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The Indian Veterinary

Journal

1926. October

VOL. 3. NO. 2.



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Published Quarterly.

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The Indian Veterinary Journal.

(The Journal of The All-India Veterinary Association).



Editor :

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

Veterinary Surgeon, Madras.

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

MADRAS

THE CURRENT THOUGHT PRESS

1926

NOTICE

The Indian Veterinary Journal.

A quarterly record of Veterinary Medicine and Surgery
devoted to the cause of the Veterinary Profession.

PUBLISHED FOR THE ALL-INDIA VETERINARY ASSOCIATION.

EDITOR :

SRINIVASA RAO, G.M.V.C.,
Veterinary Surgeon and Proprietor, Dr. Pangal's Veterinary Institute,
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Points About THE VETERINARY JOURNAL

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ITS editors are Mr. Frederick Hobday, C. M. G., F. R. C. V. S., F. R. S. E., who is Hon. Veterinary Surgeon to his Majesty the King, Examiner in Surgery to the Royal College of Veterinary Surgeons, Fellow of the Royal Society of Medicine, and was formerly Professor in the Royal Veterinary College, London; and Mr. Gladstone Mayall, M. R. C. V. S., the author of numerous Veterinary and Agricultural textbooks.

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LIEUTENANT FAZUL KARIM, G. P. V. C.,
Veterinary Hospital, Etawah, (U. P.)

The First Veterinary Graduate who got the King's Commission in
January, 1926.

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THE

Indian Veterinary Journal

Vol. 3]

OCTOBER 1926

[No. 2

BIOGRAPHY

LIEUTENANT FAZUL KARIM G. P. V. C.

WE are pleased to inform our readers that for the first time in the history of Military Department in India, an Indian Veterinary Graduate has received the King's Commission and the fortunate individual is Mr. Fazul Karim, Veterinary Assistant Surgeon, Etawah, United Provinces. We most heartily congratulate him on his appointment as Lieutenant in the Indian Territorial Force, a honour which he fully deserves for all his good work in the forces.

Passing out of the Punjab Veterinary College in 1907 with honours, he served in that province for nearly 2 years when he joined the Civil Veterinary Department, United Provinces. Most part of his service has been spent in Etawah. He joined the Territorial Force in 1921 as a private and slowly worked up his way by sheer force of his merit to his present eminence conferred on him in January 1926.

He is extremely popular in Etawah and is a social celebrity of the first order. He is a keen sportsman and has been the winner of many cups and medals in Tennis.

We wish him every success and we earnestly hope that his example will serve as an incentive to others to take to a military career.

farmer; for, lowered vitality means diminution of working capacity and greater susceptibility to various diseases. Therefore the prosperity of the ryot depends upon the welfare of his live stock, and when that is recognised, the necessity and importance of organising a strong Veterinary staff to look after the live stock becomes obvious.

Again, with regard to the general public health, the veterinarian has got an important part to play. Whether it be in solving the milk problem (which is one of the chief causes of the high rate of infant mortality in this country), whether it be in inspecting the meat or whether it be in combating the various diseases of animals including those communicable from animals to man, he is called upon to perform certain functions contributing to the welfare of humanity at large. Thus his importance in relation to agriculture and public health is very great.

Still, inspite of the above facts, it is deplorable that the veterinary science does not obtain its full share of recognition both from the state and the general public. It is essential that veterinary education of the highest standard should be imparted in an entirely agricultural country like India. It is sad to note that no provision has been made for it. In a primarily industrial country like Great Britain, there are nearly half a dozen veterinary institutions fully equipped. It is, therefore, our earnest desire that India must become self-contained in veterinary education as well: this will not only provide the poor man's son with complete opportunity to receive the highest veterinary education in his own native land, but will also enable the scientist to study on the spot the numerous diseases afflicting the live stock of the farm and conduct Research work. Increased facilities for education leads to increased utility, and a veterinarian equipped with up-to-date knowledge about the ailments

of "Our own" live stock will become a valuable asset to the country.

Further, it is our desire that the teaching of veterinary science should be in the hands of the university. This step is absolutely essential because it is the only step conducive to the advancement and progress of science. It is incomprehensible why veterinary science alone should be treated as "a thing apart" when it is considered fit and proper to include Law, Medicine Agriculture etc in university education.

Owing to this absence of recognition, the progress in veterinary science has been very slow indeed and this, in its turn will tell upon the development of agriculture. Affiliation to the university is a sure incentive to progress and it is our fervent hope that there would not be any further delay in this direction.

Lastly, we would strongly urge on the Royal Commission the extreme importance and the absolute necessity of giving the veterinarian his due share in the body-politic and also a position and status in life to court public recognition. At present, the Veterinarian is chiefly employed in combating the various diseases of live stock. This he has been doing patiently and unostentatiously, in spite of many adverse circumstances. Unknown and unrecognised, he has been plodding on in the country carrying relief to the dumb suffering animals and solace to the poor distressed farmer. On this account, it is very often thought that his activities end here. Such an opinion does gross injustice to his potentialities and very rudely limits his sphere of action. Improvement of live stock and inspection of meat and milk supply, should also come under his activities; and, if he is not at present employed in those capacities, it can only be attributed to a lack of appreciation of his usefulness. It is our earnest prayer that the veterinarian should be allowed to shoulder his legitimate share of work in the development of the country.

These are some of the problems affecting the veterinarian of this country and we do hope that the Royal Agricultural Commission would enquire into them during their investigation of the agricultural problems.

THE MADRAS VETERINARY JOURNAL.

We are extremely sorry to note from the last issue of the Madras Veterinary Journal, that it will cease publication with that number. Whatever might be the reasons that have contributed towards that sad calamity—for it is nothing less—we cannot but deplore the demise of a contemporary who had been the pioneer of Veterinary Journalism in the presidency of Madras. The grief is all the more great to us, since our advent into the field of Veterinary Journalism is held responsible for “the falling off in the number of articles received” by that journal.

We do not want to be harsh on a defunct contemporary. But we beg leave to differ from it in the reason held out as the cause of its highly regrettable fall. The field is vast enough for running two English Veterinary Journals in India; but it is our contemporary's indifference to the growing aspirations of the profession in India and its persistent hostile attitude of not caring to chronicle the activities of the profession even when requested to do so and particularly in the then absence of any other suitable English Veterinary Journal in India, that alienated the sympathy of many of its ardent admirers and hastened the day of its fall.

Even in its last breath it does not want to recognise the existence of an association of Veterinary Graduates in the presidency of Madras. Here is what it says in its last editorial. “Unfortunately, with the exception of the Madras College Veterinary Medical Association, no such society has been formed in this presidency.....”. Such purblindness is highly regrettable in journalism and it is no body's fault but its own, if it has led to the only

consequence that is both natural and (some may think) necessary.

For ourselves we are sorry to learn of the end of that journal and we offer our sincere regret to those concerned, over the fall of a contemporary, who, whatever might have been its faults was none the less working in its own way towards advancement of science in this land. We are thankful to the Madras Veterinary journal for so kindly commending our pages to its contributors and we hope the profession in India will attach the necessary sanctity and value to the advice given by that journal in its last issue.

THE BOMBAY CONFERENCE.

The All India Veterinary Conference will be held in Bombay this year during the latter half of the Christmas week. The history of that conference is one of success to success till now. That it is not going to be otherwise in Bombay is a fact over which there can be no two opinions. Knowing as we do our Bombay colleagues, we assure all those who intend attending the conference that a great reception awaits them and the session is bound to be an interesting and useful one.

We appeal to all our professional colleagues, both Indian and European, to attend the session in large numbers and make it a success.

AN APPEAL

TO THE MEMBERS OF THE CIVIL VETERINARY DEPARTMENT, MADRAS.

Sir,

I approach you with the request that you may be pleased to try and send as many professional articles as possible to make the Indian Veterinary Journal even a greater success than what it is. The Government Order necessitating the submission of—professional articles through the head of the department, though unjustifi-

able, need in no way damp the enthusiasm of our contributors. I am authorised to assure them from responsible quarters that the articles will in no way suffer for taking the route prescribed but they would receive every possible and early attention to make them good and responsible articles, worthy of the members of the C. V. D. Madras.

Further the task of the Madras members has become lightened in as much as they have now to support only one professional journal in their midst in place of two as hitherto, however regretful the demise of our late contemporary might be. Absence of articles to the journal might lead to the natural inference that the members of the C. V. D. Madras take very little interest in the profession. Let not such a charge be suggested even remotely is my prayer.

I beseech you therefore to flood my office with your professional articles and thus honour yourself and honour the Indian Veterinary Journal.

MADRAS, } P. SRINIVASA RAO,
Dated, 6th September, '26. } *Editor.*

NOTES

We feel flattered at the communication received from Rao Sahib M. R. Ry. V. P. Subrahmaniya Mudaliar Avergal, G. B. V. C., published under 'communications' in this issue. We are thankful to him for letting us know that our humble attempts to serve the profession in our own light have been appreciated in high quarters.

We have been receiving several letters from the many friends and admirers of Rao Sahib M. R. Ry. V. P. Subrahmaniya Mudaliar Avergal, for spare copies of our journal containing his life sketch. We never anticipated such a contingency though with a little

forethought we could have guessed something in that direction and provided ourselves to meet the demand. But now the demand is so great that we intend reproducing his life-sketch in a booklet form with his photograph and issuing it at its cost price to all those who require.

Our readers would have read with great pleasure in the Newspapers and in the Veterinary Journal (England) for August 1926, that two more ladies have taken the M. R. C. V. S. diploma bringing the aggregate of such lady graduates to four till now. This is a very welcome news indeed. We join our English contemporary in wishing them all success in their new career, on behalf of the entire profession in India.

It is a well-known fact that proprietary preparations of even questionable merit receive for a time the support of at least some of the members of the medical profession. It is true, however, that this practice is fast being discarded as the alert physician of to-day requires much more than the unsupported word of the exploiter of the product. Medical preparations of no real merit may appear to be beneficial because of extensive propaganda and gain the support of the practitioner, but only for a short time as the discriminating doctor soon separates the false from the true.

This is the real test of merit :

When a preparation has been used by a physician for thirty years and each year finds the physician employing the same preparation in increasing quantities and the profession throughout the civilized world accepts it as an approved and an important adjunct to their armamentarium, there can be no doubt as to the merit and efficacy of that particular remedy.

Such a preparation is ANTIPHLOGISTINE, employed daily by thousands of physicians and veterinarians throughout the world, in treating all conditions where there is inflammation and where an antiseptic, hygroscopic, osmotic cataplasma is indicated.

Antiphlogistine is now being brought to the attention of veterinarians of India through the advertising in the veterinar press, and the readers of this publication are urged to give this preparation the thorough trial its reputation merits. The product is now available in most of the leading pharmacies and a gratuitous supply will be sent to any physician who will mail his request to the Denver Chemical Manufacturing Co., 20 Grand Street, New York City, or to their agent, Muller & Phipps (India) Ltd., 21. Old Court House Street, Calcutta.

"Reuter has cabled to India that the Secretary of State for India has sanctioned the opening of a Veterinary College at Patna. This is good news indeed. Unless provision is made side by side for the absorption of the graduates of all these colleges into Govt. service the problem of unemployment threatens to grow more acute.

GENERAL ARTICLES

DISEASES COMMUNICABLE TO MAN FROM ANIMALS.

BY RAI SAHIB DEBAKAR DE, P. V. S.,
*Assistant Principal and Professor of Veterinary Science
Bengal Veterinary College.*

ACTINOMYCOSIS.

It is known as "Wooden tongue" when it affects the tongue, "Lumpy jaw" when actinomycotic lesions appear on the upper and lower jaws and "Wens and Clyers", when the lymphatic glands are affected.

It is a conditional inoculative infective disease, that is to say, the disease is only produced when the germ, responsible for the disease, enters the body in its vegetating state after the fungus has grown upon various cereals and grasses, such as Barley, Oats, Spear grass, Dhuh grass and other grasses. The awns of barley and other penetrating grasses act as inoculators and the germ grown upon various food stuffs enters the submucous tissue of the tongue and mouth when browsing upon these grasses or eating these infected grains. During dentition the gum also affords a ready entrance to the vegetating microbe. Inoculation and feeding experiments, conducted in our laboratory, with actinomycotic growths failed to reproduce the disease in susceptible animals.

Etiology:—Actinomycosis is caused by a fungus known as "Cladothrix" or "Streptothrix actinomyces," commonly known as "Ray fungus," owing to its star-like growths. It was discovered and named by Dr. Harz, a botanist, although previous to his discovery much light was thrown upon the disease by Rivolta, Perroncito, Bollinger, Lebert and Robin.

