*T. cucumarina*), *Taenia pisiformis* (*T. serrata*), *T. Hydatigena* (*T. marginata*), *Echinococcus granulosus* and *Multiceps gaigeri* or *Multiceps* sp.

One species of Trematode worm *Opisthorchis noverca* was found in the bile ducts and gall bladder of dog.

In jackal nematode worm of the genus *Rictularia* was found. The identity of the species could not be determined but probably the species is *R. affinis*.

The tape-worms found in the jackals were *Dipylidium caninum* (*T. cucumarina*) *T. pisiformis* (*T. serrata*) and *T. hydatigena* (*T. marginata*).

The frequency of the parasites in dogs and jackals is given in Tables I and II.

Acknowledgments.

The author is obliged to Mr. F. Ware, C.I.E., F.R.C.V.S., I.V.S., Director, Imperial Veterinary Research Institute, Muktesar, and Mr. G. D. Bhalerao, M.Sc., Helminthologist, I.V.R.I., Muktesar and Dr. G. S. Thapar, Ph.D., Reader of Zoology, Lucknow University for confirming the identification of the parasites. Thanks are also due to Dr. H. S. Dube, D.P.H., Medical Officer of Health, Lucknow Municipality for kindly placing at the disposal of the author Pariah dogs, and to late Capt. S. G. M. Hickey, M.R.C.V.S., I.V.S., Director of Veterinary Services, U.P., Lucknow, for his encouragement to the author in this work.

TABLE I.
Frequency of the different types of Helminth Parasites in Pariah Dogs:
(Out of a total number of 200 dogs examined).

Serial No.	Kind of Worms.	Number of Dogs affected.	Percentage.	Remarks.
1.	<i>Ancylostoma caninum</i>	175	87.5	Few species represented condition suggestive of <i>A. duodenale</i> .
2.	<i>Toxocara canis</i>	13	6.5	
3.	(<i>Belascaris marginata</i>) <i>Spirocerca Sanguinolenta</i>	71	35.5	Found free in the lumen of the oesophagus in 17 dogs, and in stomach in one dog and in tumours in oesophagus in 53 dogs. Found in nodules in walls of Aorta.
4.	Young forms of <i>Spirocerca sanguinolenta</i> .	13	6.5	
5.	<i>Chlamydonema</i> sp.	4	2	Found firmly hooked in the m.m. of the stomach.
6.	<i>Opisthorchis Noverca</i> .	27	13.5	Found in bile ducts and gall-bladder.
7.	Cestode worms. A. <i>Dipylidium caninum</i> . (<i>T. cucumarina</i>) B. <i>Taenia pisiformis</i> . (<i>T. serrata</i>) C. <i>T. hydatigena</i> . (<i>T. marginata</i>) D. <i>Echinococcus granulosus</i> E. <i>Multiceps gaigeri</i>	144	72	

TABLE II.
Frequency of different types of Helminth parasites in Jackals.
(Out of a total number of 10 jackals examined.)

Serial No.	Kinds of worms.	No. of jackals affected.	Percentage.	Remarks.
1.	<i>Ancylostoma caninum</i> .	5	50	Very light infection. (1 to 5 worms found)
2.	<i>Ancylostoma braziliense</i> .	1	10	Very light infection. (only 2 worms found)
3.	<i>Rictularia</i> , sp.	1	10	Very light infection. (only 2 worms found)
4.	Young forms of <i>Spirocerca sanguinolenta</i> .	5	50	Found in the nodules in the walls of the Aorta. Very light infection.
5.	Cestode Worms. A. <i>Dipylidium caninum</i> . (<i>T. cucumarina</i>) B. <i>Taenia pisiformis</i> . (<i>T. serrata</i>) C. <i>T. hydatigena</i> . (<i>T. marginata</i>)	5	50	Very light infection. (1 to 5 worms found)

THE ECONOMIC VALUE AND THE MANAGEMENT OF CATTLE IN ASSAM

BY

B. C. CHATTERJEE, G.B.V.C.,
Johne's Disease Officer, Assam.

The Economic Value of Cattle

Cattle are of great economic importance in any country and they are more so in India, a country which depends entirely on her agriculture. There is nothing to wonder why the people of India look upon cattle with veneration, as they are the key-stone in Indian agriculture. Agriculture is and most probably will continue to be the mainstay of economic prosperity in this land. Mention of cattle is found in the 'Vedas' the oldest of which is said to have been compiled about five thousand years ago. In the 'Rig Veda' cattle have been named as 'Aghnaya' which means "not to be killed". From this we come to know of two things in respect of cattle with the Aryans in ancient India. Firstly, that destruction of cattle, mostly for food purpose, was in practice in the beginning and, secondly, that so soon they realised the immense economic value of cattle and their products, which can be best obtained by utilising the animals otherwise than by destruction for meat, the slaughter of cattle was totally stopped by religious injunction. It is quite probable that when men first learnt to live in society and felt the necessity of improving their condition by the use of animals, which were all wild then, instinctively and not less prudently their attention first fell upon cattle which they gradually domesticated and utilised for their domestic and economic gain, cattle were also extensively used in military operations in the early days. No other animal had ever been nor even now is of so much use to us as the cattle are. In ancient India cattle were looked upon as sacred animals and the slightest injury

The Economic Value and the Management of Cattle in Assam 11

to them was considered to be a great sin, not to speak of killing them. In respect of sin, destruction of cattle was considered to be equal to, if not more than that of killing a man. In the 'Vedas' and also in the Epics of the Hindus there are many common and parallel hymns praying to God for the health and prosperity of men as well as that of cattle. In fact as much attention was paid to the cattle as to the men themselves and no house was considered to be complete without them. No religious function of the Hindus can be performed without milk and its products. From the above facts, there can be no doubt as to what a great importance was attached to the cattle from time immemorial and no doubt it was due to their immense value as economic assets to men.

This regard for cattle and prohibition of their destruction observed by a vast majority of the people in India has a great bearing on the number of its cattle population. India possesses the largest cattle population than any other country in the world. In fact, it possesses about one-third of the world's cattle population. Even in this poor and degenerated condition in which they are now, the total value of India's milk production (about 300 crores of rupees) is roughly equivalent to its total output of rice (Dr. Wright's report).

In Assam the question of economic value of cattle is the same as in other parts of India, nay, it is more so here as agriculture is the main or in fact, the only occupation of the people in the province, which entirely depends on cattle. Tea is also produced here, but it is chiefly grown by the Europeans and the people of the province in general and masses in particular have nothing to do with it.

The economic value of cattle mainly depends on their importance in agriculture and their production of milk. The total area of Assam is 67,334 square miles with a population of 92,47,857 according to the census report of 1931. Its total cattle population including buffaloes is 59,81,621 of which 54,48,670 are cattle and 5,32,951 buffaloes (as ascertained by a

census held in January 1935 by the Department of Commercial Intelligence and Statistics, India.) The details are as follows:—

Cattle.

Male	1. Breeding bulls, i.e., entire males over 3 years and kept or used for breeding.	47,538
	2. Working bullocks including uncastrated males kept for work only.	17,25,619
	3. Bulls or bullocks over 3 years not in use for breeding or work	2,55,548
	4. Young stock. (a) Under a year.	3,82,886
	(b) One to three years of age.	3,97,525
Female	1. Breeding cows over 3 years kept for breeding and milk production.	13,05,188
	2. Cows over 3 years used for work.	2,83,693
	3. Cows over 3 years not used for breeding purpose or work	1,85,080
	4. Young stock. (a) Under a year.	4,38,827
	(b) One to 3 years of age	4,26,766
Total		54,48,670

Buffaloes.

Male	1. Breeding bulls i.e., entire males over 3 years kept and used for breeding.	19,092
	2. Working bullocks including uncastrated males kept for work only	1,63,718
	3. Bulls and bullocks over 3 years not in use for breeding or work	13,114
	4. Young stock (a) Under a year	35,143
	(b) one to three years of age	27,859
Female	1. Breeding cows over 3 years kept for breeding and milk production	1,12,781
	2. Cows over 3 years used for work	70,556
	3. Cows over 3 years not used for breeding purpose or work	15,859
	4. Young stock (a) Under a year	41,352
	(b) one to three years	33,477
Total		5,32,951

From this it would appear that the density of cattle (including buffaloes) and human population in Assam is 137 men and 89 cattle in each square mile. The density of cows, she-buffaloes, and human population according to Dr. Wright's report, is 24 cows, 2 she-buffaloes, and 157 men respectively per square mile. The ratio of cattle to human population in the province is two to every three men and that of cows including she-buffaloes kept for breeding and milk production is about two to every eleven men. The total number of breeding cows and she-buffaloes for milk production in Assam is greater than that of Sind and North-west-frontier province, but lesser than that of any other province in British India. The United Provinces represent the highest number in this respect and Bengal comes next.

Milk.

Food value of milk:—Milk is nature's most nourishing food. It is the only diet with which alone one can maintain health and energy. The best protein is available in milk. In Assam and in fact, in the whole of India people mostly subsist on vegetable diet of a very limited variety of foodstuffs and it is milk alone which is the only available source of first class protein with a considerable supply of mineral constituents and vitamins of the diet. A recent publication of W. R. Aykroid — "The nutritive value of Indian foods and the planning of satisfactory diets" puts the daily requirement of milk for an average man to 15 ounces. It has also been said by the same author that the scale falls short of the ideal as defined by the modern Physiologists and may often be exceeded with advantage. However, this minimum quality required according to Aykroid may be considered as excessive in this province in the sense that economic and other circumstances often prevent attainment of even half the standard or even less. Dr. Wright in his recent report on the "Development of the cattle and dairy industries in India" says that the above scale has been somewhat arbitrarily fixed at a low figure in order to make it a feasible standard under Indian conditions. But if the standard, is to be brought to a level with that of the

progressive European countries the quantity should at least be doubled. In an article "India's food problem" it has been stated that in the Indian dietary fat and first class protein are deficient and the most important task to improve the food is to improve the production of milk. Besides the protein contents of milk its value as a protective food cannot be overlooked. People here live on restricted vegetable diet and consequently there cannot be any doubt as to the serious risk of its deficiency in mineral and vitamin contents. Milk which is so rich in mineral and vitamins, if added to the dietaries, will surely go far towards correcting the deficiency in protective elements and save us from deficiency diseases which are so common now-a-days particularly among the growing children. The result of milk feeding experiments made at Simla (W. H. Churchton. — "The first and second reports of the milk scheme sanctioned by the Simla Municipality" and in Southern India (W. R. Aykroid and B. G. Krishnan — "The effect of skimmed milk supplementing Indian diets") have given conclusive proof of the immense value of milk diet. In the former place 44 children of school going age in one batch and 112 in another were given a supplement of one pound of whole milk per day to their ordinary diet for a period of three months keeping a similar control group receiving no supplement. In the latter place i.e., in Southern India the children were given a supplement of skim-milk powder. At the end of three months feeding children in both the places receiving the milk supplements showed a marked increase in weight and height over those receiving no milk supplements. Moreover, the addition of the supplement of milk reduced the incidents of two pathological conditions of Stomatitis and Phrynoderma which are recognised to be nutritional deficiency diseases and can be prevented by the presence of the protective food in the diet.

With our present artificial mode of living, adulterated food supply, and the general economic depression we are gradually losing health. The case is worse with the mothers who are to perform the double function of maintaining their own system and also nourishing the developing foetus and sucking infants.

In the majority of cases now-a-days mothers cannot sufficiently feed their sucking infants from their breasts. During the first year of our life in infancy naturally we are to undergo the highest degree of development of our body as compared to any other period in our whole existence and hence the necessity of a well balanced and highly nutritious food is of the greatest importance at that time. The best and most suitable food at that age is, of course, the mother's milk which to our ill luck is not adequately available in a majority of cases at present. The next best is the cow's milk which contains all the materials present in the mother's milk. The nutritive contents of human milk are albuminoids (casein) 2.4, fat 3.9, sugar 6.2, and ash .5 per cent and those in cow's milk are albuminoids 3.7, fat 3.9, sugar 4.7, and ash .7 per cent (after Warington). So by reducing the albuminoids and increasing the sugar proportion of cow's milk it can almost be brought to the standard of human milk. However, owing to poverty and insufficient milk production resulting in its high price, this is not also available to many who are compelled to feed the infants with sago, barley, or even ricekanji, which are more as consolation foods to infants than the real. As a result of such feeding the infants become ill developed, rickety, and more exposed to diseases. Imported milk preparations are used by some, who can afford to purchase them, in places where good fresh milk in sufficient quantity is not available, but except in special condition of the infant's health they cannot have any comparison with fresh cow's milk. But for the cows many children would have died in their infancy for want of milk — their best and most suitable food. This is why cows are looked upon as mothers in India and they are worshipped as such by the Hindus. As a matter of fact, we all are nourished by the cows like mothers with their milk throughout our life. The unthrifty condition of the people in general and infants in particular is a problem of vital importance which can only be solved by paying more attention to the cows and thereby increasing the production of milk. If steps are not taken soon we are sure to come to the verge of extinction by becoming unfit in

the field of struggle for existence where survival of the fittest, is the general rule.