Von Langenbuck of Kiel found the disease in a human subject, suffering from vertebral caries in 1845 A. D.

Israel demonstrated the disease in man and isolated the fungus in the diseased tissues, in 1878. Since then it has been proved, times without number, by various scientists that actinomycosis of man and animals are one and the same thing.

There are present in actinomycotic growths peculiar sulphur yellow granules. When these granules are crushed between 2 glass slides and seen through a low power microscope, branched fungi are found to be made up of growths with 3 different parts, viz,

(a) Central or mycelial part of coccoid bodies.

(b) Radiating thread like bodies (filaments) arise from the central coccoid portion and these threads are terminated by

(c) Club-shaped bodies. Hence the intact fungus under the microscope will be found to consist of a number of club-shaped bodies arranged in the form of a 'ray' with the thick end of the club outwards:—

It affects most animals including man, but the chief victims are cattle, pigs, horses and man. The fine thread-like structures generally break during the preparation of the smears. Therefore one is apt to see only coccoid bodies, bacillary structures and ovoid spore-like terminal portions of the fungus. The average size of the organism varies from 30 to 40 microns but sometimes 200 microns in diameter. It stains by all aniline dyes but best in carbol fuchsin and picric acid solution.

Incubation. The period of incubation is not known. The natural habitat of this fungus is different seeds and grasses and part of its life is spent on them. It is impossible therefore to ascertain the period of incubation. Actinomycosis is not a directly infective disease. Inoculation experiments have failed in my hands.

Symptoms. The symptoms vary considerably according to the structures affected. When the tongue is affected, the disease starts on the upper surface, midway between the dorsum and the tip. The first symptoms which attract attention are dribbling of saliva, difficulty in mastication and a peculiar offensive breath. On examination of the mouth, the tongue is found to be enlarged, hardened and covered with irregular shaped nodules and wartlike growths of yellowish colour, varying in size from a pea to a pigeon's egg or even larger.

As the disease advances the tongue hangs out of the mouth, it is corrugated and covered with wartlike tumours, the entire organ feels like a piece of wood, hence comes the name "Wooden tongue". These tumours, sometimes suppurate owing to the secondary infection by pus germs; some of these may burst issuing thick,

inspissated grumous gritty pus, which contains some sulphur-yellow granules. When the granules are crushed between and spread upon glass slides, dried and stained with "Carbol Fuchsin" or "Picric acid" and examined under an ordinary microscope of about 200 times magnification the characteristic "*Ray fungus*" (*Actinomyces*) is observed either intact or broken in the shapes of:—

Cocci; Filaments; and Clubs.

Hence the latter may be mistaken for cocci, bacilli and spores.

As actinomycosis is not a rapidly fatal disease, it takes a long time to kill the patient. Owing to tremendous pain in the tongue the animal finds it difficult to eat and gradually dies of starvation.

When the jaws are affected the lower jaw is the principal seat of the disease and hence the name "Lumpy Jaw". It begins as an inflammatory swelling on the side of the face, opposite the molars, otitis and periostitis are set up, the pathological process extends to the sockets of the molars, they become spongy, enlarged and ulcerated, the teeth become loose and fall out, the suffering poor animal wastes away and eventually dies from exhaustion. The tumours become cold and do not suppurate, but in others, they do suppurate and burst by many points yielding the characteristic pus as described before. Caseous or calcareous degeneration of the tumours may also be observed.

Another seat of the disease is the skin and the subcutaneous tissue of the head, neck and throat extending to the pharynx. In the pharynx they appear as polypi. When in this situation, the disease has been termed "Clyers".

Actinomycotic lesions may appear in any organ or structure of the body, but the disease is for the most part a local one. It may, however, become generalised through the circulation in some cases.

In the lungs, the disease may produce "Pseudo

Tubercular" (false tubercular) lesions which must not be confused with genuine tuberculosis.

In the mammary glands also, actinomycotic lesions may be mistaken for "Tuberculosis," but a microscopic examination of a portion of the growth will soon settle the question as also the "Tuberculin test."

The Infection and Symptoms in Man. The germ in its vegetating condition, gains entrance, into the system of man, with the food. As in animals, barley, oats and some other seeds and vegetables act as carriers.

The mouth is the chief organ attacked. Next to mouth the jaws (upper and lower) are affected. Then come the intestines, as primary or secondary affection, on or about the cæcum and appendix. Actinomycotic appendicitis and peritonitis have been observed in men. Miliary actinomycosis of the lungs resembling tubercular lesions and chronic bronchitis have also been noticed in men. James Israel in 1878, found actinomyces in the lungs. The symptoms in men closely resemble those of tuberculosis when the lungs are attacked. These are irregular fever, cough with expectoration which contains non-acid fast actinomyces; fetid bronchitis and death from septic symptoms in 10 months or more. Typhoid symptoms are seen when the intestines are affected either primarily or secondarily.

In cutaneous actinomycosis the disease simulates tuberculosis of the skin and persists for some years. It generally affects the skin of the head and neck. Tumours form upon the congested skin, these suppurate and burst by many points, yield grumous gritty pus and leave open sores which have no tendency to heal. Actinomycotic growths have been observed in brain on post mortem examination.

Therapeutics :—(in man). The treatment is both local and general. The local treatment consists of excision of the growths, antiseptic compresses, antiseptic irrigations, removal of sloughs and proper free drainage in depending orifices.

The medicinal internal treatment consists of administration of Potassium Iodide in pretty big doses, mix, from 40 to 60 grains daily with Spt. Ammon Aromat, until the symptoms improve. Auto vaccines may be tried with benefit.

Morbid Anatomy in man.

There is hypertrophy of surrounding connective tissue and consequent atrophy of the muscles of the tongue.

In the jaws we find osteitis and periostitis followed by an osteomata and subsequently absorption and ulceration of the bone.

In the lymph glands :—The lymph glands of the subparotid, sub-maxillary, pharynx and larynx are usually involved.

In the skin and subcutaneous tissue :—Pedunculated or nonpedunculated soft nodules varying from areca nuts, pigeon's eggs to those of brinjals, covered with brown crust found on the skin and subcutis of the head and neck.

In the lungs :—From pin points to pin heads or peas yellowish nodules with calcareous centres are found.

In the mammary glands :—Mammary lesions are more commonly found in swine. It sets up chronic indurating mammitis, occasionally suppurative mammitis, the lesions are common with the other lymph glands affection.

A new actinomycotic growth, under a microscope, presents in the centre, rosette of the Ray fungus surrounded by giant cells and these are again encircled by rows of epithelioid and spindle-shaped connective tissue corpuscles.

Differential diagnosis :—May be confused with (a) Tuberculosis, (b) Actinobacillosis.

(a) The specific organism present in the lesions of tuberculosis is T. B. and is quite different from actino-

myces, besides, Tuberculin test differentiates Tuberculosis from Actinomycosis.

(b) The actinobacillosis is caused by a bacillus resembling organism of fowl cholera and is a gram negative microbe, whereas, actinomycosis is caused by 'actinomyces' which has a very characteristic appearance.

Therapeutics (in animals): The specific and curative treatment of Actinomycosis is Iodide of Potassium which should be given in doses of 1 to 2 drams dissolved in water and given as drench once a day and be continued for a week or 10 days.

As soon as symptoms of iodism, such as scurvy skin, moist eyes, loss of appetite and nasal catarrh are seen, the medicine should be stopped for a few days and afterwards resumed in the same dose.

Three to six weeks' treatment is necessary for a cure. If, however, the treatment proves of no benefit after a proper course of treatment, it should be discarded and presumed that the particular patient under treatment is peculiarly insusceptible to the drug.

This drug should not be adopted to milch cows and animals in advanced pregnancy.

No regulation is necessary as it is not a directly communicable disease.

There is no evidence to prove that human beings contract this disease from infected milk, flesh or glands.

P. M. Appearances (in Animals):—

These vary according to the organs affected. In the tongue it appears as chronic indurating glossitis with formation of round or oval over-growths terminating in suppuration or calcareous degeneration; when the tumour is cut by knife, it is found to be very hard and gritty.

"MEASLY MEAT."

BY V. P. GOKHALE, G. B. V. C.

(Medical Department, Perak, Federated Malay States).

In response to a request by Mr. Muhammed Rahimuddin, G. M. V. C., in his article on "Measly Meat" published in the Indian Veterinary Journal, Volume III No. I, 1926, Page 52, I am contributing the following, which I am able to do owing to my five years' experience in meat inspection in the F. M. S. abattoirs.

Cysticercus bovis:—The easiest, most reliable, and important place to find these is the Masseter (cheek) muscles which must be incised in several places. One is surprised to find after careful examination of these muscles, sometimes as few as two or three cysts although absent in other musculature. I am of opinion that such a slightly infected carcass need not be condemned provided the cysts are removed from the muscles. I believe in Germany a limit of ten cysts in a carcass is allowed but the cysts are to be removed before passing such carcass for market. Cases of *Cysticercus bovis* are not of common occurrence in this country so far. Only occasionally cases are met with and they are not generally so badly infested with cysts.

Cysticercus cellulosæ:—The largest number of animals slaughtered for human food in this country consist of pigs owing to Chinese population whose principal meat diet is pork. However, only a very small number of pigs are found diseased with cyst. cellulosæ. Roughly speaking not more than one in a thousand are met with although the carcasses are examined very carefully especially for this. The most common sites are tongue and diaphragm. It may be perhaps possible to diagnose the case during life by palpating the base of the tongue provided the cysts have attained full size and are plentiful. Attempt to diagnose these cases during life is not

practised in this country and the method in my opinion is difficult to apply in an animal like pig and is useless as cases are met with having only very few and tiny cysts in the tongue which cannot possibly be detected before killing and making incisions in the muscles. The only reason as far as I can ascertain for not finding many cases of cyst. cellulosa in this country is due to stall(pen) feeding of pigs practised by Chinese for fattening them in order to obtain better price as they are sold by weighing. Chances of infection to pigs by this method of rearing are not many, whereas, in India pigs as a rule have to search their food and owing to the very filthy habits of these animals chances of worm infection are plenty. And it is no wonder if Mr. M. Rahimuddin has come across a large number of cases of cyst. cell in South India.

Calcification of cysts is generally noticed in old pigs. Sometimes in a badly infected carcass all cysts are calcified and in such cases not even a single living (uncalcified) cyst is found after a careful search.

A case of Cyst. cellulosa Infection in Man:—Although cases of cyst. cell in pigs are found in such surprisingly small number in this country, a case was accidentally detected on postmortem examination on a human subject. The case was of a Tamil Male admitted into the Seramban Hospital in a semi-conscious state and died within a couple of days after admission. The case was thought to be one of malignant malaria type. Post mortem examination revealed innumerable cysts in the muscular system and also brain. Many cysts were of the size of a gram seed or medium sized green pea. Unfortunately I did not enquire if any tape worms were present in the intestines. But the cysts were diagnosed as cyst. cells. It should be noted here that pork is not a common article of diet among the Tamils in this country.

It will not be out of place if I mention here some interesting cases I came across in abattoirs. All the visceral organs in these cases were engorged and enlar-

ged to more than double of their normal size. The animals were driven to the abattoirs and were slaughtered within a few hours of their arrival. They were of middle age, appeared healthy and in good condition. Only three cases of this nature were seen namely:—one was in a Nellore bullock, the other was in an Indian buffalo and the third was in a Malay buffalo. The whole viscera in these animals was condemned but rest of the carcasses was passed for market as the meat appeared good and well-set. I shall be much obliged if any readers of this journal would record similar cases if they come across and the cause of the same if possible.

SWAMP FEVER.

BY G. A. AJWANI, M.Sc., D. V. H.,
Shikarpur, (Sind.)

The following account of Swamp Fever of the horse is given to stimulate the Indian Veterinary Surgeon to report such a disease in this country. I took a keen interest and became acquainted with this disease while in America; it was reported in the Kansas State and the Kansas State Agricultural College authorities were asked to investigate it. The photographs of the actual cases were kindly given to me by Dr. N. D. Harwood.

Synonyms: Infectious anæmia; American Surra; Malarial fever; Typhoid fever of horses; Mud fever; Paralysis; Pernicious anæmia; no name disease.

Geographical distribution and History:—Swamp fever is a disease of horse and was first thought localised to Minnesota and Southern Canada but has now been reported from a number of states and also from France, Germany, Hungary, Switzerland and Sweden in Europe.

The state of Wyoming estimates that the loss for the past 25 years has been about 2,000 horses.

The observatories in the Kansas State show that the infected horses have regained their health but their blood

- on being tested has been found to be highly virulent for at least four years. This fact has made it more difficult to control the disease.

The workers in North Dakota have reported a case of a horse which lived for fourteen years after it was injected subcutaneously with 100 c.c. of fresh virulent blood; about 10 years of this period showed that the animal was in health although his blood remained virulent and there was no albuminuria until a few days before he died. He showed the typical symptoms and lesions of Swamp fever.

Contributing causes:—There seems to be definite correlation between out-breaks of this disease and wet season of the year. Most of the cases occur during the spring and summer but a few cases occur during the winter time.

Some investigators found it only in low lying badly drained pastures during the wet season, while others report it from high dry pastures.

The Wyoming report states that 1915 was the wettest season and that there were far more cases than usual that year.

Actual cause:—The cause is a filterable virus capable of passing through the finest porcelain filter. Sunlight kills the virus in two hours. Heating at 58° kills it. The virus can stand drying for several months and liquids even under decaying conditions, are infective for months. 2.5 to 5 per cent. of Sodium Taurocholate renders virulent blood harmless.

Freezing of virus for thirty days has no effect upon the virulence of the virus.

The Japanese investigators claim that the virus may be present in the milk of affected mares and in the blood of new born foals.

Experimental transmission has showed that the disease can be readily transmitted from one equine to another by injecting one of the following materials.

- (1) Whole blood (Subcutaneous and Intravenous).
- (2) Defibrinated blood.
- (3) Blood Serum.
- (4) Filtered blood (candle).
- (5) Subcutaneous injection of urine.

The incubation period after injection is five to nine days or more. The disease has also been known to be transmitted by means of biting flies. It should be noted that all attempts to reproduce the disease by the following methods have failed:—

1. Subcutaneous injection of saliva from an infected horse.
2. " " " sweat " "
3. " " " extract of fæces.

The principal method of spread, probably, is by ingestion of contaminated food and water. However, there are many cases of susceptible horses being in contact with infected animal for years and still remained uninfected.

Seasonal occurrence:—Acute and semiacute cases appear in June and July and die in October, November and December.

It has been known that cases usually improve during winter and have recurring attacks in early spring; if complications set in they may die at this period or have occasional attacks during the year and die several years later. Recurrent attacks of this disease may be brought on by hard work, deficient nutrition or in mares at the end of the suckling season when their vitality is low.

Natural transmission:—The virus is present in the blood and at times in the urine, but not in the sweat.

The virus may reach the blood of the new host by the following means.

- (1) Through the skin by means of a cut or abrasion.
- (2) By the bite of a biting fly, e.g., stable fly.
- (3) Ingestion or through the digestive tract in infected food and water.

Symptoms:—A progressive pernicious anæmia, remittant fever, polyuria, and gradual emaciation inspite of a good or even voracious appetite. The disease seems to manifest itself by a dull listless appearance and by general weakness. The animal has weakness and tenderness in the loins.

The pulse is weak, stringy and intermittent and rapid sometimes as high as 70.

The temperature may be as high as 103° F or higher and may stay high for 3 or 4 days and then drop and rise again. In the last stages of the disease the temperature of the animal is generally high.

Polyuria may be enormous.

Death is due to exhaustion.

Blood or vascular changes.

Slight increase in number of white blood cells, marked diminution of red cells, as few as 2 millions per c.c. (normal 5 to 7 millions); in other words, 1-5 of the amount of blood drawn will be clot. A slight dripping of the blood tinged serum from the nostrils may be noted.

Petechial hæmorrhages are occasionally seen on nictitans membrane and paleness of the visible mucous membrane of nose and mouth is seen. Oedema of lower lip, point of elbow, sheath, legs and other portions may be seen. This is indicative of poor circulation, and loss of capillary action.

Dr. N. D. Harwood described the actual symptoms of the cases he saw in the Kansas in 1924, as intermittent fever, ravenous appetite, excepting when the temperature was high, a venous regurgitation, œdematous condition of all mucous membranes, characteristic muscular weakness of the hind parts.

Lesions:—Evidence of emaciation, subcutaneous and intramuscular œdema and hæmorrhages are often seen, although sometimes few if any definite lesions are seen.

Heart is usually enlarged.

Diagnosis:—This is based upon temperature reading,



Case No: 2. of Swamp Fever.
This is a pronounced case in the advanced stage of wasting.



Case No: 1 of Swamp Fever,
The animal is drowsy and the wasting has set in.



Case No: 3. Case of Swamp Fever,
Showing Staggering gait with crossing
of legs and muscular weakness

insidious onset of the disease, progressive emaciation and anæmia in spite of an increased appetite, staggering gait and polyuria.

Laboratory examination of the blood shows an unusual amount of serum; about 1-5 of the whole blood is clot and the remainder serum. Besides this, there is greatly decreased number of red blood corpuscles and there is an absence of eosinophiles. No blood parasites such as trypanosomes or any other Protozoon are recorded.

Cellular infiltration of bone marrow in chronic cases resembling raspberry jelly is observed.

Red areas are found in the kidneys. Spleen shows usually tumours, is engorged with blood and mostly degenerated.

Lungs may show pin point hæmorrhage and there may be an exudate in the chest cavity and in the heart sac.

Intestines may show hæmorrhages varying in extent. Peritonitis may be present.

Prognosis:—Very unfavourable. The mortality being as high as 75 per cent. or even higher. Recovery occurs when treatment is taken up in the early stages of the disease.

Treatment:—K.I., K.M.No 4, K_2CO_3 , as Ag preparations and Quinine are of no value. Intestinal actiseptics are of little encouragement. Symptomatic treatment is all that can be desired. The sick animal should be isolated and the infected premises disinfected with reliable disinfectants.

Some states in North America have adopted eradicating plan, for example in the State Kansas with remuneration for all infected horses.

Prevention:—Great care should be observed in purchasing horses from the infected localities. Such horses should be quarantined for at least three months. The disease should be made notifiable and the measures taken as in other infectious diseases. In America the State Government appraises the affected animals and arranges

for the destruction, or, if the owner likes he destroys the animal without appraisalment. Immunization by any means has not been worked out.

Differential Diagnosis.—The disease has been confused with Influenza in horses, Sclerostomiasis, and simple anæmia.

The catarrhal form of influenza spreads rapidly through a stable only lasting however, a few days to a week, few horses dying if severe complications set in.

Sclerostomiasis is caused by the parasitic worms and this is revealed by the finding of the larvæ. It runs a chronic course usually, and attacks colts principally.

Simple anæmia is readily differentiated from the absence of fever and is usually traceable to poor feed and low condition.

Swamp fever or infectious anæmia in horse has been reported to be the same as in man. A veterinarian who had a number of horses under treatment contracted this disease himself. A susceptible horse died with the typical symptoms when less than 1 c.c. of the man's blood was injected.

The period of incubation and clinical symptoms in this man were identical with those of the injected horse. Three horses in all were injected with the human patient's blood and all died. Both filtered and unfiltered blood infected the horses.

The author J. Peters, has completely differentiated this anæmia from Addison Biermer's disease or Hemolytic anæmia of man and has unquestionably correlated the anæmia of the horse with that of the human (J. Peters-Van Es. translator, A. V. M. A. December 1924).

Summary.

1. Swamp fever of horses has been reported from North America and Europe. Its cause has been proved by experiment to be a filterable virus. The disease, under natural conditions, may be transmitted through the in-

gestion of infected feed and water and possibly by the biting flies.

2. Subjects of Swamp fever have been known to live for several years.

3. The disease is characterised by gradual wasting, listless appearance, intermittent fever, weakness of the loins and in latter stages extreme emaciation, paralysis of the hind limbs and the animal falls down and dies. The postmortem shows subcutaneous and intramuscular œdema and hæmorrhages, heart and spleen are enlarged.

4. Radical method of destruction of the infected animals is practised in North America. The method of treatment or prevention by serum or vaccine has not been developed.

I am grateful to Dr. C. H. Kitselman, V. M. D. Assistant Professor of Pathology at the Kansas State Agricultural College, for kindly, allowing me to refer to his notes on this disease.

CLINICAL ARTICLES.

BY MAJOR C. DEVENPORT, O.B.E., F.R.C.V.S.,
Royal Army Veterinary Corps.

I

REPULSION OF THE FOURTH SUPERIOR MOLAR TOOTH IN THE HORSE.

Disease:—Caries; 4th Superior Molar, near side.

Subject:—A Bay Waler Mare, aged 9 years.

History:—3rd July, admitted to the Veterinary Hospital at M-for Ringbone near fore. Teeth examined as a routine procedure and necrosis of the 4th. superior molar near side was detected. Examination was made with the help of a Davidson Electric forehead lamp. The horse had always carried light condition.

Symptoms.—The horse was thrown and mouth examined. Only a small portion of the fourth superior molar was

found present. The tooth was quite hollow and contained decayed particles of food. A curious smell was pronounced. The opposed tooth was not materially overgrown.

Clinical notes.—14th July. *The operation.* One and half ounces of Chloral Hydrate was given half an hour before casting. The horse lay fairly quiet throughout the operation. The position for trephining was judged by oral examination. Trephined in the area one inch above the zygomatic ridge, just below the angular branch of the submaxillary vein and slightly below the level of the orbit. When completed it was found, as desired, that the opening was at the bottom end of the inferior maxillary sinus. This proved to be the exact spot for punching on to the root of the 4th tooth. Repulsion was attempted by means of a fine punch. The punch was inclined to go a little deep and so was sloped so that it lay close to the inner surface of the maxillary bone. The tooth came away in five pieces, all black and necrotic. Only the external piece was the full length. Found that the whole tooth cavity could now be explored well by keeping a finger of one hand in the trephined opening and a finger of the other in the mouth. The walls of the tooth cavity were clear and well defined. Ordered irrigation to be applied by means of a hosepipe four times a day followed by Potass. Permang. lotion.

16th July. Much swelling on the face in the area of the incision and for about 1½ inches all round it. The wound otherwise looked well. Ordered hosepipe to be continued four times a day followed by Potass. Permang. lotion each time.

18th July. Swelling on the face had decreased. Eusol lotion was substituted for Potass Permang lotion. A probe was gently passed through the opening into the mouth to clear the passage.

24th July. Swelling on the face about the same. Some slight nasal discharge. The edges of the opening

granulated well and the wound had now to be plugged to keep it patent.

29th July. Swelling on face less. Opening closing in. Still some nasal discharge.

Subsequent History.—An uneventful recovery.

Remarks.—The inferior end of the inferior maxillary sinus is the position for punching for the removal of the 4th superior molar tooth. To open on to this position select a site one inch above the zygomatic ridge below the angular branch of the submaxillary artery and slightly below the level of the orbit. A tooth properly removed should leave a cavity with clean walls. The punch used must be considerably less in circumference than the trephined opening in order to allow the punch to be sloped at the angle required.

II

‘UNDERRUN SOLE’ IN THE HORSE.

Visual Diagnosis, and the effects of Exercise in early treatment.

Disease.—Wound Punctured foot, and Under-run Sole.

Subject.—A chestnut Waler Gelding.

History.—The horse was out pigsticking during the week ending 16th June and was found lame during the meet. He went sound in the middle of the following week, then lame again, and became increasingly lame afterwards. Owner suspected injury to the fetlock joint and had applied a bandage.

Symptoms.—23rd June. The case was seen at a meet and had been out in camp two days. There was a bandage on off fore fetlock joint. The leg was a little puffy over the tendons. The horse was lame. The foot was a little tender when hammered over the frog. Orders were given for the removal of the shoe.

Clinical Notes.—24th June. Horse now very lame.

When moved he walked on the toe, the heel not touching the ground at all. The leg was carried well forward.

Tenderness shown when the frog was pressed sideways and when the sole was hammered at the outer quarter. Searched for a puncture but could find nothing. Ordered foot to be poulticed with a view to softening the horn which was very hard. Later--Tested foot for the most tender spot and cut down along the edge of the frog with a searcher. Blood-stained pus spurted out. Opened a little more and then applied a bran poultice made up with Hydrag Perchlor, this being the only antiseptic available.

25th June. Horse distinctly easier. Opened out the puncture to the size of a pencil point only, that is to say, just sufficient to allow the free exit of pus. To open a wound in the foot to any considerable extent allows not only escape of pus, but later granulation tissue to come down through the opening. The edges of horn in trying to close in on this granulation tissue appear to cause great pain and to prolong to a considerable extent the time required to restore the horse to duty. Case repoulticed and sent off on the way home as the camp was breaking.