Quantity and money value of milk:—Now we may try to find out how much milk we actually get from our cows in the province, what is its monetary value and how much of it we can expect to consume on an average per capita. The total number of breeding cows in the province is 1,305,188 and breeding she-buffaloes 112,781. The average per lactation yield from a cow is 170 pounds and from a buffalo 430 pounds (N. C. Right—“Report on the development of cattle and dairy industries in India”) calculating on this basis the total milk yield from the cows in the province in one lactation (in figures of Dr. Wright's report) is 27,71,000 mds., and from the buffaloes 6,28,000 mds., making a total output of 33,99,000 mds. As in cattle and most of the buffaloes each lactation including the dry period covers about a year, this milk yield can approximately be taken as the total milk yield for one year. If the price of milk is fixed at a very moderate rate of Rs. 5/- per maund, according to the average price at which milk is sold in the province the monetary value of a year's milk yield in the province would come to Rs. 1,69,95,000 or in a round figure one crore and seventy lacs of rupees. Now, the expenditure towards feeding, keeping etc., of the animals are to be taken into consideration to ascertain the net gain from this source alone. In Assam practically there is no monetary expenditure on these heads. As a matter of fact the ownership of cattle here entails only the responsibility of providing the animals with a shed for their stay in the night. The cattle are usually turned out for grazing in the common village grazing lands during day and they are to remain satisfied with whatever they get there. In fact, they are to remain almost on famine food during the major part of the year. This is undoubtedly the most important cause why the cattle in Assam are so weak and emaciated. The average milk yield of a cow in Assam, as she is at present, is about half a seer a day. But it has, however, always been found that this yield can at least be doubled if they are properly fed. It is often seen that a cow, which gives about half a seer of milk per day with a villager who keeps her on the

so-called grazing only, gives about a seer and a half to two seers of it daily, when maintained by a Marwari or an up-country man, who feeds her properly. From the above fact, it is clear that the average milking capacity of the local cows is not actually so low. Even in this wretched condition in which they are now and which is mainly due to our cruel indifference to them, they are giving us so much milk and thereby saving so many lives, particularly infants.

The production of milk cannot be considered without reference to the needs of the population who have to subsist on it. In respect of milk production Assam is the poorest province in the whole of British India, although its cattle population exceeds that of Sind and North-West-Frontier Province. At present the average daily milk consumption per head in Assam is about 2 ounces only (Sir John Megaw's figure). But calculating on the total quantity of milk production and the population in the province it comes to about 1.3 oz. daily per head. This almost agrees with 1.4 oz. as daily production of milk per head in Assam as ascertained by the “Provincial Marketing Surveys”. Whatever it may be, the quantity falls far below the minimum daily requirement of 15 ounces per head. From this it is clear how miserable the province is in respect of its milk production and what a poor diet the people are living on. In the Punjab the daily production of milk per head is 18 ounces with an average daily consumption of 10 ounces per head. In the European countries both the production and consumption of milk are immensely higher than those of India. In New Zealand and Denmark the daily production of milk per head is 244 and 148 ounces with an average daily consumption of 56 and 40 ounces per head respectively. Except in a few places neither fish nor flesh is available in sufficient quantity in the province nor can the people in general use them in the required quantity where they are available owing to their high price which is beyond the buying capacity of the average people. So the chief food of the people here consists of rice and some vegetables which lack miserably in fat and protein which are so essential in maintaining health and energy. The dietary here really

deserves serious consideration. There can be no denying the fact that it is a very difficult problem and cannot be satisfactorily solved without substantial improvement in the economic condition of the people. However, it must be said at the same time that some improvement can at once be expected if a little more attention is paid to the feeding and keeping of existing cows which will then at least double their yield of milk, if not more; and if the present diet is supplemented with some milk it will surely be of considerable value in correcting the deficiency. The question of improvement of cattle by proper breeding etc., will be discussed later, but as the milk supply in the province is alarmingly below the minimum requirement and an immediate increase is urgently needed the above suggestion of proper feeding of the cows only has been made here which will, no doubt give relief at once though to a limited extent. Moreover, improvement of the present deplorable condition of the existing stock, I think, should be the first step towards further improvement by better breeding. No improvement either in the stock or in the milk supply of the province can possibly be expected until and unless the people are educated in proper feeding and keeping of the animals, which can easily be done with considerable economic gain by every one if he has the mind to do it. By improving the condition of the cattle their economic value will be considerably increased and the province will become somewhat better off in respect of its milk supply.

*Value of young stock:—*Besides the production of milk the economic value of cows is not less important in their production of calves. Each cow gives about ten calves in her life time or eight may be taken as the average issue. After making allowance for delayed maturity in some cows, irregular calving or calving at longer intervals than usual in others, and wastage from diseases and other causes, six issues on an average from each cow can safely be expected to come to our full use. It is natural as would also appear from the census report that about half of the issues are male and half female. The total number of breeding cows including

she-buffaloes in the province is 14,17,969; cows usually calve annually and so also most of the buffaloes, so allowing wastage, irregular calving, etc., we can expect to get six calves from each cow in ten years' time which is the average productive period of cows here. Calculating on this basis with the number of breeding cows and she-buffaloes in the province we can safely expect to get 85,07,814 issues, approximately 42,53,907 males and the same number of females in ten years. This number is exclusive of wastage from mortality in calves, etc. The average price of a male issue (including buffaloes) at 3 years of age as bulls or bullocks can at a very moderate estimation be fixed at Rs. 20/- and a female of the same age (both of cattle and buffaloes) as heifers and cows at Rs. 15. So the total value of the issues received in ten years time at their three years of age, as bulls, bullocks, heifers, and cows, would amount to Rs. 14,88,86,745 or Rs. 1,48,88,674 in one year (in a round figure 1½ crores of rupees). The average cost of rearing a calf in Assam for three years can at best be taken at Rs. 5/-. Calves here are almost entirely reared on their mothers' milk whatever they get after milking and on grazing which they get free of any cost in the village grazing grounds. Only in the reserve grazing areas an annual grazing tax at the rate of Re. 1/- per head of cattle above 2 years of age and Rs. 3/- for each buffalo of the same age is levied by the Government. Calves below 2 years of age are allowed free grazing. But stock in such places, maintained mostly by the Nepalees, consists of a comparatively better type of animals, good conditioned, and mostly buffaloes, which fetch much higher price. Hence the average cost of rearing as fixed above does not become affected at all by the grazing tax paid to the Government. Calculated on this the total rearing cost of the calves up to 3 years of their age comes to Rs. 4,25,39,070. Deducting the rearing cost the net monetary gain of the people in the province from young bulls, bullocks, heifers, and cows in ten years is Rs. 10,63,47,675 or Rs. 1,06,34,767 in one year.

(To be continued.)

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P. S. SUNDARAM PILLAI, G.B.V.C.,
who has been appointed as the
Offg. Asst. Director of Veterinary Services,
Berar Divn. C. P.

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Editorial

OUR PROGRESS

With this issue of the INDIAN VETERINARY JOURNAL, we enter into the Sixteenth Year of its life. For the last fifteen years, as the Official Organ of the All-India Veterinary Association, it has been carrying on its allotted work of advancing the interests of the profession in all possible directions. With the progress of time, however, it is being increasingly felt that there is great need for intensifying the work so as to keep the aims and objects of the Association constantly before its members and the public. Its appearance as a quarterly which was decided on at the time of its inception is now felt as being at too long an interval. Consequently, some of the items that are reported became stale. Even the proceedings of the Branch Associations have to be published long after the meetings were held. And, therefore, as a first step in the remedying of this defect, it has been decided to convert the Journal into a bi-monthly from this issue without any additional cost to the subscribers. The subscription will remain the same as before. We are sure that this step would be welcomed by one and all of our subscribers. We are also sure that they would continue to extend to us their help and co-operation in an abundant measure.

This Journal can boast of a good record of clinical articles in the past and we do earnestly request our professional brethren to see that this record is kept up. There is no dearth of clinical materials in this country and even if only a few of them are recorded, our Journal can very soon be converted into a monthly, which is really our ambition and which, we are confident, is the desire of one and all of us. A good number of Veterinary practitioners in this country are very shy of recording their experiences. Their reluctance is very difficult to understand. If only they will stop to think that the present progress of Veterinary Science was solely due to the devoted and selfless work of the pioneers of Veterinary Medicine in patiently recording the experiences of their respective ages, if only our present day practitioners will think about that, then they will readily realise that they have a duty to perform not only to the progress of Science in this country but also to the posterity as well. We therefore appeal to one and all of our members to shake off their apathy and indifference and arouse themselves to actions hereafter at least.

Times are moving very fast and signs of intense activity — we very nearly said feverish activity — are noticed all round. Every profession is organising itself with a view to keep pace with the fast-moving times. Every profession is pulsating with new life and is anxiously exerting itself to contribute its mite to the progress all round. As such it is very essential that the members of the Veterinary Profession also bestir themselves to activity lest they should become a back number. The members must shake off their enertia and rally round the one Association — **the All-India Veterinary Association** — that has been consistently fighting for their cause. A solemn duty devolves on the leaders also and they should see that they whip themselves into activity with the word *Progress* as their one and only watch word.

Clinical Articles

A CASE OF PROLAPSE AND PERFORATION OF BOWELS IN A BULL

BY

L. P. RAMASWAMY PILLAI, G.M.V.C.,

Touring Veterinary Assistant Surgeon, Alangudi, Pudukottah State.

Subject :— Three year old red bull in good condition, belonging to a farmer of Ayippatti village, Pudukottah State.

History :— On the afternoon of 5th May 1938, while the animal was covering a cow, another bull is said to have charged at it and caused a punctured wound in the abdomen. On examination, I found a big wound about four inches long just behind the umbilicus and on the linea alba, through which about ten inches of blood stained intestine and a portion of lacerated liver was protruding. The animal was lying on its side with all its four limbs stretched out and with its head turned towards the abdomen. The respiration was hurried and the pulse rapid. On manipulating the part, I noticed a tear, about 1½ inches long on the intestinal wall through which the dung was passing out into the wound.

Treatment :— As I had no suitable assistant and facility to administer any kind of anaesthetic, I had the animal secured on the left side. The two front legs and the left hind leg was tied together while the right hind leg was held separately by an assistant in a suitable position with a rope. I cleaned the organs inside and outside and the edges of the wound with 2 per cent. Carbolic Lotion, and removed the blood clots and dung with antiseptic wet cotton.

First I sutured the perforation in the intestine by Lambert's sutures with No. 1 Catgut. (The sutures were passed through both the serus and the muscular coats without puncturing the mucous membrane of the intestine). In all I put nine sutures including one beyond the wound at each extremity. When the intestinal wound had been closed I sponged off the closed surface with clean wet cotton and slowly and carefully pushed the bowel into the abdomen. Then I closed the abdominal wound by two layers of interrupted sutures one through the muscular and the peritoneal coat and the other through the skin with No. 3 China Silk.

Lastly I applied four pressure sutures, two on each side of the abdominal wound to give greater support to the lips of the wound. The sutures were then painted with Tr. Iodine and sprinkled with Boro-Iodoform. A bandage round the abdomen completed the operation.

After treatment :— I supplied necessary quantity of Tincture Iodine and advised the owner to apply the medicine twice a day. He was also instructed to starve the animal for two days and then to give rice gruel for five days.

When I saw the animal one week after the treatment there was slight discharge from the wound. I advised the owner to give fomentation to the wound and put the animal on green grass and water. When I visited the animal on the fourth week, the bull had made wonderful progress. It was bright, eating its normal food, grass and hay. The bull is now working as plough animal without any trouble.

Conclusion :— This is a case of remarkable recovery from Prolapse and perforation of bowels, with laceration of liver, in a bull. It only shows that one should not be in a hurry to declare a case as hopeless in spite of its apparent hopelessness.

TREATMENT OF CORNEAL ULCER BY LOCAL APPLICATION OF MILK

BY

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

Veterinary Assistant Surgeon, Nandyal.

Subject :— An Ongole calf, aged five months.

History :— Said to have been injured in the cornea by a Cholam stalk about 12 days before I saw the case.

Examination :— There was a corneal ulcer of the size of a tamarind seed in the lower third of the eye, with thick opacity all over the cornea. There was thick mucopurulent discharge.

Treatment :— Gentle and slow irrigation of the eye with cow's milk about a pound for about five minutes, followed by warm saline irrigation about one pint, and dressing the ulcer with Argyrol solution 10 per cent. This treatment was continued for ten days. On the third day of treatment, decided improvement was noticed. There were signs of healing of the ulcer and clearing of the opacity, which continued steadily on till the tenth day of treatment, when the ulcer was completely healed, without the usual resulting blemish. The opacity was completely cleared, but there was very slight lachrymation, which too stopped with the plain normal Saline irrigation and application of Argyrol Solution 10 per cent. for four days. The patient was discharged, completely cured after 14 days treatment on the whole.

The above line of treatment was based on the findings of Proto and Sandor that application of Vitamin A locally, promotes quick healing of wounds.

I may add that this successful and quick healing may also be due to the good condition and the young age of the animal and a good intake of Vitamin A in its daily ration.

AN OUTBREAK OF EQUINE INFLUENZA IN THE STATE CAVALRY REGIMENTS

BY

H. V. KULKARNI, G.B.V.C., P.G.,
Ag. Chief Veterinary Surgeon, Baroda.

An outbreak of Equine Influenza occurred among the horses of the Baroda Cavalry Regiments in April 1938. The total number of cases infected then were 167 with 4 deaths out of about 1056 horses of all the Units.

Cases irrespective of age and breed were recorded to be suffering from an attack of Influenza which was seen mostly in Catarrhal and 'Pink-eye' form.

The general symptoms shown in majority of the cases were nasal catarrh with varying degree of laryngitis and pharyngitis, slight fever, impaired appetite, dry and husky cough, dull and heavy appearance, injected mucous membrane and frequent pulse.

16 cases were detected with high temperature in the whole lot. Blood smears were examined locally with negative results.

4 cases were noted to be suffering from what is known as "Pink-eye" form showing swollen condition of the eye lids, oedema of the conjunctiva with gluey discharge from the eyes.

Cases showing serious symptoms were being admitted in the Hospital and treated, and the rest were isolated and treated in the Unit lines.

The following prophylactic measures were immediately adopted to check the spread of the disease. Temperature of all the horses were being taken twice a day and particular attention was being paid to the hygienic and dietetic treatment.

- (1) Isolation of the sick horses.
- (2) Complete rest.
- (3) Plenty of cold water.

- (4) Protection from sun and chill.
- (5) Thorough grooming and nursing.
- (6) Seperate attendants, feeding utensils, clothings etc.
- (7) Removal of manure and litter away from the Unit lines.

(8) Disinfection of stalls particularly of mangers, walls, pillars, buckets, feeding utensils etc.

(9) Frequent Inspection of the horses especially at the feeding time.

Non-affected horses were stopped from going to parade and walked in hand for an hour daily in the morning and suitable ration was given to them.

The general line of treatment followed was the administration of Epsom Salt and Pot. Nitrates in drinking water. Inhalation of steam medicated with Terebene, oil of eucalyptus etc., and electuaries containing camphor, belladonna, pot. chlorate, pulv. glyceriza, and honey, were being given twice a day. Hot fomentation and embrocation for massage to the throat was being practised. Cases with high temperature were being treated with a bolus containing Quinine, Amon. carb., Pulv. Nuxvomica, and Camphor. Eye cases were being fomented and bathed with eye lotions.

All the cases were being carefully watched and examined to detect the complications, however four horses suffered from Purpura-Haemorrhagica, out of which two survived and two died in spite of receiving the specific treatment (Lugol's solution intratrachially).

To avoid the relapses and complications, complete rest for six weeks, after recovery, was recommended and in individual cases up to three months.

With prompt prophylactic measures and treatment, the outbreak was checked and controlled within a period of five weeks, with loss of four horses only.

Translation

"ASVAVAIDYAKAM"

BY

S'RĪ MAHASAMANTA JAYADATTA.

Translated from the original Sanskrit with Notes and Commentaries

BY

NRIPENDRA NATH MAJUMDAR

(Late of Bengal Veterinary Service).

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Continued from Vol. XV, No. 4, Page 414.

CHAPTER VIII.

Vandhyopacāra — Treatment for sterility. ¹

- S'l. 1. Now shall I describe (the means of making) virgin or barren mares conceive, as had been said before by sālihotra and other sages.
- S'l. 2. In the beginning a mare is to be cooled² by giving emollient drink of Ghee, and then puncture³ (the veins of) the fore legs. Then the intelligent should give a Nirūha⁴ enema according to sāstras.
- S'l. 3. Then the wise should give an Anuvāsana enema and work (the mare) for seven nights.

1. This includes the treatment of virgin mares before being put to the stallion, so as to be sure of their conception.
2. Cooled, i.e., the system of the animal is to be brought to a cool or normal state conducive to conception by giving oleaginous drenches first. This is called Sneha-pāna. Sneha — oleaginous; pāna — drink. Details will be given in Chapter XIX.
3. That is to be bled a little.
4. Nirūha is an enema with medicinal extracts and Anuvāsana is an enema with oleaginous drugs. These will be described in detail in Chapter XV.

S'ls. 3 & 4. (Take) Vilvacūrna — powdered Bel¹ (Bengal Quince—Aegle Marmelos)—half-a-seer²; honey — one seer. The physician should add to it 8 seers of milk and cook (all) in 2 seers of gingelly-oil. The physician should then give a drench of that after adding the honey to it.

S'l. 5. An injection³ of half-a-seer of ghee is to be given per vaginum. Insert the whole length — 12 fingers' breadth — of the tube (of the enema funnel).

1. Bel — the bark and root are generally used. The fruit also is used in human practice in diarrhoea, dysentery, etc. The oil is to be prepared in this way:—First, place the oil (purified beforehand) over a slow fire, so that it simmers only, then add the powder and milk. Add 32 seers of water. Simmer over a slow fire till the water evaporates. Then remove from fire and add the honey. The mode of preparation of oils and ghees will be given in Chapters XX and XXI. The general rule to find out that the oil has been properly prepared is that the residue left in the oil can easily be rolled into a stick with the fingers and, when thrown into the fire, it will burn without any noise.
2. It is to be noted here that the weight — seer — given here is not the seer of 80 tolas current in the bazaars. The seer used by the Kavirājas is of 64 tolas while the *Asvavaidyaka* seer is of 42½ tolas only. This will be explained in Chapter XI, when we come to it. Roughly, for all ordinary purposes, half of bazaar weight (seer — 80 tolas) may be taken.
3. Such injections are known as Vasti which literally means the bladder. Formerly, bladders of dead animals were used for the purpose. A smooth tube made of wood or bamboo — 12 fingers' breadth long — one end of which was kept closed. At the sides near the closed end, two eye-like openings (Netra) were made and the other end was fixed to one end of the bladder. Liquids to be injected were poured into the bladder through the other end; then the tube was oiled or greased and inserted and the bladder containing the liquid pressed slowly. Hence these injections came to be known as Vasti.

Sl. 6 & 7. (Then) feed the mare with¹ :—Apāmārga (Achyranthes Aspera), Vaca (Acorus Calamus), Bilva (Bel—Aegle Marmelos), Sigrubija (seeds of the common Sajina—Moringa Pterygosperma), Rasona (Garlic—Allium Sativum), Triphala (the three myrobalans—Haritaki, Āmlā and Bahera), Pippali (Piper Longum), Vājigandhā (Withania Somnifera), Sarsapa (Rape seed) in Yāvaka² with salted water. Then a Kṛs'ara³ with powdered Bel⁴ added to it and (thinned by) curd should be given as a drench.

Sl. 8. Prepare a medicated oil⁵ with Māgadhi (Piper Longum), the three myrobalans, Sajina (Moringa Pterygosperma), Achyranthes Aspera (commonly known as Āpāng), Muthā (the small tubers of Cyperus Rotundas), Vaca (Acorus Calamus), Piper Nigrum and rape seed.

Sl. 9. The wise should give this oil as a drench as well as a Vasti (i.e., an injection per vaginum). Then give a barley mash with curd.

1. This is another formula and is possibly meant to be given if the previous one fails or does not act properly. All the ingredients from Apāmārga to Sarsapa, taken together should weigh one pala, i.e., half-a-powa only. They are to be powdered and mixed together and fed with Yāvaka and salted water q.s.
2. Yāvaka means Kulthi. It also means a mash prepared by boiling Barley meal in five times its quantity of water. Salted water is made by dissolving half-a-powa of Rock salt in 2 seers of water. So, this may be given with boiled Kulthi or Barley mash.
3. Kṛs'ara is a "Khichri" made by boiling equal portion of Tila (Sesamum) and rice together.
4. Half-a-powa of powdered Bel is to be taken.
5. This is another formula. The mode of preparation of oils will be given in Chapter XX. Unless specifically mentioned, gingelly-oil is to be used. In this case, the quantity of oil to be taken is 2 seers, the other ingredients, half-a-seer in all. Water for cooking—8 seers. All the water should be completely dried off. The oil should also be purified beforehand by a process which will be given in Chapter XX, when we come to it.

Sl. 10 & 11. A barren mare conceives by these applications. The intelligent should make a decoction of s'ita-pākyau¹ (Kākoli and Kṣirakākoli), Medas, Mahāmedas, ṛddhi, Vṛddhi, the three myrobalans and Vaca in 32 seers of water. Boil it down to

1. The word has been used in its dual form to indicate the two Kakolis—Kākoli and Kṣirakākoli.

- (i) Kākoli is the berry of Calculus indicus (Zizyphus napica). It grows in Nepal and is imported therefrom. This, with seven others, goes to constitute the well-known Aṣṭavarga of Ayurveda. Aṣṭa—eight, and Varga—group or series. The names of the remaining seven are :—Kṣirakākoli, Medas, Mahāmedas, Ṛiddhi, Vṛiddhi, Jivakā, Ṛṣavakā. All these have been prescribed here, so a description of each may advantageously be given here:
- (ii) Kṣirakākoli—the root which looks like s'atamūli are similar to Kākoli in medicinal properties; when cut through, it exudes a white, pleasant smelling juice that looks like milk. This is a rare plant, and the Kavirājas now use s'atamūli—Asparagus Sarmenosus—in its place. A species is found in Ceylon known as Ceylon cow-plant for its milky juice—Gymnema Lactiferum.
- (iii) Medas. The description is :—A creeper which when cut exudes a juice that looks like fat (Medas means fat). This also is rare and has not been properly identified; as such As'vagandhā—Withania Somnifera—is used in its place.
- (iv) Mahāmedas—this also is a creeper plant and is neither properly identified nor available. Anantamūl—Hemidesmus Indicus—is used in its place.
- (v) Ṛiddhi—not available. White Barela—Sida Cordifolia—is used instead.
- (vi) Vṛiddhi—also not available. The substitute is s'atamūli or yellow Barela. The description is, the roots of these two creepers are covered with hairs and so is Barela.
- (vii) Jivakā—Kṣirabidāri or Bhuinkumrā (Batatus Paniculata) is the substitute now used as this has not been identified. Gulanca—Tinospora Cordifolia is also used in its place.
- (viii) Ṛṣavakā—supposed to be Carpopogon Pruriens. Not available. The description is :—An underground bulbous stem (like garlic) resembling Vṛṣas'ṛga—the horn of a bull. Vams'alocana—Bamboo manna is the substitute used.

All the ingredients or their substitutes are to be taken half-a-powa each.

one-fourth of its bulk and after straining through a cloth, 8 seers of ghee should be added to it.

- Sl. 12. (Then take) Valā (Sida Cordifolia), Ativalā (Sida Rhombifolia), Medā or Ksirabidārikā (Bhuinkumrā), Jivakā, R̥savakā, Liquorice, and Syāmālatā (Ichnocarpus Fruitescens) (half-a-powa of each).
- Sl. 13. Make a fine powder (of all these) and throw them gradually into that (*i.e.*, the pan containing the ghee with the extracts) and cook over a slow fire. This Anuvāsana enema is effective in (treating) barren mares.
- Sl. 14. An extract of Rohitaka¹ (Andersonia Rohitaka), milk, honey, gentian, Vaca, and Vilanga (Embelica ribes) are to be thoroughly mixed and then given as a drench.
- Sl. 15. Also make a ball of all these and insert it into the vagina (as a suppository).² Then put her before the stallion, after which bathe her by immersing the whole body in water.
- Sl. 16. Bathe the head also in water. In this way the mare will conceive; there is no doubt about it.

End of Chapter VIII of the Treatise on Equine Science
by s'ri Mahāsāmanta Jayadatta.

CHAPTER IX.