Evening.---Saw the horse at a village about 12 miles away. He was reported to have walked in well. Repoulticed.

26th June. The horse walked in to M---another 17 miles and came into hospital. Examined the foot. It was free of pus or discharge, and the horse was walking well. The wound was dressed with Tr. Iodine. 1500 units Antitetanic serum was given.

29th June. Case was doing well; less lame; wound is well open and free of all discharge.

6th July. Foot hard and firm. Horse when trotted up started off lame but soon went sound. Possibly the torn sensitive laminae have not yet regained their normal

form and attachment to the horny leaves. Tar dressing applied.

8th July. Discharged cured.

Subsequent History.---20th July, horse seen again. Sound and the foot nearly normal.

Remarks.---Lameness made manifest by:--(1) Movement on the toe, (2) Heel kept clear of the ground, (3) Leg carried well forward, is indicative, as might be expected, of pain and pus beneath the sole.

From the history of the above case, long exercise, once the puncture has been opened and pus allowed to escape would appear to have a distinctly beneficial effect in cases of 'underrun sole'.

DERMOIDS IN BOTH EYES.

BY M. W. MIRZA, G. B. V. C.,

VETERINARY ASSISTANT SURGEON,

Upper Sind Frontier (Jacobabad), Sind.

Subject:--A country bred red heifer, aged 5 days, having dermoids in both the eyes was brought for treatment to the dispensary on the 16th March, 1926.

Apparently the case was so typically different from what has been described in the Veterinary books and Records, which I have had the occasion to read, that I thought it worth while to publish a short account of it with a photo for the information of my professional colleagues.

A dermoid is described to be a loose fleshy looking growth which originates from the conjunctiva at the Corneo-Sclerol margin and progresses further. In the case under treatment, a hard tumour-like growth with free margins was observed to have been sticking in the socket at the centre. The vision was absent as if the eye balls appeared to have bulged out from their natural position.



Operation was very carefully performed under Cocaine and Adrenaline injections with the hope that the removal of the growth would expose a healthy eye ball. On removing the tumour, however, nothing but a pit was visible.

Ed. Such cases are common in these parts, especially when a cow has been crossed by a cross bred bull.

IMPACTION OF THE COLON IN AN ELEPHANT.

By R. S. NARAYANAN, G. M. V. C.

Veterinary Inspector Rampur State.

Impaction of the colon is not a rare occurrence in this subject. Very often this affection causes considerable anxiety to all concerned. Fortunately the indications in nearly all cases of impaction are sufficiently clear for an almost correct diagnosis. On the recognition of the

above fact, a practitioner is not to be led away to treat cases on routine lines but every endeavour should be made to ascertain the history of the circumstances preceding the affection and treat cases according to the symptoms presented. The factors which go to contribute to this intestinal affection in elephants are commonly from the frequent swallowing of earth. It may be noted that the elephants very often do swallow large quantities of earth to get rid of the too numerous parasites in the alimentary canal and occasionally due to the deficiency of salts, particularly phosphates, in the system and also in chronic indigestion. Salt licks are often observed in young and growing animals.

The subject under review is a cow-elephant named 'Champa' aged 55 years. The animal was out in a tahsil in connection with flood-relief work and returned to Filkhana at about 9 A. M. on 23-7-1926, with the complaint that the animal had a salt lick and was unusually off-feed the previous day. It was also reported that the animal passed two dung balls to the size of a big football on her return march to the house. The mahout, as usual in all salt-lick cases administered 4 chataks (8oz) of common salt in half seer of gur (1 lb of jaggery).

23-7-26. Prominent symptoms were:—

Temperature 97.8°F., urination normal; thirst excessive; visible m.m. slightly injected; off feed; faeces passed during the day was in smaller quantities than normal and slept as usual at night. •

24-7-26. Animal depressed; temperature 98.2°F., urination normal; thirst normal; total absence of passage of dung since the previous night; animal often crouched as though to lie down but only to rise again quickly.

Examination per rectum revealed nothing except a quantity of mucus mixed with earth and also a few parasites (Murshida Falcifera). •

The animal was given soap and warm water enema. Internally a ball containing Ammon Carb 1 oz., Pulv.

nuxvomica 3 drams and Pulv. Zingiberis $\frac{1}{2}$ oz. mixed in jaggery was given in the morning.

Repeated the enema in the noon and evening and the ball in the evening only.

25-7-26. The animal had her usual sleep the previous night. Crouching symptom was almost absent. Inclined to feed in very small quantities, other symptoms remaining more or less the same.

Repeated the enema and the Ammon Carb. ball.

During the day the animal made a few attempts at defecation and a little mucus mixed with earth was passed.

26-7-26. Animal did not sleep the previous night but was often crouching and getting up. Temperature 100.2°F. ; distended abdomen; and frequently assumed a crouching position. Frequent opening of the mouth as if yawning; suppression of urine; off feed and reduced thirst.

Exploration per rectum revealed nothing within reach. Repeated enema and the animal passed urine.

Internally Aloin and Calomel each 2 drams in bread was given. Warm water to drink was always kept accessible to the animal.

Towards noon the symptoms were aggravated. The mahout was directed to walk over the region of the flank after putting the animal in a recumbent posture. This was continued for 15 minutes every half-hour on both flanks.

There was passing of wind and attempts at defecation.

At about 2 P.M. the animal was exercised for half-hour and on examination per rectum a hard dry mass was felt. Removed the mass with great difficulty and by gradual reduction. Later in the evening the animal was found straining a little to evacuate the bowels by her own exertions.

27-7-26. Usual sleep the previous night.

Condition approaching to normal with the usual passage of dung.

Advised the mahout to feed the animal with small quantity of food and frequently till the organ gained the normal tone.

NOTE.—I have often observed the efficient peristaltic action from Aloin with calomel in elephants. Aloin is very convenient to administer with none of the ill effects of aloes.

GALACTAGOGUES IN HINDU MATERIA MEDICA.

BY R. S. NARAYANAN, G. M. V. C.

Veterinary Inspector, Rampur State.

Though the late Wallis Hoare in his *Veterinary Therapeutics* has referred to the absence of any specific galactagogue, literatures on Hindu Materia Medica contain some references to galactagogues of repute. The following have met with a fair amount of success in the writer's hands.—

1. Liberal ration of cakes, bran and roots.

2.

Re Ferri Sulphus $1\frac{1}{2}$ dram
Pulvis Nux Vomica. 2 drams
Pulvis Calumba
Pulvis Anisi aa 4 drams

Mft Pulvis, sig one, night and morning in a pint of gruel or treacle.

3. Anethum trifoliatum: Anisi (English) Soph (Hind) Sombu (Tamil) Perinjirakam (Malayalam).

4. Anethum fœniculum: Fennel (Eng) Methi (Hind, Mal) The herb and oleum fœniculi have the reputation to be a galactagogue.

5. Cuminum Nigrum: (Black Cumin (English) Kal jeera (Hind) Karin-jeerakam (Tam, Mal). Alone or with Pulvis. Anisi and a small

quantity of common salt in a pint of gruel twice a day.

6. Solanum tuberosum : Potato (English) Alu (Hind) The growing tuber is a galactagogue.
7. Saccharum Spontaneum : Thatch grass (English) Kasa (Hind). The root is a galactagogue.
8. Chandra Chakravarty in his "Comparative Hindu Materia Medica" refers to the galactagogue action of oleum ricini and the leaves of the plant in human subject. Our profession may try and record result.

TRANSLATION.

ASVAVAIDYAKAM

(Equine Medicine).

BY SRI MAHASAMANT JAYADATTA.

Translated into English from the original Sanskrit, with notes and commentaries.

By Nripendra Nath Majumdar. (Bengal Veterinary Service).

(Continued from 1st Issue 3rd Volume, page 67.)

Sloka 17. The neck (Griva) is well-known to all and on which is the mane (Kesarah) and the wise had said that between the neck and the shoulders is (the portion known as) Vāha¹.

Sl. 18. And above the Vāha are the withers (Kakam or Kakudam) after which is the back (Prstham) the middle portion of which is the Seat (Āsanam).

Sl. 19 & 20². It had been said that below the shoulders

1. Vāha from vaha to carry ; the portion where the collar rests.

2. Sloka 19 consists of one line only. Either the other line was lost in copying or there might have been some mistake in numbering the couplets. For, in the 27th sloka we find three lines. So, in translating, the first line of the next sloka has been taken along with this sloka, otherwise the meaning does not become clear. In the dictionary "Vaidyak Savdasindhu" we find that Nivandha is a part of the horse's body near the shoulders and the withers. This too is not

is the Arm (Vāhu)¹ and about six fingers' breadth away from it and behind the withers and the shoulders is the Nivandha. (Girth?)

Sl. 20. Know that inside the forearms are the well-known Chestnuts (Kiṇa)².

Sl. 21. The well-versed in the Sāstras have indicated that below these, is the Knee (Jānu) ; the front portion of the knee is the Knee-cap (Kalaci) and the back is the bend of the knee (Mandiram)

Sl. 22. The discriminating (persons) should know that below the knee again is the Shank (Janghā), on both sides of which are the Splint bones (Kalā)³ and the joint (below) is known as Fetlock joint (Aisika sandhi)

Sl. 23. It had been said that the front (of the fetlock) is Paliha⁴ and the back is Kurca, downwards and in the middle of which is a horny growth, the Ergot (Kustikam)

Sl. 24. After this is the Coronet (Khurasandhi)⁵ below which is the Hoof (Khuram). On the back side of the hoof is the Heel (Parsni) and the front part is the Toe (Nakha).

Sl. 25. The under portion of the hoof is the Sole (Tala) in the middle of which is the Frog (Mandūka)⁶ and

clear. Nivandha means "binding"; it may therefore mean Girth. The single line when translated comes to this :—"It had been said that the shoulders and the withers are Nivandha"; evidently this cannot be. Again, if the sloka 20 as it is in the text, be translated it reads thus :—"Below the shoulders is the Arm, about six fingers' breadth away from which are the well-known Chestnuts (kiṇa)." This also cannot be possible as the chestnuts are generally much lower down. In the circumstances, the translation given above, i.e., of the two lines together, seems to be more appropriate.

1. Arm is Vāhu, But Vāhu includes forearm also.

2. Kiṇa literally means a wart or a horny growth.

3. In sloka 50 of the chapter on Āvarta (whorls) the location is more accurate. It is stated there that eight fingers' breadth above the fetlock and on the sides are the Kala.

4. In another text it is written as Palihasta.

5. Sandhi literally means junction or joint and Khura is hoof, i.e., the junction of the hoof with the leg. This may also mean the pastern joint.

6. Manduka literally means a frog. Possibly that is why this portion of the hoof is also called "Frog" in English. This is one of the many facts that goes to show that this science, like many others, travelled from India.

the wise should know that the horny portion (that has to be pared off) is called Ksirika.

Sl. 26. Behind the chest (Hrydaya) on both sides are the Sides or Flanks (Kuksi)¹. Inside the two sides is the Abdominal cavity (Randhram) above which is the Thoracic cavity (Uparandhram).

Sl. 27². Between the two sides is the Belly or Abdomen (Jāthara), in the middle of which is the Navel (Nāvi) behind which is a row of hairs (known as) Romāraji after which comes the Sheath (Mutrakosam). Behind the Loins (Kati) the portion is called Quarters (Putā or Sphica).

Sl. 28. Then follows the Root of the tail (Pucchamulam) which is fleshy in horses, below which is the Anus (Pāyu) and then the Perinæum (Sibani)³.

Sl. 29. The wise should know that after this are the Scrotum (Muska) and the Hip-joint (Katisandhi) and below the hip joint is the Stifle joint (Urusandhi).

Sl. 30. The portion of the hind legs up to the hock joint (Phalasandhi) is termed the Thigh (Urupanta). Then is the Point of the hock (Sthura), below which is the Bend of the hock (Mandira)⁴.

Sl. 31 & 32. Just near the bend of the hock is the warty growth known as Castor (Kina) after which are the Splint bones, Kurca⁵, Ergot and the hoof with the frog &c.

Sl. 32 & 33. It had been said that the portion (comprising of) the Head, Face, Neck, Breast and the two Fore-legs is the Forepart (Pūrvakāya); the region near the back (i.e., the Barrel) is Middle part (Madhyakāya); from the Loins behind up to the end of the Hoof is the

1. Kuksi is the portion of the barrel after the ribs including the flanks and the abdomen.

2. As already noted this sloka consists of 3 lines. The last line, as can be noticed from the transliteration, has no connection with the other lines.

3. Sibani literally means a Suture, i.e., appearing like a suture.

4. The bend of the knee is also called Mandira.

5. Kurca is back of the fetlock.

Hind Part (Apara bhāga or Pascima bhāga). These are the well known parts according to the ancient Sāstras.

CHAPTER III.

GENERAL SIGNS.¹

The Signs of the Body

Sl. 1. Now shall I describe the signs of horses.

Sl. 1 & 2. Hear you all, the Signs of horses as had been told by the sages, the signs that counteract all defects and are of perpetual glory to kings². Horses with bad presages are not worth taking.

Sl. 3. Therefore, first shall I describe the signs (that are found on the different parts) of the body (such as) lips, angles of the mouth, tongue and teeth,

Sl. 4. Face, palate, nose, cheek, eyes, forehead, head, hairs, and ears,

Sl. 5. Neck, mane, shoulder, breast, forearm, knee, shank, fetlock, and the foot,

Sl. 6. Sides, back, flanks and belly, loin, tail, penis, scrotum, and the two thighs.

Sl. 7. 8 & 9³. For discriminating between good and bad⁴, the intelligent physician should know the established signs of whorls⁵ of hairs (Āvartta), marks on the forehead (Pundraka)⁶, dot marks (Puspa)⁷, motion and deportment (Gati), colour (Varna), voice (Swara), the great defects (Mahādōsa), forebodings (Utpāta), lustre or appearance (Chāya), odour or smell (Gandha), character or congenital habits (Satva) and the measurements (of the body and its different parts) (Pramāna) as recognised by

1. The ancients laid great stress on these signs. It is not possible to assign any reason for this unless a carefully observed statistics can be collected.

2. Or, those which conduce towards victory in war.

3. Now he enumerates the different varieties of signs by which the good or bad of a horse is to be discerned.

4. Lucky or unlucky marks. 5. Feather or hair marks.

6. Star marks &c. 7. These are not congenital.

sages Sālihotra &c., who were acquainted with the three times (past, present and future).

Sl. 9. Lips of a reddish colour, somewhat like copper, devoid of hairs and with a soft skin, are adored.

Sl. 10. A prominent tip of the nose (Protha) is good, the reverse of which is to be avoided. Soft angle of the mouth is commended and so also the redness of the tongue.

Sl. 11. Thin and long tongue is also good, if otherwise, it is bad. The teeth (incisors) should be thick-set, of a pleasing colour, compact, uniform and even, neatly arranged,

Sl. 12. And should be six in number on the lower gum and have a sprouting appearance. The face should be good looking with prominent nose, but not fleshy.

Sl. 13. A mouth with a fragrant odour is adored, the reverse is condemned. A red palate is commended and so also a nose with good and properly shaped flaps.

Sl. 14. An even and not very prominent cheek of a horse is said to be good.

Sl. 14; 15 & 16. Prominent, but not protruding, well-set, of a slightly pink (wine like) colour, cool and pleasing, large and symmetrical eyes having a mild look, are commended.

Sl. 16 & 17. The well-versed in the science had said that a wide but not low or depressed, (i.e., flat or slightly prominent) forehead of a horse with whorls of hairs on it is praised.

Sl. 17. The head should be evenly rounded and adorned with two whorls.

Sl. 18. A thick coat with soft and silky hairs is adored and so also the thinness, sharpness or pointedness, and shortness of ears.

Sl. 19. (Ears with) hairs not very long (i.e., short) are also praised. A round and curved neck is praiseworthy.

Sl. 20. A soft mane without knots (i.e. not matted) is praised and a well-set and stout shoulder of a horse is adored.

(To be continued.)

THERAPEUTICAL NOTES

Treatment of Tetanus.—Drs. Smith and Leighton say (American Journal of Medical Sciences) that the treatment of tetanus should be carried out as follows:—In all suspicious wounds, prophylactic antitoxin should be given subcutaneously and repeated again after ten days, especially if suppuration is present, or if an operation is to be performed. Antitetanic serum should be given during an attack of tetanus. Intravenous administration may be satisfactory. In severe cases or if improvement is not satisfactory, intraspinal serum should be employed. Spasm should be controlled by the subcutaneous injection of magnesium sulphate; but if this fails to control the spasm or in urgent symptoms, intraspinal or even the intravenous route should be employed; in addition, morphine sulphate may be of use at times. Careful personal observation is necessary in order to judge the dosage and method of administration of magnesium sulphate. The wound should be opened and cleaned and air should be allowed to reach it. Tincture of iodine should be used locally. In order to block the progress of the toxin serum should be injected at the site of the wound. In order to keep up the prophylaxis, an intramuscular or subcutaneous injection of serum should be given on the eighth or ninth day after the beginning of the treatment. Proper nourishment and fluids should be supplied and careful nursing is essential. (Medical Review of Reviews). (From the Practical Medicine, August 1926, page 156).

Treatment of Tetanus.—The December 1924, issue of the *Amer. Jour. of Med. Sci.* contains an excellent article by Drs. Carrol Smith and W. E. Leighton, of the St. Louis

School of Medicine, on the treatment of tetanus. These authors review the literature thoroughly and contribute a new and valuable suggestion in recommending the use of solution of chemically pure magnesium sulphate by the subcutaneous, intramuscular, intravenous method of 25 per cent strength; in the veins a 6 per cent solution is employed. From 2 to 16 cc. of the solution are used. The subcutaneous method is the safest and slowest; the intravenous is the quickest and most dangerous. Their suggestions for the handling of a case of tetanus are as follows: 1. Prophylactic antitoxin, subcutaneously in all suspicious wounds, repeated again after ten days, especially if suppuration is present, or if an operation is to be performed. 2. Antitetanic serum should be given during an attack of tetanus. Intravenous administration may be satisfactory. Intra-spinal serum should be employed in severe cases or where improvement is not satisfactory. 3. Spasms should be controlled by the subcutaneous injection of magnesium sulphate. In urgent symptoms or where the subcutaneous method fails, intraspinal or even the intravenous route should be employed. Morphine sulphate, in addition to magnesium sulphate, may aid at times. Careful personal observation is necessary in order to judge the dosage and method of administration of magnesium sulphate. 4. The wound of infection should be opened and cleaned, and air should be allowed to reach it. Tincture of iodine should be used locally. Serum should be injected at the site of the wound to block the progress of the toxin. 5. An intramuscular or subcutaneous injection of serum should be given on the eighth or ninth day after the beginning of the treatment in order to keep up the prophylaxis. 6. Fluids and nourishment should be supplied, and careful nursing is essential.--- (Clinical Medicine.) Practical Medicine, April 1926, page 76.

Turpentine as a Tetanus Prophylactic. In the fall of 1920, I came to Mexico to take charge of the field medical work of one of the largest oil companies operating in

the Tampico district. In talking with my predecessor, I learned that requisitions for medical supplies had to be passed by the General Manager and that he was very ready with the blue pencil; in fact, he limited the supplies to just what he thought the Medical Department ought to use, and while he knew the oil game, his knowledge of medicine was nil, so requisitions for serum and expensive medicines were only waste of time and paper. I had learned to believe in the value of some serums, especially tetanus antitoxin. As the work in that section was mostly construction, and Mexican peons were the labourers, injured hands and feet were quite common and nail punctures seemed to be the order of the day. Past experience had taught me that nail punctures and tetanus were almost synonymous, and that a case of tetanus was a hard thing to handle, and best treated by prevention with antitetanic serum, which was out of the question at that time. I then happened to remember that, when I was a boy, turpentine (the older the better) was what the country people used for wound dressings, and that lockjaw was unheard of among them. As all who have lived in this country well know, the average peon is not only dirty but absolutely filthy; that to him the use of soap and water will *hace dano*, and that it is strictly against all his ideals to wash either hands or feet. It seemed to be "up-to" me to find, devise or create some antiseptic dressing that would penetrate the accumulated dirt of years, and at the same time be fatal to tetanus germs; so I began using turpentine. In going over my case records for the past five years, I find that I have treated over one thousand cases of wounds, ranging from simple abrasions to punctured lacerations of hands and feet, and that turpentine was the dressing used. Not once have I had to write a diagnosis of tetanus as a result, nor as a complication. Of course, turpentine is not recommended as a substitute for tetanus antitoxin when that can be had, but when it is not available the old-fashioned remedy is

worth trying.—I. P. Israel, *La Quemada, Mexico in the Clinical Medicine*, Aug. 1925. (Practical Medicine, January 1926, Page 13).

Fenugreek as a Substitute for Cod Liver Oil. Dr. P. Blum (*Bull. Soc. de Therap*) states that the old-fashioned remedy fenugreek furnishes a useful substitute for cod-liver oil in all cases in which the oil is indicated, such as lymphatism, scrofula, rickets, anæmia, and debility following infectious diseases or neurasthenia, as well as in gout and diabetes, in which it may be combined with insulin. It possesses the great advantage of being cheap and being readily taken by children, in spite of its bitter taste, which can easily be disguised. Its chemical composition resembles that of cod-liver oil, owing to its containing substances rich in phosphates, lecithin, and nucleo-albumin. It also contains considerable quantities of iron in an organic form which enables it to be readily absorbed. Two teaspoonfuls of the powdered drug may be given daily in broth, milk, or jam. (Fenugreek consists of the seeds of *Trigonella fœnum-græcum* (Leguminosae). It has been used as a poultice for boils and internally as a decoction in inflamed conditions of the stomach. Its chief use is in veterinary medicine; it also enters into curry powders.) *Archives of Therap.*

ASSOCIATION NEWS.

FOURTH SESSION OF THE ALL INDIA VETERINARY ASSOCIATION,

MADRAS BRANCH, COIMBATORE DIVISION.

A meeting of the above association was held on Saturday the 3rd April, 1926, in the London Mission Elementary School hall, Coimbatore at which the following members were present:—

Messrs. 1. A. M. Richards.

2. T. S. Alagappa Pillai.

Fourth Session of the all India Veterinary Association, 127

3. A. Castelino.
4. C. V. Venkatramana Rao.
5. T. R. Rajagopala Rao.
6. C. V. Padmanabhan.
7. C. Madhavan Nambiar.
8. M. K. Velayudhan Nair.

M. R. Ry. K. Kylasam Iyer Avl. was also present.

The proceedings commenced at 9-30. A. M. with the election of the President. Mr. A. Castelino in a short speech proposed Mr. K. Kylasam Iyer to take the chair. This being seconded by Mr. Rajagopala Rao, Mr. Kylasam Iyer was elected President. The newly elected President then took the chair and delivered his Presidential Address.

Letters from the absentee members regretting their inability to attend were read.

Report of the last meeting held on the 22nd June, 1924, was then read by the secretary, and adopted unanimously.

The circular from the branch association regarding the formation of a Mutual Benefit Fund for the Veterinarians in the Presidency was then taken up for discussion. Members present agreed to the formation of a mutual benefit fund for the members of the profession subject to the proviso that the details of the scheme be worked out and circulated to the members of the association and placed before the General Body meeting for adoption.

A paper on 'Trypanosomiasis in Coimbatore among horses, cattle and dog' was read by Mr. A. Castelino. This created a lively discussion and the president solved several difficulties raised by the members.

The members then proceeded to the local Veterinary Hospital and Mr. C. V. Padmanabhan gave a demonstration on 'an easy way of drenching goats and cattle by means of a rubber tube.' This was supplemented by Mr. Richards who passed the tube through the nostril of a

bullock into the stomach. With this the morning function closed.

In the afternoon Mr. Velayudhan Nair read a paper on 'Echinococcus cyst in sheep' and exhibited a good specimen involving all the organs. Another paper on 'Filaria medinensis in an abscess in a dog' was read by Mr. Rajagopal Rao and he also exhibited a specimen.

Mr. K. Kylasam Iyer, the Circle Officer gave a demonstration on 'single and double intradermal tests' in tuberculosis in cattle and explained also the other methods.

Mr. A. M. Richards gave a practical demonstration of 'Hysterectomy' in a bitch.

With the president's closing speech and a vote of thanks to the chair the conference came to a close.

The members then adjourned for a tea party given by Mr. K. Kylasam Iyer and spent an enjoyable evening.

EXTRACTS.

TUBERCULOSIS CONTROL IN THE MALANG-DISTRICT (EAST JAVA) DURING* OCTOBER 1923—JULY 1925.

BY DR. W. C. A. DOEVE AND J. F. MOHEDE.