Garbhajñanam.—Knowledge (Signs) of Pregnancy.

- Sl. 1. Now shall I describe the signs of pregnant mares. Gratification³ for taking the seeds into the female organs and a turbidity (or dullness) of the eyes caused thereby.

1. This is another formula. Extract is to be prepared in this way:—Rohitaka — common name Rolha (pronounced Rodha) — half-a-powa and water — 2 seers. Boil down to $\frac{1}{2}$ seer.
2. By doing this the mare is expected to come into heat when it should be put before the horse and, after the sexual act is over, it should be given a bath, or rather a dip into the water.
3. A satisfied look arising from a successful sexual act. This is the first sign after impregnation.

- Sl. 2. A pregnant (mare) drives¹ the stallion away; that is a sign² of pregnancy. Some become quiet and silent, some stupified and some remain unchanged and unruffled, (but all) avoid the stallion.
- Sl. 3. Some pregnant (mares) feel delight³ in scratching or tickling the body. Some, in anger, drive away the stallion by urinating on it.
- Sl. 4. Some mares firmly cover the female organs with their tails. Some prick their ears, possibly in anger, and withdraw themselves from a stallion.
- Sl. 5. The lower portion of the vulva appears to be swollen and the body has a pleasing lustre. The abdomen becomes wide and roomy, but the skin (of that part) becomes tense and compact and the coat glossy.
- Sl. 6. The sides of a pregnant mare also bulge out as the size of the foetus increases; the body becomes fat and speed slow; the radiance of the body ceases (to increase further).
- Sl. 7. (Though) the body remains stout, (the animal) feeds less and there is shortness of breath. The hairs become glossy as the follicles become closer.
- Sl. 8. (The pregnant mare) becomes patient and tolerant, mild and gentle, calm and collected and does not cast a look even on the stallion. During the first and second months (she) gains in flesh and so looks fat and sleek.

1. Or, does not allow the stallion to come near it.
2. In one text the word used is Lakṣanam which means sign; in another it is Rakṣanam which means guarding or protecting, *i.e.*, for guarding the pregnant womb from any injury. The latter also seems to be applicable.
3. That is like to be scratched or tickled.

- Sl. 9. During the third and fourth months the flesh¹ of the quarters increases and, in the fifth and sixth, the hairs on the skin become fine and glossy.
- Sl. 10. In the seventh or eighth month the vulva becomes broad and wide; in the ninth, the legs become swollen and this may extend to the lower part (of the body).
- Sl. 11. The delivery may take place in the tenth, eleventh or the twelfth month. The learned in equine science have thus known the various signs about the pregnancy (of a mare).

End of Chapter IX — Signs of Pregnancy — in the Treatise on Equine Science by Sri Mahāsāmanta Jayadatta.

(To be continued).

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1. In the text the word used is Pakvamāmsa which means cooked meat or mature flesh. This has got no meaning in reference to the context. It is likely, therefore, that it is a copying mistake for Sphimāmsa. In Sanskrit script, *Pa* and *Pha* are nearly alike. Sphimāmsa means flesh of the quarters or buttocks. This seems to be more applicable.

College News

BIHAR VETERINARY COLLEGE, PATNA

Diploma Examination Results

The following students are declared to have passed the Diploma Examination for the session 1938-39 held in March, 1939.

- | | |
|---------------------|--------------------|
| 1. K. N. Dewan. | 12. S. A. Ghaffar. |
| 2. S. C. Prasad. | 13. B. P. Yadava. |
| 3. Amir Ahmad. | 14. D. N. Sahai. |
| 4. M. A. Shakoor. | 15. S. M. Hadis. |
| 5. S. S. Dutt. | 16. A. H. Jafri. |
| 6. P. M. Dekate. | 17. M. S. Tewari. |
| 7. J. Purohita. | 18. Brahmadeo Rai. |
| 8. A. H. Siddiqui. | 19. G. D. Pandey. |
| 9. S. S. H. Naqvi. | 20. J. P. Joshi. |
| 10. Iftikhar Ahmad. | 21. P. N. Verma. |
| 11. S. A. Rizvi. | 22. B. V. D. Rao. |

M. I. MALIK, B.Sc. M.R.C.V.S.,
Principal, Bihar Veterinary College.

King's Birthday Honours

We heartily congratulate the following gentlemen on the distinctions conferred on them on the occasion of the King's Birthday.

- "RAO SAHIB" on Mr. C. Suryanarayana Murti, G.M.V.C., District Veterinary Officer, Madras, on leave.
- "RAO SAHIB" on Chaudhri Baldeo Singh, Superintendent, Civil Veterinary Department, Jullunder Division Ferozepore, Punjab.

Association News

THE MYSORE VETERINARY MEDICAL ASSOCIATION

Proceedings of the Tenth Annual Conference of the Mysore Veterinary Medical Association held at Bangalore on the 27th and 28th of February and 1st March 1939 :—

The following members were present :—

- | | |
|-----------------------------------|------------------------------|
| 1. Mr. K. Krishna Iyengar, | 39. J. P. Wesley, |
| 2. Capt. C. H. B. Martin, | 40. R. D. S. Iyengar, |
| 3. Lt. A. A. Monteiro, | 41. B. Krishna Singh, |
| 4. Subedar T. V. Manicraj, | 42. C. V. Govindiah, |
| 5. Dr. P. M. Narayanaswamy Naidu, | 43. K. Sreenivasa Murthy, |
| Messrs | 44. D. Ramiah Setty, |
| 6. M. R. Chengeri, | 45. K. Malliah, |
| 7. N. Krishna Iyengar, | 46. B. Sheikpir, |
| 8. N. R. Sreenivasa Iyengar, | 47. B. Somasundaram Pillay, |
| 9. S. R. Bapu, | 48. S. B. Vasudeva Rao, |
| 10. K. Ranganatha Rao, | 49. V. Kuppusamy Mudaliar, |
| 11. C. V. Govinda Rao, | 50. Rajagopal Naidu, |
| 12. B. Lakshmipathy, | 51. R. Ramasamy, |
| 13. P. U. Nayar, | 52. P. K. Nair, |
| 14. C. Nanjundiah, | 53. B. R. Seshachar, |
| 15. M. Bhima Rao, | 54. D. C. Mahadeviah, |
| 16. C. Zacharia, | 55. K. S. Gopala Rao, |
| 17. P. Vedabhatt, | 56. H. Bandiah, |
| 18. H. Abdur Rahiman, | 57. N. Krishna Murthy, |
| 19. B. K. Mahamad Ibrahim, | 58. M. Ramaswamy Naidu, |
| 20. Mohamad Davood, | 59. P. K. Shama Rao, |
| 21. M. V. Sreenivasa Rao, | 60. H. B. Kulkarni, |
| 22. G. V. Ramiah, | 61. G. Subramanya Iyer, |
| 23. N. Seshagiri Rao, | 62. C. Narayana Iyengar, |
| 24. B. L. Subramanya, | 63. L. Gurunathan, |
| 25. G. Narayanamurthy, | 64. M. Subba Rao, |
| 26. K. Sreekantiah, | 65. G. Krishne Urs, |
| 27. H. R. Bhashyam, | 66. H. S. Ramaswamy, |
| 28. K. N. Subba Rao, | 67. T. Aswatha Sastry, |
| 29. S. Parthasarathy, | 68. S. G. K. Iyengar, |
| 30. A. V. N. Sarma, | 69. R. M. Purushotham Naidu, |
| 31. N. M. Krishna, | 70. L. Rama Rao, |
| 32. K. S. Krishnappa, | 71. D. N. Vasudeva Mudaliar, |
| 33. Syed Yusuf, | 72. B. Chandrasekhar, |
| 34. H. N. Doraswamy Iyengar, | 73. S. Kalyana Sundaram, |
| 35. M. Sreekantiah, | 74. V. Jagannathan, |
| 36. P. C. Adaikalam, | 75. D. Narasimha Murthy Rao, |
| 37. K. J. Subramanyam, | 76. N. S. Krishna Rao, |
| 38. A. M. Jambulingam, | 77. A. H. Pothenis and |
| | 78. A. Sundara Murthy. |

In addition to the above members, Messrs. Deshpande from Poona, Patel from Bombay, H. E. C. Gunasekar, H. Pereira Vanirgarsingham, and Ponnudurai from Ceylon were also present.

The following Veterinary Inspectors from the Mysore Civil Veterinary Department also took part in the deliberations :—Messrs. K. R. Ramachandra Rao, M. G. Sekharan, C. T. Tirumalai Swamy, and N. V. Doraiswamy.

The Conference was held on the First Day (27th February) in the Daly Memorial Hall, Cenotaph Road, Bangalore, under the Chairmanship of K. V. Anantharaman Esq., Second Member in Council, Government of Mysore. Mr. T. G. Rama Iyer, Director of Agriculture in Mysore, who kindly consented to be present on the opening day, was seated on the dais along with the Chairman of the day's function and the President of the Association.

The deliberations of the day commenced at 12-30 P. M. with invocation by Master Raja Iyengar and his company and was followed by the recital of a Kannada Lavani on Veterinary work in Mysore composed by Mr. Subbarama Sastry, School master, Devanahalli. Mr. K. Krishna Iyengar, Superintendent, Civil Veterinary Department and President of the Association, welcomed the guests (Welcome Address published elsewhere). At the conclusion of his address, the President read the message from Amin-ul-mulk Sir Mirza M. Ismail, Kt., O.B.E., the Dewan of Mysore, wishing the Conference a successful and useful session. Messages of good wishes from Messrs. Garudachar, Advocate and Donor of the Veterinary Hospital, Shimoga and D. S. Laud G.B.V.C., F.Z.S., F.R.H.S., General Secretary, All-India Veterinary Association, Bombay, were also read by the Secretary.

K. V. Anantharaman Esqr., Second Member in Council, Government of Mysore, and the Chairman of the Day's deliberations then declared the Conference open. (Address published elsewhere).

Dr. P. M. Narainswamy Naidu, the honorary Secretary and Treasurer read the report (published elsewhere) of the working of the Association for the period 20th December 1937 to 26th February 1939.

The President of the Association then moved the following Resolution of condolence on the demise of Mr. Pantambekar, Veterinary Inspector, French Rocks and this was carried, all the members standing.

Resolution I

"This Conference resolves to record its deep regret at the sudden and untimely death of Mr. S. M. Pantambekar and to convey to his family and relations its deep sympathy in their bereavement."

The following three important resolutions were then moved :—

Resolution II

Proposed by Dr. P. M. Narainswamy Naidu.

Seconded by Mr. K. Ranganatha Rao.

"This Association recommends to the Government to enforce by Legislative measures annual preventive vaccination of all owned dogs against Rabies, by

the single injection method, in all the Municipalities of the State, as a necessary safe-guard against the transmission of the disease to human beings, in addition to the destruction of stray dogs."

In moving the above Resolution Dr. Naidu said that Rabies is one of the most dreadful diseases of great Public Health importance, humanity has known since the time of Aristotle. As the dog is the principal, if not, the exclusive, disseminator of rabies infection to human beings, any method of controlling the disease effectively in the latter, ought to be directed towards its eradication in these animals. Although Pasteur's classical method and its numerous modifications of immunising dogs against the disease ensure sufficient amount of safety to human beings, these formulae are not infallible. It is not only expensive but requires frequent injections extending over a considerable length of time. Any method of wholesale preventive vaccination in dogs ought to consist of one single injection. In drawing attention to the excellent work done by the Japanese workers towards the development of a Single Injection Method of Protective Vaccination in dogs, Dr. Naidu gave convincing statistical data published by the Ministry of Agriculture in Japan between the years 1925 and 1930, as to the safety and efficacy of the method.

State Regulations in Japan enforce yearly vaccination of all owned dogs with the Single Injection Vaccine before the renewal of ownership licences. Ownerless dogs are destroyed and therefore seldom exist, with the result that rabies has been stamped out among the human beings in that country. It was also pointed out that ever since the publication of these reports by the Ministry of Agriculture in Japan, the Public Health branch of the League of Nations, the Rabies Conference held in Paris, the International Veterinary Conference held in London, and in fact every scientific body that has dealt with this question has passed resolutions recommending to the sanitary authorities all over the world the universal adoption of the Single Injection Method of preventive vaccination in dogs.

With a view to render antirabic campaign in Mysore more efficient, the mover has been working on the problem for the last three years, and has been able to develop, for the first time, in India a vaccine on similar lines to the Japanese method but incorporating in it modification to suit local conditions, and is now convinced, after extensive laboratory and field trials, that it is possible to protect a dog with this vaccine for a period of about one year against Rabies Infection. Dr. Naidu said that the vaccine was now ready with which he hoped that the Government would be able to stamp out Rabies in the State and appealed to the members to recommend to the Government the introduction of a legislative measure enforcing annual vaccination of all owned dogs with this vaccine, and the destruction of all the stray ones.

In seconding the Resolution Mr. K. Ranganatha Rao said that mad dog is the chief carrier of the infection to human beings. In the legislation that has been suggested, the destruction of mad and ownerless dogs is also of primary importance. Now that electricity is available in almost all the Municipalities of the State and cheap electrical lethal chambers can be had for about Rs. 50/-, the destruction of mad and ownerless dogs can be carried out more easily.

The resolution was passed by the House unanimously.

Resolution III

Proposed by Mr. K. J. Subramanyam.

Seconded by Mr. K. N. Subba Rao.

"This Association resolves to bring to the notice of the Government the prevalence of the practice of mulling of cattle and sheep in many of the cities and villages, in spite of the advantages of the Burdizzo method being established by the Department and recommends that Government be pleased to declare such a cruel method as mulling, as an offence under the 'Cruelty to Animals' Act."

In support of this resolution Mr. Subramanyam said that the ancient operation of so-called Mulling in cattle and sheep was practiced throughout the State in times gone by and consisted in the crushing of the cord. This practice is now almost extinct but unfortunately has given place to a more unorthodox operation, and mulling is being done now by crushing the testicle itself. Such a practice it is needless to say, presents the very picture of cruelty, as it invariably inflicts extensive injuries to one of the most sensitive parts of the animal's body, and is attended by cruetising pain and the whole operation presents a very unsightly appearance. The Burdizzo method is in operation for the last fifteen years and its advantages are too obvious to need any elaboration here. By enforcing the universal adoption of the Burdizzo method the cruelty to animals can be prevented. He, therefore, strongly appealed to the members to support his resolution, requesting the Government to pass an act whereby the cruelty done to animals by the prevailing practice of mulling can be prevented.

In seconding the resolution Mr. Subba Rao expressed that it would be a disgrace to the nation if the old objectionable practice of mulling should still continue in the face of an elegant and painless method of castrating animals with the Burdizzo instrument and it is high time that we thought of devising means of putting an end to this old practice of mulling which it was regrettable to observe still continued to be practiced in some parts of the State.

Mr. Ramiah enquired how many cases of mulling, as pictured by the mover, were seen by the members present. In his experience of 10 years he could well say he had hardly seen three cases worthy of any serious attention. If an act of the kind suggested in the resolution was immediately passed he doubted, if it could be possible to cope with the extra work with the existing staff. Generally, castration cases come in the months of September, October and November, and at least five Salustries would be required for each dispensary to cope with this additional work. He, therefore, suggested that it would be better that they thought of getting sufficient men trained for the purpose before passing any legislation.

Mr. Manikaraj said that Village Officers' training classes are organised under the supervision of the Boy Scout Commissioners at different centres and it would be advisable to introduce demonstration on castration in such centres and the village officers can be taught the use of the Burdizzo Castrator by the Area Veterinary Officer. Such a castrator may cost about Rs. 40/- and these training centres may be supplied with a castrator.

Mr. Krishna Murthy informed that for the last few years such a training was given to village officers for a short period of three months during summer and it also included the castration by the Burdizzo method.

As it was thought that there was no reason why the Government should not be approached for passing the necessary legislation in this behalf before getting the men trained for this purpose the resolution was passed unanimously.

Resolution IV

Proposed by Mr. M. R. Chengeri.

Seconded by Mr. K. Sreekantiah.

"This Association resolve to request the Government to permit the construction of a permanent habitation for the use of the Association within the premises of the Government Veterinary Hospital, Bangalore."

In moving the resolution Mr. Chengeri urged the urgent necessity of having its own building for the use of the Association, as it would greatly facilitate the members to conduct scientific and professional meetings and discuss clinical cases that come to the hospital.

In seconding the resolution, Mr. Sreekantiah pointed out the difficulty experienced by the Secretary in conducting the business of the Association in the absence of its own building. He had to do the work of the Association either at the Serum Institute or at his house, and his clerk had to work somewhere else. Further every year one had to go hunting after a suitable building for conducting their annual conference. As there was enough space in the hospital compound, he appealed to the members to support him in requesting the Government to permit them to construct a building for the Association.

After some discussion the resolution was passed.

Mr. T. G. Rama Iyer, the Director of Agriculture, in Mysore then made a few suggestions for the consideration of the officers assembled at the Conference. (Speech given elsewhere). At the conclusion of his remarks Mr. T. G. Rama Iyer proposed a vote of thanks to Mr. K. V. Anantharaman, for kindly accepting the invitation of the Association to preside over the opening day of the Conference. After the distribution of flowers the meeting adjourned for tea.

Second day (28th February 1939)

The Conference met at the Serum Institute at 8 A. M. The members were entertained at various demonstrations, chief of them being "Rasping of uneven molars in the Equines" by Captain C. H. B. Martin, and on poultry diseases and their control by Dr. P. M. N. Naidu. In view of the increasing importance which poultry keeping in the State is assuming and the added responsibility every veterinarian in the state is expected to shoulder on this account, Dr. Naidu with the help of live and diseased specimens lectured on the most common ailments of poultry encountered in the State, their symptoms, diagnosis, preventive, and curative measures. He also demonstrated methods of dosing poultry for worms with the new worm pills prepared by him, and

the technic of vaccinating chicks against fowl pox with the vaccine prepared in his section.

The Conference then adjourned for lunch which was arranged in honour of meeting Lt. A. A. Monteiro, who after a long and illustrious service in the State is to retire from his office, as Live Stock Expert in May. Mr. Srinivasan of the G. R. S. Club was the caterer and deserves to be congratulated on the splendid arrangements he had made for giving the function a festive atmosphere. Another distinguished guest of the day was Mr. C. Narayana Iyengar, who retired lately from State service after a long and useful service in the Civil Veterinary Department, and who still continues to be a member of the Association. After lunch, speeches were made by Messers. M. R. Chengeri, K. Sreekantiah, K. S. Krishnappa and others eulogising the services of the illustrious guests of the day, to which Lt. Monteiro replied.

Re-assembling at 2 p.m. under the Presidentship of Lt. Monteiro, the following papers were read and discussed:—

1. Cutaneous Mammal Tumours in Aged Bitches by Mr. K. Sreekantiah.
2. A Peculiar Case of a Dog Sweating through the Skin by Mr. K. Sreekantiah.
3. Vagaries of Black Quarter Organisms, by Mr. V. S. Kuppuswamy Mudaliar.
4. A Note on Anthrax Control Work in Challakere Area by Mr. A. V. N. Sarma.
5. A Case of Prolapse of the Uterus with Inversion, by Mr. K. S. Gopala Rao.
6. Some Aspects of Poultry Rearing from Chick to a Layer from a Veterinarian's Point of View, by Mr. S. B. Vasudeva Rao.

The papers were very illuminative and evoked discussion of a high order.

The meeting adjourned at 4 P.M. for tea but re-assembled after half an hour to consider the following resolutions.

Resolution V

Moved by Mr. K. Ranganatha Rao.

Seconded by Mr. K. Sreekantiah.

"This Association resolves that the names of Messrs. Sadagoparamanujam, R. M. Patankar, Shellam Iyengar, C. Ranganna, L. R. Sethupathi and Nana-swamy Rao, be removed from the rolls of the Association Membership as these have not responded to the several reminders for their subscription."

Messers Manikraj, S. R. Bapu and Jagannathan spoke against the principle of removing names of defaulters without the arrears of subscriptions being recovered and opined that one more year's time be given to them for payment of their arrears.

The amendment was carried by the majority of members present.

Resolution VI

Proposed by Mr. M. R. Chengeri.

Seconded by Mr. K. Ranganatha Rao.

"This Association resolves to consider the suggestion of Mr. M. R. Chengeri regarding the presentation of a gold medal to Mr. S. D. Achar and to subscribe for portrait of Mr. G. V. Govinda Rao at the Bangalore Veterinary Hospital, in appreciation of the yeomen services rendered to the Veterinary Profession by them".

As the proposer withdrew the original resolution it was not considered.

Resolution VII

Proposed by Mr. K. Ranganatha Rao.

Seconded by Mr. S. R. Bapu.

"That in view of the resolution already passed by the General Body during 1937, the change in the year of the Association from 1st July to 1st January has come into effect, it is resolved to waive the subscription for the period of six months, from all members, the current year's subscription being set for the calendar year 1939 viz. from January to December.

After some discussion this resolution was passed unanimously.

The chairman then summarised his remarks on the several papers presented. After a vote of thanks to the Chair and a group photograph taken in honour of Lt. Monteirb, the Conference dispersed from the second day's meeting.

Third Day (1st March 1939)

The Conference continued on Wednesday the 1st March 1939 and re-assembled at 1 p.m. in the Lecture Hall of the Engineering College, kindly placed at our disposal by the Principal of the College. The following office bearers were elected by the General Body for the year 1939.

1. S. D. Achar Esqr, G.B.V.C., P.G.
2. K. Ranganatha Rao Esqr., G.M.V.C.
3. K. Sreekantiah Esqr. G.B.V.C.
4. M. Subba Rao Esq., G.M.V.C.
5. S. K. Sundaram Esq., G.M.V.C.
6. S. K. Krishnappa Esq., G.M.V.C.

Managing
Committee:

Dr. P. M. Narayanaswamy Naidu,
B.Sc. (Mys.), L.V.P. (Punj.)
D. Sc. (Leipzig), F.F.A.S. (France).

Honorary Secretary
& Treasurer:

The Bye-laws of the Civil Veterinary Departmental Co-operative Society proposed to be started shortly were then considered and it was agreed that a committee consisting of the following with the assistance of a responsible officer of the Co-operative Department, be requested to go into the details of the Bye-laws in the light of the discussions that took place.

Committee for the Departmental Co-Operative Society

Messrs.

1. S. D. Achar.
2. T. V. Manikraj.
3. K. Ranganatha Rao.
4. P. U. Nayar.
5. S. R. Bapu.
6. C. V. Govinda Rao.
7. N. Krishna Murthy.
8. Veda Bhatt.

Messrs.

9. S. K. Sundaram.
10. K. J. Subrahmanyam.
11. T. Aswatha Sastry.
12. K. Sreekantiah.
13. G. Narayana Murthy.
14. V. S. Kuppuswamy Mudaliar.
15. S. Parthasarathy.

In view of the resolution which was passed on the opening day of the Conference requesting the permission of the Government for the erection of a permanent habitation in the vacant grounds of the City Veterinary Hospital at Bangalore, practical suggestions were invited from the members present for realising the amount — nearly Rs. 5,000/- required for the construction of the building, in case the Government should grant the request for the site. Mr. Lakshmipathy who had already prepared a scheme suggested that if the members be requested to pay 40% of their salaries it would enable the major portion of the amount to be realised. This was considered to be too much by the majority of the members present. As no definite suggestion came forth, it was unanimously agreed that a separate committee viz. Association Building Committee, be appointed by the Managing Committee of the Association and be requested to thrash out ways and means of materialising the proposal of having a permanent building for the Association at as early a date as possible.

The meeting then adjourned for tea given by the President of the Association and re-assembled immediately after, as a large number of papers were still remaining to be read and discussed.

The following papers were read and some of them evoked very intelligent discussions.

1. A Severe Outbreak of Canine Distemper among Street Dogs, by Mr. K. S. Krishnappa.
2. Incidence of Distemper among Immunised Dogs, by Mr. K. N. Subba Rao.
3. A Peculiar Case of Rabies in a Buffalo Cow, by Mr. H. N. Doraswamy Iyengar.
4. Menace from a Rabid Dog, by Mr. N. S. Krishna Rao.
5. Worm Infestation in Poultry, by Mr. Y. Shamaqna.
6. Spirochaetosis among Fowls, by Mr. K. N. Subba Rao.
7. A Study of the Blood of the Domestic Fowl, by Mr. A. H. Pothnis.
8. Leucaemia in Poultry, by Mr. K. N. Subba Rao.
9. A Four Year Scheme for the Live Stock Improvement in Mysore, by Mr. D. N. Vasudeva Mudaliar.

10. The Veterinarian in the Live Stock Improvement and Public Health, by Mr. N. Krishna Murthy.
11. An Outbreak of Rinderpest at Thammadikoppa Village, by Mr. A. M. Jambulingam.
12. Gastro-Enteritis among Bovines in Malnad Areas, by Mr. K. N. Subba Rao.
13. "Prevention is Better than Cure" with special reference to an outbreak of Ranikhet Disease among Fowls in the Cattle Breeding Station, Ajjampur, by Mr. P. N. Mukundju.
14. Contagious Pleuropneumonia among Goats, by Mr. Mukundju.