According to their experiences, the authors advise to execute the control of tuberculosis in bovines along the following lines.

In herds, which were either never tested before or to which the hypodermal tuberculin test was not applied for at least two preceding years, the ophthalmic test has to be done on two succeeding days. Reactors have to be regarded as suspect and are to be isolated at once, whilst suspicious or non-reactors are to be submitted to the subcutaneous test 4 days after. Cattle, reacting to this

* Copied from the *Nederlandsch-indische Bladen Voor Diergeneeskunde* Augustus 1926, Page 325.

second test, are also to be considered as suspect and must be isolated. In case the pre-test temperature is too elevated for judging the thermal reaction, the test can be done none the less, as it may sensitize animals with inactive tuberculosis for the benefit of a next one. All cattle, nonreacting with the initial ophthalmic test, are to be retested in the same way one month after. Only such cattle, in which all three tests mentioned have a negative result, can be declared as noninfected, provided clinical symptoms are absent.

As long as it is not made sure, that with the method of control above mentioned, failures are excluded, all animals are to be submitted to a physical examination as well. It may be, that the latter examination will prove superfluous in such animals, which do not react to none of the three tests. Yet mere inspection with regard to condition, glossiness of the coat a.s.o. will always remain necessary in order to prevent overlooking of badly infected non-reacting cattle.

Reactors with severe clinical indications should be condemned, whilst non-reactors with the same indications as well as animals with suspicious clinical symptoms unregarded their tuberculin-reaction, should be suspected and isolated, supposed the result of sputum-control does not render killing necessary.

Sputum-control is only advisable in clinically affected animals. That the germs may be exceptionally demonstrated in clinically non-infected cattle, must be considered as a lucky chance. Killing of such animals should not be either economical or necessary, as their isolation offers sufficient guarantee, whilst on the other hand quite a lot of clinically non-infected reactors, in which we accidentally fail to find the bacillus, are able to spread the disease.

Microscopical examination of milk-sediment and guinea-pig testing can be left to the judgment of the controlling veterinarian.

Testing by means of the hypodermal tuberculation should not be done more than once in two years, whilst the other tests can be repeated every year.

THE PIROPLASMOSES OF CATTLE IN INDIA *

A Preliminary Note

BY HUGH COOPER, M. R. C. V. S.

Pathologist, Imperial Institute of Veterinary Research,
Muktesar.

Piroplasms are minute protozoan parasites that invade the red blood corpuscles of animals, and rather closely resemble the malarial parasites of man. The name "piroplasm" is, however, used as a comprehensive term to designate a number of specifically, or even generically, different organisms, the term "piroplasmosis" being applied to diseases caused by these parasites.

In other countries no less than seven alleged species of "piroplasm" (Brumpt, 1920) have been described in cattle, although in some cases the distinctions that have been made are probably not well founded. A very well-defined distinction exists, however, which permits of these organisms being divided into two main generic groups—(*Babesia*=*Piroplasma*) and *Theileria*.

At the Imperial Institute of Veterinary Research, Muktesar, systematic examination of blood smears and also *post-mortem* examinations have been carried out continuously during the last three years, and a total of three to four thousand blood smears have thus been examined during each year. From these examinations and also from the examination of a number of blood smears made from cattle in other districts, it is evident that in India "piroplasmosis" of cattle is widespread, the "piroplasms" discovered so far being of two kinds only, one represen-

tative of each of the two generic groups indicated above.¹ It is permissible to add to this number a third parasite described by Sheather (1919) as a malarial parasite in the blood of buffaloes.

In a paper read before the Indian Science Congress at its meeting in 1924, reference was made to the two most important of these parasites, and the methods that may be used to restrict or eliminate the diseases caused by them were described. It is proposed to give in this paper a further brief description of these parasites, which would entail a certain amount of recapitulation of the facts referred to in the previous paper.

Babesia bigeminum is the largest of the bovine "piroplasms" and in their typical form they are found inside the red blood corpuscles resembling two pears joined at their tapering extremities, with their bodies set at a somewhat acute angle (Plate XVIII, fig 1). This form is commonly found in slight infections, particularly of the "carrier" type. It would appear that infection with this parasite is so widespread in India that probably in most localities cattle become infected as young-calves, at which age they possess a high degree of resistance and recover readily, and are subsequently immune by virtue of being "carriers" of the parasite in a latent state of activity for the rest of their lives. These parasites, however, are also the cause of an acute and severe disease in cattle, known as tropical redwater. This disease occurs when infection is transmitted at a later and highly susceptible stage in the life of cattle, such as when adult cattle are imported into India from a country where "piroplasms" do not exist. The disease also results when the immunity, obtained by cattle as young calves, is broken down, such as is liable to occur through the effects of intercurrent disease conditions due to, for example, rin-

1. The definite diagnosis of the two species of "piroplasm" found in cattle at Muktesar and the view that they are the only species yet detected at the Institute, have both been arrived at by the Director of the Institute.

*Copied from the Agricultural Journal of India, July 1926 pp. 313.

derpest or exposure to adverse conditions. At the height of this disease, as many as 75 per cent. of the red blood corpuscles may be invaded, and the parasites then assume many varied forms, although the typical form may still also be present in small numbers. A very common form is a single parasite within the corpuscles, round or oval in shape, with a deeply staining structure representing the bezel. Many irregular elongated and ovoid forms are usually also present which vary considerably in size, and not infrequently a few parasites are seen to be quite free and outside the corpuscles.

Although under natural conditions the disease is transmitted through the agency of ticks, it can be readily set up also by the injection of blood containing the parasites, into a susceptible bovine animal. In this case a sharp rise in temperature occurs between the 6th and the 10th day after the injection, and sometimes a day or two later. Frequently, after the fever has been in progress for a very short time the urine of the animal becomes coloured red from the presence of destroyed blood corpuscles excreted by the kidneys, and it is from this symptom that the disease receives its name of "redwater." On account of the widespread infection of Indian cattle with this "piroplasm", accidents occasionally occur in this way during the so-called "serum simultaneous" method of inoculation of cattle against rinderpest, where a small quantity of blood from an animal suffering from rinderpest has to be used, and this complication has to be feared most of all in adult imported cattle. Sometimes, however, animals die suddenly from the effects of invasion by this parasite, without passing red-tinged urine, and in these cases occasionally no "piroplasm" can be detected in blood smears made in the ordinary way from the peripheral blood. This is due to the very rapid multiplication of the parasite within the minute blood vessels of certain organs, notably the kidneys and the brain, and a diagnosis can then only

be based upon the nature of the temperature curve, or upon examination of smears made from these organs.

It is fortunate that the disease caused by this form of "piroplasm" can usually be successfully treated by the prompt use of *trypanblue*, which appears to exert a specific action upon the parasites¹.

Theileria mutans is a very much smaller parasite than *B. bigeminum*, and occurs within the red blood corpuscles both as short rod or comma-shaped structures and also as round or oval "ring" forms, while very occasionally bodies resembling a minute Maltese cross may also be seen.

This parasite has a very wide distribution throughout the warmer countries of the world and appears to be almost universally present in Indian cattle; at least, at Muktesar it is difficult to obtain cattle free from it. In the majority of animals, however, the parasites may not be detected until continued daily examination of the blood is made. *T. mutans* is usually considered to be harmless and under certain conditions considerable numbers of them may be encountered in the blood, although the affected cattle usually exhibit no ill effects. The form of the parasite, as it occurs within the blood corpuscles, is quite indistinguishable from another "piroplasm" the formidable *Theileria parva* which is the cause of the disease known as East Coast Fever, and infection with this parasite has been responsible for enormous mortality in cattle in Africa. The distinguishing feature between the two parasites has been held hitherto to be the presence of earlier developmental forms in the case of *T. parva*, which have the appearance of comparatively large cell-like structures, known as "Koch's blue bodies" (plate

1. It is of considerable interest that *Babesia bovis* (= *B. divergens*; Brumpt, 1922), the other "piroplasm" incriminated with the causation of bovine-piroplasmosis, has not been detected in India. The parasite, although it resembles *B. Bigeminum* in certain aspects, yet differs in the very important act that it is not acted upon by *trypanblue*.

XVIII, Fig 2). Until quite recently, it was believed that no such bodies occurred in the life history of *T. mutans*.

In certain countries, notably in Egypt and the Trans-Caucasus, what appeared to be a third species of parasite, belonging to the genus *Theileria*, has been described as *Piroplasma annulatum* (Dschunkowsky, 1904; Carpano, 1915). This "piroplasm" was found to be responsible for a certain relatively small mortality in cattle, and "Koch's blue bodies" were found in animals dead of the affection; yet the disease showed certain marked differences to East Coast Fever of East and South Africa. Quite recently an interpretation of the recorded facts that has received much support is as follows. Brumpt (1923) has shown that when blood from an animal harbouring the chronic "career" type of infection with *T. mutans*, is injected into cattle in a country known to be entirely free from the "piroplasmoses" (e. g. France), a fatal disease may result in which "Koch's blue bodies" are present. There is a very good reason to believe, therefore, and this hypothesis has been strongly held by the Director of the Imperial Institute of Veterinary Research, Muktesar, that the creation of the species *annulatum* is not justified, inasmuch as the disease described as due to such a parasite, represents in all probability only an acute and fatal infection with *T. mutans*. Further, it may even be stated that *T. mutans* and *T. parva* are such closely related species of "piroplasm", differing only in their degree of pathogenicity in cattle, that *T. parva* is probably only a particularly virulent strain or variant of the almost universally present *T. mutans*.

During the systematic examination of cattle at Muktesar, the possibility (which has been suggested both by the Director of the Institute and also by Sir Arnold Theiler, Director of Veterinary Education and Research in South Africa) of the presence in India of "piroplasms" of the *annulatum* type was borne in mind, and on 12th

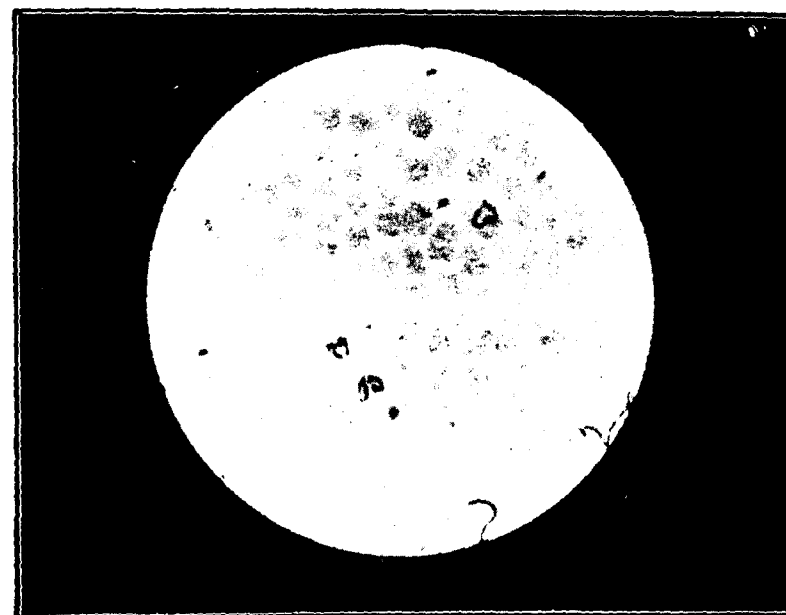


Fig. 1. *Babesia bigeminum*. $\times 800$.

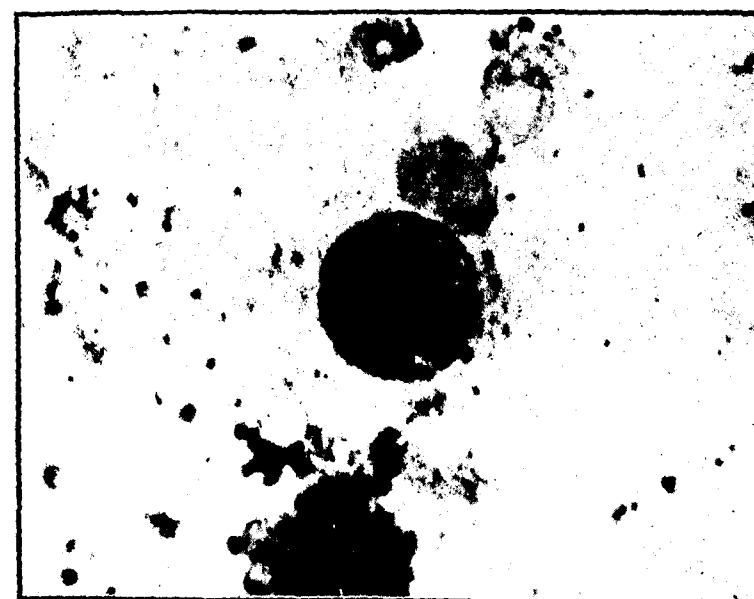


Fig. 2. Koch's Blue Bodies. $\times 1860$.