After the concluding remarks by the Chairman, Mr. K. J. Subrahmanyam thanked the Chair and all those that contributed towards the success of the Conference.

The Tenth Annual Conference of the Association terminated after a very successful and useful session.

Secretary's Report for the year 1938-1939

Mr. President and Gentlemen,

I have great pleasure in placing before you the following Report on the working of the Managing Committee of the Mysore Veterinary Medical Association for the period 20th December 1938 to 27th February 1939.

I. Managing Committee

The following were the office bearers of the Association during the period under review.

K. KRISHNIENGAR, ESQ., G.B.V.C.	... President.
K. RANGANATHA RAO, ESQ., G.M.V.C.	... Vice-President.
DR. P. M. NARAINSWAMY NAIDU.	... Secretary & Treasurer.
MESSRS. K. SRI KANTIAH, K. N. SUBBA RAO, S. KALYANASUNDARAM, K. S. KRISHNAPPA, K. J. SUBRAHMANYAM, AND M. SUBBA RAO.	} Members.

2. Membership

There were 91 ordinary members on the roll at the beginning of the year excluding two honorary members and one life member. Seventeen members have been newly enrolled during the year. This including the resignation of six members has brought the number of ordinary membership to 102 and that of Honorary membership to 69 and one life member. It is earnestly hoped that a number of younger colleagues who have not yet joined the Association will enrol themselves as members at a very early date.

3. Committee Meetings

Five Committee Meetings were held during the year with an average attendance of 6'2 for each meeting.

4. Accounts

The following is the statement of receipts and expenditure for the period ending 26th February 1939.

Receipts		Expenditure	
To	Rs. A. P.	By	Rs. A. P.
Opening balance of cash at Government Savings Bank	4 5 8	Conference Expenses	176 11 6
Cash on hand	102 7 6	Meeting Expenses	14 14 3
Subscriptions from members	409 8 0	Remuneration to Typist	7 8 0
		Advance to City Municipality	10 0 0
		Cash at Government Savings Bank Rs.	4 5 8
		Cash at Malleswaram Co-operative Bank Rs.	250-0-0
		Cash on hand	51-13-9
			307 3 5
Grand Total	516 5 2	Grand Total	516 5 2

It is gratifying to note that the subscriptions collected have increased from Rs. 266-0-0 last year to Rs. 409-8-0 this year. This has been in no small measure due to the promptness with which several of the members have paid up their subscriptions.

P. M. NARAINSWAMY NAIDU,
Honorary Secretary & Treasurer.

Welcome Address delivered by K. Krishniengar, President,
Mysore Veterinary Medical Association, at the
Tenth Annual Conference, 1939.

Gentlemen,

I have great pleasure in welcoming you all, to-day, for this, the Tenth Annual Meeting of this Association and am glad to meet many of you, who have come from long distances in spite of personal inconveniences.

To you, Sir, I accord a hearty welcome on behalf of the members of this Association and in doing so, express our gratitude for having so kindly consented to open this Conference, in the midst of your multifarious and onerous duties and to inspire us with hope and encouragement. I also accord a hearty welcome to all the outside members who have very kindly responded to our invitation.

Gentlemen, it is now a decade since the Mysore Veterinary Medical Association was inaugurated, and it is customary for your President to review briefly the achievements of this Association during these years.

Commencing with a membership of 59, excluding one life member and two Honorary members, we have now on the roll as many as 102 ordinary members, one life member and 69 honorary members. We have in our motto 'Vis Unita Fortior', an inspiration for steady and sustained efforts to bring about a body of enthusiastic workers on Veterinary and allied subjects, for efficient service in the economic welfare of our country.

During this period we have impressed upon the public, the importance of animal health, in an agricultural country like Mysore, by our incessant propaganda and sincere work and by carrying Veterinary aid to the very door of the ryot. To review briefly our achievements during the last decade and more, the Veterinary organisation in the State, has by its efficient control measures, achieved phenomenal results. The mortality under several contagious diseases, which was causing enormous losses to the ryot, has been reduced and the number of Veterinary institutions in the State has been almost doubled. Our system of reporting outbreaks of contagious diseases among Live Stock has been systematised; the ryot now seeks Veterinary advice voluntarily and feels greater sense of security. Although the chief preoccupation of the Mysore Veterinary Department has been the control and prevention of contagious diseases of Live Stock, there is an increasing appreciation of the value of Veterinary help in the treatment of common ailments also and a growing demand for opening more dispensaries in the interior parts of the State. From a single Veterinary Hospital at Bangalore in 1907, we have now a net work of institutions numbering 80 in the State. The increasing charitable endowments for providing suitable buildings to locate Veterinary Institutions in many of the large villages and taluk headquarters further testify to the increasing popularity of the good work done by the Department. The number of cases admitted into these several institutions in the State has now almost quadrupled and the number of surgical operations and castrations has reached phenomenal figures.

Having achieved this, we cannot claim to have achieved all. There is for instance, a growing need for the equipment, at least in the premier hospitals of Bangalore and Mysore, of X-ray apparatus. The marvels of modern science, especially in the utility of X-rays for the diagnosis and treatment of many diseases of human beings as well as those of our domestic animals cannot be over emphasized. I hope our animals too will have, in course of time, the advantages of X-ray diagnosis and Therapy.

Our benign Government is very generous and have a scheme of development to provide at least one Veterinary Institution for each taluk, and have passed the necessary legislation, at our instance, for the effective control of contagious diseases.

Our Serum Institute started in 1925, on a small modest scale, has developed during this decade into a first class Biological Institute, supplying all our needs of Sera and Vaccines. The Research Section attached to this Institute is well equipped and manned by capable hands. The several items of research work undertaken by them on the obscure diseases of Live Stock and on the development of new biologicals have already borne ample fruit and have served to make the Department more useful to the State. One of the

resolutions to be discussed by you to-day is evidently the result of outstanding work done in this Section towards the development of a Single Injection Method of protecting the dog against that most dreadful disease of great public health importance, *viz.*, Rabies. In doing this Mysore could well claim to be the first in India to have tackled this very important problem. Similarly extensive investigations are undertaken for the first time in India on diseases affecting poultry, with a view to keep pace with the rapidly developing Poultry Industry in the State, and already useful results are being achieved.

The versatile character of the Department has also ventilated itself in numerous other directions. In the realm of public health we play a distinctive role. It is indisputable how Veterinary science safeguards human food. Meat, milk and eggs have been part of the human diet since primitive times. The regulations under which meats are either passed for food or condemned, rest on established principles of Veterinary science and hygiene. Such a meat and milk inspection is a barrier to the possible spread of infections of animals to human beings.

We firmly believe, and will subscribe to the statement, that one of the greatest undeveloped fields in this country in Veterinary medicine is that of legitimate Veterinary service in public health. We recognise public health as primarily a medical institution and within that institution we contend that there is rather a definite field of service that legitimately belongs to and can be rendered most efficiently by the Veterinary profession. Hardly would there be any controversy regarding the fact that the Veterinarian of to-day is indisputably the best trained and qualified agency to pass judgment on the health of food animals and the wholesomeness of the food products emanating therefrom.

We have been agitating for a more efficient system of meat inspection in the several Municipalities in the State and during recent years a few of the local bodies have appointed Veterinarians for meat inspection. The premier and enlightened Municipalities of Bangalore and Mysore do not seem to have appreciated the importance of efficient food inspectors. My reference in my last year's address for municipalising the milk supply in the large cities is still in a nebulous stage.

During the past decade, the Veterinary organisation in the State has contributed in no small measure towards Live Stock improvement. This interest involves, in particular, the castration of all scrub bulls and the distribution of good breeding bulls with the sole object of establishing herds of better utility.

Gentlemen, Mysore has been famous for the superior breed of cattle, and Live Stock improvement has been well encouraged by Government. Recently, due to the impetus given by His Excellency the Viceroy, improvement of cattle, sheep and poultry is receiving considerable attention. Fortunately, we have, in Mysore, all the Veterinary organisations,—the Civil Veterinary Department, the Animal Husbandry Department, and the Serum Institute—fully manned by qualified Veterinarians only, and with our combined efforts, I look forward with great confidence to rapid achievements in all animal husbandry work. Under instructions from the Director of Agriculture, the Veterinary Officers have already been asked to attend to all animal husbandry work in their areas, for want of sufficient staff

in the Animal Husbandry Department. This appears to me to be the right step. Poultry husbandry has been coming into prominence and is becoming one of the important items in all rural reconstruction work. The progress achieved in this direction has been so rapid during recent years that our knowledge of poultry husbandry and poultry diseases may not be so up to date as that of other domesticated animals. It, therefore, behoves us to augment our knowledge more fully and equip ourselves by taking up post graduate courses in animal husbandry.

The Veterinary supervision of animals at the time of slaughter is also the basis for an extensive pharmaceutical industry. Mankind has come to depend on the glands and other parts of animal bodies for scores of preparations used in the treatment of human ailments. Similarly, manufacture of anti-toxins, sera, bacterine and other biological products utilize methods, many of which have their origin in Veterinary science.

In the realm of power and labour, Veterinary science has contributed materially to the supply and efficiency of stock for farms and industry, likewise to the development of equines for sport and recreation.

Gentlemen, I have detained you long and shall not stand between you and other speakers. You have on your agenda very important resolutions to discuss. I have one thing more to say and that to the members of the Association.

Friends, you will presently hear the Secretary's Report for 1938-39. Although we should have held this meeting two months earlier, it was not possible to do so. You may be glad to note that the collection of arrears of subscriptions shows a fair progress, but when you learn that more than 50 members of the Association are still in arrears and that the total of the arrears aggregate to over Rs. 450/- you will feel very sorry. There are also about 15 Veterinary graduates who have not still become members of the Association. I need not tell you how very important it is for an Association to be assured of a large membership and sound financial position. You have on your agenda this year very important resolutions including the one of having a permanent habitation for the Association and the other of forming a co-operative society. All these require money. I, therefore, request such of the members in arrears to kindly clear up their dues and those of the professional brethren who have kept aloof so far to join the fold.

Gentlemen, I have one word more to say before I conclude. One of our active members is due to retire from service; I mean Lt. Monteiro, our popular Live Stock Expert. I wish him on your behalf and of mine God speed and plenty of health and peace in his retired life. We are sure he will find more time and leisure to take up the work of the Association and will always be available for advice and guidance to the Veterinary Inspectors in all animal husbandry work in the State.

Once again, I cordially welcome you all, Gentlemen, and request you, Sir, to kindly open this Conference.

Speech delivered by K. V. Anantharaman Esquire, Second Member in Council, Government of Mysore, and Chairman of the Tenth Annual Conference, while declaring the Conference Open.

Mr. Rama Iyer and Gentlemen.

I am deeply grateful to Mr. Rama Iyer for kindly inviting me to open, this session of the Mysore Veterinary Medical Association Conference. I accepted his invitation not because I felt competent to address a body of expert Veterinarians, but because I felt that it afforded me an opportunity of coming into contact with the personnel of one of the most highly developed departments in the State.

I have had an opportunity of knowing the work of this department almost from the beginning of my service. Many of you may not know that when the department was first organised in 1907, it was worked under the Revenue Commissioner. Of course, it was not on the same scale as it is now. Since then many dispensaries have been opened and many new activities have been undertaken. From one hospital at Bangalore in 1907 you have now a number of hospitals all over the State. From the report that you have just now heard from the President of your Association, you will have noted that the Civil Veterinary Department in Mysore does not yield to any other department either in the number of its sections or the items of useful activities that are attended to by the department.

In the beginning, the ryot was rather suspicious of knowing anything new. Now wherever you go you will find insistent demand for more dispensaries. Compared with the number of dispensaries with the number of taluks in the State, there are at least two Veterinary Institutions in each taluk. It is all good, and it is a sign of great pride to the department.

You have also increased the number of your activities. Not only you cure diseases but also you are organising measures to prevent diseases. Leaving apart the one Central British Indian organisation which has been supplying serum and vaccine, I think Mysore was the first government which organised big scale production of serum and vaccines. The soundness and wisdom of these sera and vaccines have been fully justified by the effective control that has been brought about over the spread of epidemic diseases in the State.

Great as your achievements in the past have been, your future is bound to be even more important and even more full of results. I am glad to hear from the report of your President as well as from the assurances that have been given to me from the Agricultural Department that special efforts are being made to co-ordinate the various units of the department working towards the improvement of the cattle in the State, not only in their health but also in their quality. More satisfactory and useful results can be achieved by working in co-operation with the villagers. A veterinary doctor in charge of a dispensary should not think that he has done his duty when he has given a few doses of medicine. He should tour about in his jurisdiction whenever he gets an opportunity, get into touch with the big cattle breeders and also make an active effort to interest himself in all matters relating to the livestock and the ryot. You are no doubt aware that organised effort is being made by Government through the Agricultural Department to improve

the breed of cattle, sheep, poultry and other livestock. These are all matters, that need the constructive side of your work. I appeal to you, therefore, to devote greater attention to these.

After all, the success of the department should not be judged merely by the number of cases that you treat in a day, but it should be visible in the improvement of the conditions of agricultural population, and you should help them by giving advice as how to raise better cattle etc. The breeding of cattle, sheep and poultry has been the subsidiary occupation of the ryot population, and they look upon them as not only for peaceful service that they may render to them, but also for the cash income with which they can meet their various obligations during the course of the year. So I would appeal to you, particularly to those people who are in charge of dispensaries, to interest yourself in all these matters.

Since I assumed charge of my office, it has not been possible for me to go round and visit the central institutions, about which I have heard excellent reports.

I should not like to detain you any further and I should like once again to express my appreciation of the good work that has been recorded in the President's report, and I wish you a very useful and interesting session and also all success in your efforts during the coming year.

**Speech delivered by T. G. Rama Iyer Esq., Director of
Agriculture in Mysore.**

Gentlemen,

I need hardly remind you that the entire welfare of the cattle and sheep population in the State, in addition to that of the canines, is entrusted to your kind care, and nothing is more important for you than to cover the entire field of their welfare. Personally, I wish to make the impression that the work of the Veterinarian was both preventive and curative, from the very early days. After the importance of livestock work was recognised, this activity too has come under your sphere of duty. In addition to the castration that has come in as a part of your work towards the improvement of the cattle in the State, there are many other directions in which you can use your influence in the villages towards the welfare of the cattle. You know cattle is an important item of wealth to the Mysore agriculturist. It is for you to play an important part in establishing the proper place for animal husbandry in the scheme of agriculture in the State. A ryot can get as much income from a good calf as he can get from 5 acres of land growing ragi. Therefore, the importance of cattle as a source of wealth to the agriculturist should be fully realised in your daily routine of duties.

As you know, out of the four million cattle in the State many of them are uneconomic. It is for you to give the necessary advice to the ryot to weed out the uneconomic cattle, and make cattle breeding really economic. At present if there are half-a-dozen good cattle in any locality there will be about two dozen manure producing animals. The first suggestion I wish to

make, therefore, is that you should use all your influence in advising the ryot on how to make his cattle really economic.

The second suggestion I wish to make is that you should do some research work in the production of good fodder. As you know, there are many classes of trees, which luckily for us put forth fresh green succulent foliage when everything else in the *gomal* is dry, for example the '*atti*' tree. In addition to this, there is a variety of fodder grass, the cultivation of which has been tried at the Hebbal Farm during the last year. This is entirely rain-fed not even with an ounce of manure, and it grows to a height of about 6 feet. We have now collected about 800 lbs. of seeds of this fodder grass. It is for you to ask us for an ounce of this seed and put it in a garden-pot in front of your hospital. It will not only add to the beauty of your garden, but also the ryot is sure to ask for the seeds of this grass when he sees the same. You should, therefore popularise the cultivation of a variety of grass which is really wonderful.

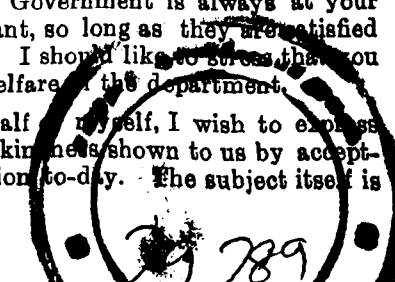
The third suggestion I wish to make is about the castration. You have already made some suggestions about the Burdizzo castrator. I should first request you kindly to give up the despondent attitude of the ryot. You should bear in mind that the resources of the Government are not as elastic as our requirements are. A Burdizzo castrator costs about Rs. 40/-. If you use your influence and appeal to the ryots, I do not think it would be difficult for you to induce them to pay towards the cost of the castrator. When you have been able to raise thousands of rupees as donations for the construction of hospitals at Bangalore and Mysore, I do not think it would be difficult for you to raise Rs. 40/- in a village as charity. As you know, Mysore people are so good and generous, and they are sure to help us.

Further, you must make the man who keeps good breeding bulls interested in the castration. He will be more anxious to see that all other bulls in his village are castrated. You must train him on the use of the castrator. In the beginning, you may yourself do a few castrations on his behalf. You must try this, and, if you succeed, I think the object in your view will be automatically achieved. I appeal to you, therefore, not to look to Government or District Boards, or any other body to pay for the castrator, or to think of training classes. They will automatically come to you if you make a sincere effort.

As regards the constructive side of live-stock work, you know what is being done for the last two years in respect of poultry. From 19 birds in May 1937 we have been able to raise it to 1,900, and that too all proving economic. You should use your influence to make the ryot realise that animal husbandry is as important to him as agriculture is, and you should cover the whole field of livestock.

Our Government is benign. For the welfare of the cattle in the State you may take it that Government is always willing to render you all the possible help. You may also take it that the Government is always at your back, and you can get whatever help you want, so long as they are satisfied that you are doing some good practical work. I should like to stress that you must kindly bear in your minds the future welfare of the department.

On behalf of the department and on behalf myself, I wish to express our grateful thanks to the Chairman, for the kindness shown to us by accepting our invitation to preside over the function to-day. The subject itself is



not a very interesting one, and personally I know that his time is full of engagements. In the midst of all these, he very kindly consented to my request only because he felt that he should encourage the profession. This shows his great kindness and sympathy for our department.

Once again, on behalf of everyone, I take this opportunity to convey our most heart-felt thanks to the Chairman for having so kindly consented to open the Conference in the midst of his multifarious engagements.

Reviews

Manual of Veterinary Bacteriology.— By RAYMOND KELSER, D.V.M., A.M., Ph.D. Third Edition Pages XIII-640. Published by Bailliere, Tindal & Cox, London, W.C. 2. Price 27/6.

Veterinary Bacteriology by Kelsor is a welcome addition to the recent literature on the subject and will supplement the knowledge given in the existing books.

The nomenclature adopted by the American Bacteriological Committee (Bergey's Manual of Determinative Bacteriology) is followed. The older names of Bacteria are included as synonyms.

A detailed treatise dealing with all phases of immunity is a long felt need of the Veterinary student. We agree with the author that it will require an entire volume and we hope that a few more pages will be added to the next edition on Immunology.

In part III the author has explained the subject of Immunology in a very lucid and attractive style and even a student or novice will find no difficulty in grasping the various theories and technique regarding the production of the various Serological products of Veterinary importance. The student will be greatly benefitted by a study of the above part as it will enable him to grasp the fundamentals of Immunology.

Part IV deals with Bacterial Variation. Part V deals with Bacteriology proper. Parts VI and VII deal with Pathogenic Fungi and Protozoa. Part VIII deals with filterable Viruses and Rickettsias.

The special feature of this book is in Chapters IX — XII dealing with

Part IX deals with Serological tests commonly employed in Veterinary Medicine. Part X deals with Clinical Blood Examination (Hematology).

Part XI deals with preparation of Veterinary Biological Products e.g. Bacterins, Vaccines, Aggressins, Sera, Anti-toxins, Tuberculin, Mallein, etc.

Part XII deals with Bacteriological Examination of Milk and Water, (milk Bacteriology, Pasteurisation etc., and examination of water).

One is simply delighted in perusing the book and finds the subject dealt with in a very comprehensive way at the same time in a most charming style. The book will be of immense value for Veterinary Laboratories, Practitioners

and Students, as giving the most up-to-date knowledge on the subject in various aspects.

XIII International Veterinary Congress, Zurich, 1931. We acknowledge with great pleasure the receipt of brochures detailing the many sided activities and masterly treatment of the several scientific problems of the day.

Heff 1. Prof. Dr. Du Toit has given a lucid exposition of the general conditions governing the origin and development of infectious diseases.

It is of interest for many in the field to read that the author has corroborated their own experience that the infectious diseases have been known to disappear spontaneously from a country.

Heff 2. We find Prof. Dr. Nils of the Veterinary College Stockholm, describing the causes of the Infertility in male domestic animals. Testicular hypoplasia, Degenerative changes in the seminal epithelium, Fibrosis testis, Inflammatory testicular changes are reported to be the chief among the causes of the Infertility in the male domestic animals.

Heff 3. Progress in Hæmatology by Prof. Barker. Subcutaneous injection of a 25% solution of magnesium sulphate seems to be the therapeutic find of the last few years. As an adjunct to calcium Borogluconate solution or infusion, and injected at an independent site, it hastens the restoration to normal in the mixed hypocalcæmia magnesia and is often the deciding factor in recovery where the hypomagnesia is pronounced. Injections of 200 cc. may be repeated at short intervals with impunity in all cases of hypomagnesia tetany wherever occurring in the life history of the patient.

Heff 4. Biological action of X Rays. Good results are claimed for this therapy on the several skin diseases as purities, eczema, acne interdigital circumanal adenities, otitis, lymphadenitis, leukemia etc. The use of radiograph to find out the early pregnancy is explained.

Heff 5. The value of tuberculin testing in the control of tuberculosis is lucidly explained.

Heff 6. Infectious diseases — as equine abortus fever, Anjesky's disease etc.

Heff 7. Cattle diseases — Cattle Leukemia, Trichomonas infection and granular vaginitis in the non conceiving cow are detailed.

Heff 8. Parasitic diseases — Bovine nasal granuloma caused *S. nasalis* and its treatment are given. Bursati, Dourine like plagues in equine microfilaria. Periodic ophthalmia of horses are described and also hump sores of cattle caused by the parasite *Stephanofilaria assamensis*.

Heff 9. Tropical diseases.

Heff 10. Lymphomatosis, Blackhead and Psittacosis.

Heff 11. Growth and early maturity.

Heff 12. Influence of climate on the constitution power of resistance and working capacity of domestic animals.

Heff 13. Meat inspection and meat hygiene bacterial and non-bacterial, physical and chemical changes in meat.

Heff 14. Meat inspection and milk hygiene.

The estimate of the value of milk from a hygienic point of view.

The above brochures as seen from the table of contents have given an almost exhaustive idea on the various items of interest to the veterinarian in the present day.

We would recommend the authors to publish the brochures in a single book in English language and we are confident that the readers will greatly benefit by its perusal as the subjects are all of present day interest and discussion and dealt with by experts in each branch.

Administration Report of the Veterinary Section, Cochin State, for 1936-37.

There were only 9 veterinary hospitals and dispensaries including the one camp dispensary as in the previous year. The staff consisted of 10 Veterinary Inspectors, 2 Touring Veterinary Inspectors and 6 Honorary Veterinary inspectors against 10, 9 and 2 respectively in the previous year. The Veterinary Director of Agriculture in the State is the control authority. In the absence of permanent Veterinary Inspectors on leave or otherwise, the Honorary Veterinary Inspectors were in charge of Hospitals as officiating Veterinary Inspectors. The report mentions the irreparable loss in the sad and premature demise of an experienced and able Veterinarian (Mr. C. R. V. Sarma) in the State Service.

Meat inspection and anti-mortem examination of animals were done by the Veterinary Inspectors in 4 towns as against 3 in the previous year. The animals in the Central Farm, Zoo and Central Jail were inspected by the staff. A Veterinary Inspector was deputed to attend the All India Veterinary Conference in Bombay in December 1936 as a delegate from the State. Two Veterinary Inspectors were given P.G. training for 6 weeks in the Mysore Serum Institute.

40,371 cases were treated including 381 inpatients in the hospital as against 30,303 in the previous year. For want of facilities to keep I.P.s in the rented hospital buildings, more inpatients could not be admitted. 1047 castrations and 1732 other surgical operations were done against 2564 operations including castrations of the previous year. The two Touring Veterinary Inspectors treated 2520 cases castrated 534 animals and did other surgical operations on 297 cases against 1429, 328 and 19 in the previous year.

The State was free from Rinderpest. Under cases of "Scheduled Specific Cattle Disease" treated and inoculated, we find 94 against H. S.; 6 against Anthrax, 14184 of F. and M.; 318 of Serum alone method against H. S.; and 1039 under antiseptic inoculations given (?), total being 15641.

Under "Non-scheduled Specific Cattle Diseases", treated we find 31 for John's disease, 19 of Rabies, 197 for Fowl Cholera, 46 Canine distemper, 26 of Fowl pest, 3776 of Variola, 9 of contagious abortion, 3 of tetanus, 36 of nasal granuloma, 1 of Piro-in dog, 8 of foot rot in sheep, 32 of ephemeral fever, 7 of piro-plasmosis in cattle and 1 of actinomycosis, the total being 4192.