June 1922, at *postmortem* examination of a hill-bull that had died suddenly and unexpectedly, lesions resembling those of the disease described in Egypt were found, and no difficulty was experienced in demonstrating the presence of a very heavy infection of the blood with *Theileria* together with large numbers of "Koch's blue bodies" in the cells of various organs. During the summer of the same year, six cases of this kind were detected, and in the following year (1923) a further three were found. During the winter of 1923-24 a visit to the Muktesar Institute was made by Sir. Arnold Theiler, who is responsible for the original discovery in Africa both of *T. Parva* (1904) and of *T. mutans* (1906). At that time he examined smears from the cases found at Muktesar and declared that the parasites belonged to the genus *Theileria*.

In some publications upon the subject (e.g. Brumpt, 1920), mention is made of the previous detection of *Theileria* infections of cattle in India, with the presence of "Koch's blue bodies." Correspondence has recently been entered into with Montgomery, who is credited with the publication of this fact. It would appear that in 1911 a smear alleged to have been made from the spleen of a bovine animal in India was sent to an assistant of his in East Africa by a Veterinary Assistant in Bombay, and upon examination Montgomery confirmed the presence in it of "Koch's blue bodies". It is, apparently, from a verbal mention of this incident that the occurrence of this parasite in India has been recorded in the publications referred to. Although ordinarily, therefore, widespread distribution of the chronic harmless type occurs in India, under certain circumstances, which are at present not well understood, mortality in cattle may occur from "piroplasms" of the genus *Theileria*.

Plasmodium bubalis, described by Sheather (1919) in the blood of a buffalo, has only been encountered on two occasions at Muktesar, during the last three years, although since the first discovery and previous to 1922

it has not infrequently been detected. This number in all probability, therefore, gives a quite erroneous impression of the incidence of infection. As far as it is known at present, the parasite is not responsible for any marked ill-effects in the animal affected, although the number of blood examinations of buffaloes during the period has not been very large. In both the cases referred to, the animals had died, and the carcasses had been disposed of before examination of the films was made. In both cases also the parasites were extremely rare in the smears examined and no opportunity has yet occurred for further study of the infection.

We are indebted to the Agricultural Adviser to the Government of India, for kindly lending us the blocks.

POST-PARTUM DYSPEPSIA OF BOVINES*

BY W. RUTHERFORD WALLACE, M. R. C. V. S.,
Aberdeen.

Synonyms.—Retention of the lochia; deferred milk fever.

Definition.—A disease of milch cows occurring from ten days to six weeks after parturition, characterised in the acute and subacute forms by dyspepsia and a lethargic state of the alimentary and urogenital tracts, combined with nervous phenomena, and in the chronic form by dyspepsia, lethargia and cachexia.

Varieties.—Three varieties of this disease are commonly seen, *viz.*, acute, subacute and chronic, each variety appearing distinct, although intermediate forms are met. There is little tendency for the acute form to become subacute, or for the subacute form to become chronic.

Seasonal incidence.—The majority of cases are met in early spring while the animals are still housed, odd cases occurring throughout the winter. The disease is less seldom encountered while the animals are at pasture.

* Copied from the Veterinary Journal, July 1926, page 375.

Etiology.—The exact etiological factor of this disease as of many of the bovine affections, characterised by nervous phenomena—is rather obscure, although prolonged artificial feeding in the absence of Nature's green food would appear to be a contributory cause, and might be cited as the direct cause of the initial uncomplicated dyspepsia. The acute and subacute forms appear to have some etiological relation to milk fever, since mammary insufflation or the intravenous injection of glucose solution usually effects a cure. The chronic type appears to be referable to functional disorder of the hepatic apparatus, and in those chronic cases which do not recover there is usually found on necropsy organic disease of the liver in the form of cirrhosis or fatty degeneration.

Course.—From the initial appearance of symptoms in the form of slight dullness, constipation and diminished appetite, the acute form usually runs a course of twenty-four to thirty-six hours, and in the absence of suitable treatment is almost invariably fatal. The subacute form runs a course of two to three days, with progressive dullness and inappetance followed by nervous phenomena, a fatal issue being the rule when no treatment is applied.

The chronic type may last a fortnight to six weeks, accompanied by constipation, inappetance, pica and cachexia, with a tendency to recovery if turned out to pasture.

SYMPTOMS.

Acute Form.—In this type the first observable symptoms are dullness and relative alimentary stasis, followed in the course of twenty-four hours by incoordination of muscular movements, the animal showing symptoms not incompatible with those of drunkenness in the human subject.

Maniacal symptoms rapidly follow and the animal usually endeavours to "climb the walls", or it may assume the recumbent position and exhibit the classical symp-

toms of milk fever, death finally following the convulsions or in a state of coma.

Subacute Form. The symptoms in this type develop more gradually and are primarily those associated with ordinary indigestion, dullness and constipation being particularly in evidence. The fæces are rather similar in appearance and consistency to those of the ovine species, and a heavy foetid smell is given off from the breath and milk, the latter having a mawkish taste. Grinding of the teeth with a marked tendency to lick the manger, or persistently lick a leg or foot is an outstanding feature of the subacute type, and once this stage is reached there is a rapid intensification of the symptoms especially of the nervous phenomena. Complete incoordination of muscular movements follows, and the animal, now decubitus, passes either into convulsions or into a state of coma, followed by death.

Chronic type.—The chronic type is characterised by distinct symptoms of subacute dyspepsia, with a craving for the less digestible constituents of the ration. Chronic constipation is an outstanding feature, the fæces being hard and leathery in consistence and blackish in appearance. The characteristic smell from the breath and milk is present, and the animal shows a tendency to lick the walls or manger. Grinding of the teeth with irregular rumination is evident, followed by complete loss of appetite. Cachexia gradually supervenes and the animal in from three to six weeks passes into a state of complete marasmus, death finally ending the scene without a struggle.

DIAGNOSIS.

In the ACUTE CASE diagnosis is based on the time elapsed since calving, the hyperæsthesia, and the classical symptoms of milk fever. Passage of a catheter into the uterus reveals the presence of a brownish fluid—hence the synonym “Retention of the Lochia.”

In the SUBACUTE CASE the outstanding feature is the indigestion with constipation, accompanied by incoordination of muscular movements, with a tendency to persistently lick any object within reach.

The Chronic Type has as the outstanding symptom the heavy sickly smell from the breath and milk, accompanied by obstinate constipation and gastric derangement.

In both the subacute and chronic types there is in the uterus a quantity of odourless chocolate-coloured fluid.

DIFFERENTIAL DIAGNOSIS.

Milk Fever.—Time elapsed since parturition, with generally more hyperæsthesia, and a less tendency to complete anæsthesia.

Stomach Stagers.—Time elapsed since parturition, together with the tendency to aimlessly lick the walls, leg or foot.

Cerebro Spinal Tuberculosis.—History and condition of animal. Gradual onset in tuberculous infection.

Lead Poisoning.—History, and absence of characteristic teeth grinding associated with lead poisoning. No blindness in post-partum dyspepsia.

Hepatic Cirrhosis.—The chronic form is difficult to differentiate apart from the heavy sickly smell from the breath and milk.

PROGNOSIS.

Acute.—Excellent—90 per cent. recoveries with suitable treatment. Where there is a tendency to relapses the prognosis is less favourable.

Subacute.—Good—90 per cent. recoveries with treatment. Relapses are often unfavourable.

Chronic.—Fairly good—70 per cent. recoveries if pasture available.

TREATMENT.

Acute.—Mammary insufflation, with chloral hydrate per rectum, followed by purge, together with gastro-intestinal stimulants in the form of ammonia, carbonate and nux vomica, in salted gruel. Turn out to grass if available.

Subacute.—In mild cases chloral hydrate with purge, followed by ammonium carbonate and nux vomica. In more severe cases mammary insufflation with chloral hydrate per rectum, or glucose intravenously followed by purge and gastro-intestinal stimulants. Turn out to grass if available.

Chronic.—Judicious use of purgatives combined with gastro-intestinal stimulants. Formalin has been advocated, but its benefits are very doubtful. Grass will often effect a cure when all other means fail.

In the acute and subacute forms relapses occasionally occur, when the original treatment is again applied. Relapses may occur every two days, in which case there is little hope of a successful eventual recovery, although temporary recovery may be brought about by the intravenous injection of ten ounces of 10 per cent. aqueous glucose solution.

Pathogenesis.—In the acute and subacute forms little is found apart from alimentary stasis and retention of the lochia. In the subacute type there may be found post-mortem, organic disease of the liver.

Sequela.—Inhalation pneumonia from careless drenching when nervous phenomena are present.

PROPHYLAXIS.

Prophylactic measures are difficult to formulate, as our climatic conditions—at least in Scotland—do not admit of the pasturing of animals in winter or early spring.

The immediate purging of all recently calved animals showing signs of dullness or inappetance would appear to be the only practical prophylactic measure available.

In spring, turning animals out to grass on the first sign of illness will often work more wonders than all the drugs in the pharmacopœia.

THE RETENTION OF UTERINE FLUIDS*

BY

R. HUDSON, F.R.C.V.S., (*Retford*)

Apart from the retention of the foetal membranes and their effects, we frequently have to deal with a condition due to the retention of blood, fluid, etc., which should have been expelled in the natural way before the closure of the os, and this may occur even when the act of parturition has been normal and the membranes expelled without delay.

Such cases are most frequently observed during the winter and early spring, when exercise is restricted or entirely prohibited, the want of it preventing the movement of fluids towards the os and their escape. Also prolonged housing has a tendency to bring about a larger quantity of uterine fluids and so a larger and weaker uterine wall contraction being thus retarded though contraction of the os advances rapidly.

That contraction of the os may take place very rapidly is evident from the following instance:—

Three days after calving I was asked to cleanse a cow, and on entering the vagina I found the os so tight I could not penetrate with my little finger. Withdrawing my hand, I brought away a quantity of clear white mucus without a trace of smell. I thought she must have cleansed and that the afterbirth had been eaten by the patient or another cow. However, I was mistaken, for I removed the membranes a few days later through a naturally dilated os, which would admit my hand.

Looking back over a number of cases I find that they show a real variation in severity, milder ones recovering

*Copied from the Veterinary Journal, June 1926, Page 305.

with but little attention, the severer types requiring prolonged treatment and nursing, and may sometimes die.

The disease usually occurs after the second or third calving, and symptoms develop from the second to the eighth week.

The most prominent symptoms are gradual loss of appetite until, in some cases it is complete, great loss of flesh, gradual loss of milk, complete or partial absence of rumination, grinding of the teeth, temperature not usually elevated, often subnormal, presence of a peculiar sweet smell in the breath, urine and milk so pronounced in most cases as to be noticeable on entering the stable.

The course of the disease may be as short as a few days, or prolonged over several weeks and ending in death or slaughter. In the latter type the cow gradually becomes weaker from want of food and shows rapid wasting.

Post-mortem examination shows remarkably little change in any organ except the uterus, the general aspect being one of starvation rather than disease.

The walls of the uterus, are thickened, sometimes by infiltration of a clear serous fluid, while the interior may contain a quantity of reddish creamy fluid free from smell except that which has been peculiar to the breath, urine and milk. It is evident that some decomposing change has been taking place here, a different change from the usual one following the retention of the foetal membranes.

The following case was a very extreme one:—

The subject was a well-bred shorthorn cow and a heavy milker. I treated her from the 7th to the 13th February, when near calving, for a bad impaction of the stomach from which she recovered and calved normally.

On the 14th March, four weeks later, I was called to see her again and found her very much wasted in condition—she was fat when she calved. It was reported that she had lost her appetite that day; but she must have been

losing flesh much longer, for she was now thin. The box had that peculiar smell which can be traced to the breath, urine and milk. She stood stretched out like a horse with laminitis, looked heavy about the face and drowsy. One eye was weeping slightly, the lid drooping, the iris contracted and there was a deposit of blood in the anterior chamber. There was no evidence of foreign body or injury. The blood vessels on the sclerotic were full; but there was no inflammation of the conjunctiva. The pulse was fast (temperature 104), breathing accelerated, appetite and rumination suppressed. The urine was high coloured, plentiful and smelt sweet. After passing it she held her tail high and now and then jerked her hind quarters as though in pain or irritated. Walked out, she was stiff and unsteady and could not see well. Milk smelt.