70 specimens received from the Veterinary Inspectors were examined under microscope in the Veterinary Hospital at Trichur.

The work turned by the staff during the year was quite satisfactory.

The expenditure of the section was Rs. 31135.

The Veterinary section continued to be a branch of the State Agriculture Depot. The staff requires to be strengthened and given an independent existence to attend to the developments of the Live-Stock Industry in its several aspects, in the State.

Administration Report of the Mysore Serum Institute for the year 1936-37.

This institution, established in 1927-28, continued the manufacture of various Sera and Vaccines on a large scale for controlling contagious diseases of Live-stock and Poultry in the State and the demand for its biologicals from outside the State has not only increased in quantities, but its list of customers (States) is also growing annually especially after the completion of tour of the Superintendent, on deputation visiting many states and provinces in the country. 359000 (316000) unit doses were issued to places outside the state and 356000 (252000) unit doses were issued to the Civil Veterinary Department in the state during the year. The superiority and efficacy of the goat blood virus alone method as a practical and more economical measure against Rinderpest have been proved by experiments at the institute and by its wide use on the field. Tests conducted up to the end of the year under report have shown that the period of immunity by goat blood virus extends up to 33½ months. A scheme of Research into the Poultry disease in the state was provisionally sanctioned for a year and a more detailed 5 years scheme was submitted to the I. C. A. R. at Delhi for its consideration. The Veterinary Research Officer (Dr. P. M. N. Naidu) was engaged in preparing vaccines against Rabies in dogs, Anthrax in sheep and cattle, Strangles in horses and Chicken-pox in poultry on an experimental scale. He was also engaged in the investigation of prophylactic methods against poultry diseases. The details of work done in the Research section are given in an annexure to the report. Serological study on Sandal Spike disease on behalf of the Mysore Forest Department was also being conducted in this section during the year.

The Assistant Superintendent in charge of the Scientific Section, Mysore O.V.D. has been provided with necessary laboratory and other facilities in this institute and he continued his investigation of John's disease among cattle, subsidised by the Imperial Council of Agricultural Research. Urine hormone for the treatment of sterility among cows and slow covering bulls, prepared in this section and supplied to village panchayats and Travancore State was favourably reported upon.

Interesting details are given of experiments in progress for improving the technique of the preparation of several of the products already under issue with a view to increase their efficacy. 2119 smears were examined and 729 post-mortem examinations were conducted.

Construction of quarters on the premises for the Superintendent was sanctioned during the year. This is since completed and the Superintendent is in residence on the estate.

The following Biological products were prepared and issued during the year :—

1. Anti-Rinderpest Serum, 2. Rinderpest Bull virus, 3. Rinderpest Goat adapted (blood) virus, 4. Anti-Hæmorrhagic Septicæmia Serum, 5. Anti-B. Q. Serum, 6. Anti-Anthrax Serum, (Bovine) 7. Anti-Fowl Cholera Serum, 8. H. S. Vaccine, 9. B. Q. Bacterin, 10. B. Q. Filtrate, 11. Sheep-Pox Vaccine and 12. Fowl Cholera Vaccine. To this list may be added the New Biologicals prepared against the following diseases during the year :—

1. Rabies in dogs, 2. Anthrax in Sheep and Goats, 3. Strangles in Horses and 4. Chicken Pox.

Samples of all the different Sera and Vaccines prepared in the Institute and also certain parasites in domestic animals, together with some interesting and instructive photographs, charts, slides, etc. were exhibited not only in Dasara Exhibition at Mysore, as in previous years, but also in the All India Industrial Exhibition at Lucknow from Dec. 1936 to Feb. 1937 and also in the Nagour Cattle Fair, Jodhpur State in Feb. and March, 1937.

The Scientific Staff of the Institute consisted of a Superintendent, a Bacteriological Assistant Veterinary Research Officer and 6 Veterinary Inspectors.

The revenue and expenditure of the Institute, during the year were Rs. 100600 and Rs. 67600 against Rs. 74900 and Rs. 75000 respectively during the previous year resulting in a profit of Rs. 33000 due to a large increase in the supplies made.

The work turned out is satisfactory and creditable indeed to the young institute.

Annual Report of Civil Veterinary Department—Mysore for the Year 1937-38

There were 142 (124) out-breaks of Rinderpest during the year. The sources of infection were again through the movements of cattle by the cattle dealers on the borders, by cattle brought for slaughter and other purposes. 141 (106) out-breaks were attended and 51762 (39815) inoculations were conducted. Mortality from this was 732 (514) in 136 (106) villages with a bovine population of 63029 (45024). The disease became less virulent since previous year judging from the low percentage of mortality among the affected and the restricted spread of infection to surrounding villages.

There were 2541 (1205) out-breaks of B.A. in 2438 (1049) villages with a bovine population of 577888 (194085) and with a mortality of 6193 (2935). 214612 (88095) inoculations were done. The mortality was heavy from this disease. A disease similar to B.Q. prevailed during the year and it was under investigation by the Veterinary Research Officer. It was characterised by the appearance of hot, painful and somewhat less crepitous swellings on any part

of the body, accompanied by Pyrexia and high mortality from 24 hours to 3 days. Post-mortem findings were very much like those in B. Q., but "the disease did not subside after inoculations with vaccines of proved value and animals thus protected did not appear to become immune. Cultural examination of the affected muscles revealed anaerobic organisms of the Vibrio Septique and Cl. Welchii type which were recovered in pure cultures. This proves that clinical cases of B.Q. could be caused by the organisms other than Cl. Chauveii—a consideration of not little importance in the production of biologicals against B.Q. in general."

There were 1562 (1414) out-breaks of Anthrax in 806 (506) villages with a bovine population of 87673 (52137) and with a mortality of 2017 (1572). 23145 (19992) inoculations were done. The new saponin vaccine, prepared by the Veterinary Research Officer in the Mysore Serum Inst. was found promising.

558 (456) out-breaks of H. S. were registered in 351 (316) villages with a bovine population of 61156 (62622) and with a mortality of 828 (624). 32732 (30356) animals were protected.

257 (226) out-breaks of Sheep-Pox were registered in 231 (191) villages with a sheep population of 81140 (68007) and with a mortality of 1951 (5230). 45165 (41115) animals were protected against this.

Investigation into John's disease was continued and 2 fresh brews of Johnin and avian Tuberculin were prepared and standardised by animal tests. Out of 26 animals found positive for John's disease on P.M. examinations, 23 had reacted to Johnin test whereas 19 only had reacted to avian tuberculin. "This result tends to point out the superiority of Johnin over avian tuberculin for allergic tests. Serological tests as an aid to early diagnosis were continued. Attempts to transmit the disease to animals other than cattle have resulted in goats and sheep taking up the infection comparatively more easily than bovines." This finding was proposed to be made use of for further work on this subject. Ol. Chalmogra was continued in the treatment of the affected cattle with encouraging results confirmed even on P.M. examination in some cases.

Parasitic diseases, carcinoma of the nasal sinuses, gastroenteritis of the Malnad cattle, contagious Pleuro-Pneumonia of goats, Heart water in imported Merino-sheep, strangles in horses, rabies in dogs and poultry diseases have all been mentioned in the report to have occurred and received attention during the year, in varying degrees.

Under "other contagious diseases" we find in the report 2316 outbreaks were registered. These were mostly nondescript. We hope there will be less number of such non-descript out-breaks in future reports.

Total mortality from contagious diseases among equines was 38 (14), bovines 15933 (9996) and among sheep and goats 4341 (4082); mortality from 'other causes' among equines was 141 (142), among bovines 56633 (38075) and among sheep and goats 2691 (2710). The figures under contagious and non-contagious diseases among bovines have gone up very high especially under the latter. There is therefore much room for investigation into these 'other causes' with a view to arrest the high mortality.

We find in the report : " Warts, both in dogs and cattle, were successfully treated with injections of Bismuth Salicylate in Olive Oil with Chlorotone. Cattle and Buffaloes suffering from persistent diarrhoea were treated successfully with egg albumin injections. In Mandya, 6 cases of acute traumatic ophthalmia with opacity of cornea were treated with milk injections, with success."

The Veterinary Institutes increased from 72 to 75. 259221 (250227) cases were treated in them. 20478 (19121) surgical operations and 29762 (97571) castrations were done there. The staff visited 14036 (13163) villages, treated 53472 (52845) cases, castrated 38911 (410611) animals and did surgical operations on 1290 (1241) cases while on tour. The systematic tours by the Veterinary Inspectors were of immense use to the ryots for educating them, preventing the epizootics, treating the sick and improving the Live-stock industry. But these useful tours necessitating the absence of the Veterinary Inspectors from the Institutions have been the cause for the unpopularity of the latter and the small attendance in them. It is therefore time for the State to provide separate staff for the treatment side in the institutions and for the preventive side to combat the epizootics and to attend to cattle fairs and other work in the rural parts. The Government have to simply introduce the same system in this department as in the medical. The Superintendent has rightly requested for such a step and we hope the government will soon give effect to his proposal.

22 (6) village panchayat conferences and 101 (78) cattle fairs and shows were attended by the staff. 1587 (738) Hallicar and 169 (97) Amrutamahab Stud Bulls were maintained by the State. There were 387 cross bred rams maintained for Stud purposes in 92 villages. 179 villages maintained foreign stock of poultry for developing this industry, 14 Municipalities engaged the services of the local Veterinary Inspector for the examination of animals for slaughter and for meat inspection. The Government in their review have emphasised the necessity for all the Municipalities in the state including Mysore and Bangalore Cities to make use of the services of the local qualified Veterinary Officers for this important public health work. But in our confirmed view, nothing short of legislation can compel these local bodies to make satisfactory arrangement in this respect. It is therefore hoped that the model State of Mysore will soon bring legislative measure in the interest of public health for this purpose.

The Government were pleased to sanction a graded scale of pay to the compounders but not for the salutries who run the hospitals in the absence of the Veterinary Inspectors on tours. The report reasonably suggests the amalgamation of these two classes of officials, namely, Compounders and Salutries with a scale of pay similar to that of fieldmen in the Agricultural Department.

The staff of the department consisted of a Superintendent, 4 divisional Assistant Superintendents, one Scientific Section Officer and 95 Veterinary Inspectors. Since each of the divisional Assistant Superintendents has got a large area of two districts to look after, he was not able to devote as much attention as is necessary and desirable, to all the items of the work which need his attention. It is therefore necessary to increase the number in this cadre and to put one Assistant Superintendent in charge of each district at an early

date. A proposal to this effect was submitted by the department to the government. We hope it will soon be sanctioned.

We are quite pleased to note that Sir Frederick Hobday, late Principal of the London Veterinary College and Honorary Veterinary Surgeon to His Majesty the King Emperor, visited on 18th January 1938, the Mysore Veterinary Hospital, in the company of Prof. A. H. Reginald Buller, Ph. D., D.Sc., L.L.A., F.R.S., of the Herbarium, Kew, England, formerly of the University of Manitoba, Canada and he recorded the following remarks in the visitors' book of the Institution :—" We are very pleased at all we have seen. Our visit was quite unexpected and we found the yard full of patients who were receiving the best modern Veterinary treatment, being handled most kindly. I have seen a considerable number of Veterinary Hospitals in India and in Europe, but none has given me a better impression than this one."

The total expenditure was Rs. 3,30,803.

Donations from Philanthropists for buildings for Veterinary institutions continued to flow in an increasing measure.

The report is an interesting record of satisfactory work done during the year.

The table adopted in the report are in conformity with those newly introduced in British India. The figures enclosed in the brackets in this Review, relate to previous year.

Errata

We regret very much that, in the last issue of the journal, by some unfortunate mistake, the photo of Mr. P. S. Sundaram Pillai, G.B.V.C., Offg. Assistant Director of Veterinary Services, Berar Division, C.P., appeared in some copies of the Journal, over the name of Lieut. Prem Nath Kak, L.V.P. (Hons.), Senior Veterinary Officer of Jammu & Kashmir State Forces. This mistake has been set right in this issue.

NOTICE TO CORRESPONDENTS.

Mr. M. C. JOSHI.

Declined with thanks.

OBITUARY.

THE LATE SRI K. DURAISWAMY NAIDU, G.M.V.C.

It is with deep regret that we have to record the sad demise on the 3rd June 1939 of Sri K. Duraiswamy Naidu, G.M.V.C., Veterinary Assistant Surgeon, Ongole, Madras. He was due to retire on the 1st of July 1939.

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

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