There was no vaginal discharge and she had not shown any since the usual discharge a few days after calving.

Vaginal examination revealed a sticky yellowish secretion, the os was swollen and had a cyst on one side. It was completely closed.

I tried to pass a 3/8 inch rubber catheter, but failed. So I passed one 3/16 inch and injected about a quart of boracic acid and iodoform solution, allowing what would to return.

She was given internally:—

Ammon Carb	...	...	1/2 ounce
Pot. Nit.	...	...	I „
Water.	...	...	I Quart.

three times daily.

On March 16th I found her improved, she lay cudding, had fed better, eye was better though still closed, temperature 104, stood on the stretch when up, smell in breath, and milk bad, jerky movement of loins still present, milked one gallon.

On March 18th she still was improving, eye less painful, cornea dull, a red aqueous colour, and a flocculent

deposit in the anterior chamber, eye almost wide open and bore light better.

She still stretched and had jerky movements of the hind quarters. She carried her tail high. The smell was as strong as ever.

She had been rugged and put out in a sheltered paddock, where she grazed a bit and walked steadier. Examining her vagina I found the sticky discharge still present. The cyst on the side of the os was larger and was lanced, a thin serous fluid escaping. I do not think it affected her in any way.

The os was penetrated as before and about a quart of boracic iodoform solution injected as before.

On March 20th the cow showed considerable improvement, she was now feeding and cuddling well and the smell in the breath, etc., was much less noticeable. The pulse was 60, temperature $102\frac{1}{2}$, and although she still stood stretched out her position was not so awkward. She looked thinner, but gave half gallon more milk. Her eye was better, but the aqueous tumour was still blood coloured and flocculi were still present at the bottom. The uterus was not injected.

On March 22nd she was still improving, smell less noticeable, eye clearing, allowing flocculi to be easily seen at the bottom of the anterior chamber, temperature $102\cdot5$, pulse 60.

The uterus was again injected as before.

Some days later she was found to be improving rapidly, the smell was absent from the box and only very faint in her milk. Improvement was from now very rapid and she eventually made a good recovery, both in condition and milk yield.

Case No. 2. While attending a mammitis case I noticed the peculiar smell about the cow-house which I have come to associate with uterine sepsis and enquired if a cow was ill--there were several in the place. I was informed that they were all right. I made a casual exami-

nation and found nothing but was rather puzzled. I was shown one cow which had been calved two days, but she was all right.

A week later I was called to a cow in the same place. She was a very good milker, had been calved three weeks, calving normal, and had milked up to her usual capacity—five gallons.

Two days before my visit she had been found with her leg over the chain and could not rise. She was lame from a separation of the hoof at the heel.

The owner thought her illness was due to her having been cast, but the cow showed the usual symptoms of uterine sepsis, *viz.*, smell in breath, milk and urine, loss of cud and appetite, grinding of the teeth, loss of flesh, pulse 60, temperature 100°F . (never above for a week).

The treatment was the same as in the first case, and in a week she was feeding and doing well.

Remarks.—The disease appears to be a toxæmia due to absorptions of toxins the uterus and in bad cases, such as the first described, to the invasion of the blood stream by some organism.

The eye was probably infected from the blood, for there was no evidence of external injury and at no time did the conjunctiva show such acute inflammation as would lead one to suspect it.

The solution of iodoform (1 dram) and boracic acid (1 ounce) in a quart of hot water stirred well and allowed to cool, was used because it is almost non-irritant; not much iodoform is taken into solution but sufficient probably to do good.

The ammon carb. and pot. nitrate are stimulant and diuretic, useful in removing toxins from the blood and alone have given good results in mild cases.

All cases are benefited by being placed in fields, even in cold weather if well protected by rugging.

The catheter used was a piece of $\frac{1}{4}$ inch and $3/16$ inch acetylene gas tubing supported by a wire stilette up

to $1\frac{1}{2}$ inches of the end, the latter being tapered off for about $1\frac{1}{4}$ inches. I have found it the easiest of all to pass and the least likely to do injury.

A METHOD OF HANDLING RETAINED FETAL MEMBRANES IN THE COW.*

BY CARL F. SCHLOTTHAUER.

*Division of Experimental Surgery and Pathology,
The Mayo Foundation, Rochester, Minnesota.*

Retention of fetal membranes in the cow must always be considered a symptom of disease, such as infectious abortion, metritis, cotyledonitis, placentitis, and possibly cervicitis and salpingitis. Therefore, each individual case must be treated according to clinical findings. A careful study of the membranes at the time of removal gives one an excellent opportunity to learn something of the nature and source of the infection as well as the extent of damage done. If the membranes can be removed, they should be spread out on a flat surface and examined macroscopically for lesions. Infections in the gravid uterus arise from four points: from the blood-stream (as *Bacillus abortus*), the non-gravid horn, the cervix, and the apex and tubes. By studying lesions, one can frequently form a rather accurate diagnosis and prognosis. A severe apical or tubal inflammation is always serious, as this part of the uterus is quite inaccessible to treatment. The infecting micro-organism is, of course, of prime importance with regard to the life of the animal. Of these the *Bacillus pyogenes* and streptococci are perhaps the most dangerous.

Complete removal of all the retained membranes is not always possible or advisable. Often stockmen entertain the erroneous idea that the retention of the

*Reprinted from the Journal of the American Veterinary Medical Association, July 1926, Page 460.

fetal membranes is a specific disease and, therefore, that a cure cannot be effected unless they have been completely removed. This is a serious handicap to the veterinarian and in such cases the owner must be advised as to the true significance of retained membranes, and that it is not so important to remove the membranes as to know what may be removed. Therefore, if it is impossible to remove the retained membranes at the first visit and, if it seems advisable, permission should be asked to make a second visit. If the owner does not grant this, and care in technic has been exercised, it is quite safe to leave a large portion of the retained membranes in the uterus, simply breaking or cutting off such parts as can be removed without injury, so as to reduce the bulk in the uterus. Too much can easily be done in such cases, thereby hindering rather than assisting nature. From two to four uterine capsules should be inserted, or from a pint to a quart of paraffin oil instilled into the uterus, but a douche should not be given, as it is almost impossible to siphon out all of the solution in such cases and any solution left in the uterus causes irritation.

The methods of removing retained membranes are perhaps not of such great importance as the technic. The careful operator who employs the uterine douche, immediately after removal of the membranes, may be as successful as the operator who uses uterine capsules only. I think there is greater danger when douching is practiced, for the uterus may be ruptured, and, too, instead of removing debris and infected material, the infection may be spread from a circumscribed area to all parts of the uterus. However, perhaps the greatest cause of failure is from overdouching the recently gravid uterus, which happens when the veterinarian not only tries to remove all of the fetal coverings but also attempts to treat and cure the co-existing metritis all in one operation. The most important thought to keep in mind is not to injure the intact mucous membrane of the uterus. If the bulk of the uterine

contents is removed, the uterus tends to involute and discharge the remaining debris almost immediately.

I try to remove retained fetal membranes in from eight to seventy-two hours after parturition, preferably within twenty-four hours. However, if the case is that of a heifer in first pregnancy, who was aborted a three to six-months fetus, it always is advisable to attempt removal of membranes within twelve hours, because the cervix and uterus contract soon and are easily traumatized when dilatation is attempted. Trauma to the cervix at this time may cause cervicitis, with subsequent hypertrophy and prolapse of the annular folds. If the cow has calved at term, it usually is quite safe to wait until the following day before attempting removal of the membranes. If removal of the membranes is impossible at this time, I insert from two to four uterine capsules, and may try again in forty eight hours, depending on the case. Each time after I have removed as much of the membranes and debris as is advisable, I insert from two to four uterine capsules, breaking them in uterus and spreading the contents. If the uterus contains much fluid and is atonic, some fluid should be scooped out with the hands before inserting the capsules. The atonic uterus is easily prolapsed and therefore it sometimes is good practice to administer 5 to 10 c. c. of pituitary extract intramuscularly, to stimulate involution. Usually no further treatment is advisable at this time. After the cow has passed an estrual period, or thirty days have elapsed, I make a second examination of the genital tract by the rectum and with the vaginal speculum to determine whether more treatment is necessary.

I always wear sterile 20 inch rubber gloves when making uterine explorations or removing retained membranes. This is not so much to protect myself as the cow. All cleaning of the external genitals, tail, buttocks and udder is done bare-handed; the hands are

then cleansed and the gloves put on. This minimizes the amount of infection carried into the uterine cavity. The dangerous infections do not so often come from contaminated external genitals as from hands contaminated at other sources. It is quite futile for a veterinarian conducting a general practice to attempt to remove all pyogenic organisms from the hands, especially the finger-tips and nails, which come in direct contact with the only abraded area in the uterus following parturition—the cotyledons. Thus, without gloves, infection would be planted directly into the most fertile field in the entire uterus. If there are two or more cows to be treated at the same stable, one can avoid carrying infection from one animal to another by sterilizing the glove just used or by providing an extra pair.

SUMMARY.

Of seventy-six consecutive cases of retained fetal membranes treated by the method described, 46 per cent were associated with abortion. There were no fatalities. Thirty-eight (50 per cent) of the animals required puerperal treatment only, which consisted in partially or completely removing the retained membranes and immediately placing from two to four uterine capsules in the uterus. Nineteen (25.09 per cent) required puerperal treatment and one subsequent treatment, which consisted in douching the uterus with a 1.5 per cent solution of Iodine. All of the seventy-six have either conceived since or are capable of conception.

The results in this series of cases indicate that subsequent severe secondary metritis and death can be avoided by employing semi-aseptic methods with conservative treatment.

COMMUNICABILITY OF RINGWORM FROM ANIMALS TO HUMAN BEINGS.

BY MAJOR-GENERAL SIR JOHN MOORE, K. C. M. G.,
C. B., F. R. C. V. S.,
London.

Quite common in *Tinea tonsurans* from cattle. I myself in boyhood and in cattle practice in my young days contracted it several times on my arms but easily cured it with weak biniodide of mercury ointment.

In 1911-13 my children had a dreadful experience of ringworm in the scalp, and it took nearly eighteen months to eradicate it. They were under treatment by Dr. Beatty, Specialist in Dermatology, Dublin, and his chief remedy, so far as I remember, was a mixture of Tincture of Iodine, Acid Carbol, Glycerine, and Spirits Vini Meth. Diseased hairs had to be extracted individually. The hair was clipped quite close and kept so constantly. Copper ionisation was of no avail, and I was against X-ray treatment. It was attempted on one of the children once, but the apparatus did not work properly, and I was glad it was discarded, as I thought it rather risky.

Dr. Beatty said the variety of ringworm was *Trichophyton microsporon*. I attributed the cause to my carriage horse, a remount which, like a good many other remounts, I had under treatment for slight ringworm. With the casting of his coat and short hair, the nurse and children sitting behind him in the carriage (a Victoria) were frequently exposed to the falling hairs. Dr. Beatty, however, would not have this view, and very definitely said this form was not communicable from the horse. If this were not so, the only other source of infection that I can think of was from old ivy and fungus of walls in the garden of the house I rented in Dublin, the state of the premises requiring a vast amount of clearing. But the most probable cause by far was my horse.

The Veterinary Journal May 1925.

At one time I used to say that the person who could not cure ringworm in one dressing should be put under arrest. I changed my opinion after encountering some of the forms of ringworm met with amongst remounts in Ireland. One form ran in lines usually along the course of a trickle of water, if the dressing used happened to be a watery one, or if the animal had been washed or wetted. I remember one horse with a line of ringworm commencing from about the acromian process of the shoulder and ending just above the knee. I was defeated after weeks of treatment, and I tried every sort of dressing. Professor Melton was much interested in ringworm at the time, and so far as I remember had isolated over thirty different varieties.

An extraordinary thing about ringworm is that it often disappears as mysteriously as it comes. A change of locality is sufficient often to effect a cure or at all events to start a cure. Certainly our own children completed the cure very rapidly when we were moved from Dublin to Aldershot. I remember Mr. Richard Roberts of Tunbridge Wells telling me of a bad visitation of ringworm in his family, and how mysteriously it disappeared when he changed residence.

It is extraordinary also how ringworm affects only (practically) young animals and children. After thirteen years children are strongly immune. But for this we should have more of it amongst men in the army.

GREEN FOOD.*

ITS IMPORTANCE TO YOUNG STOCK.

If I were asked to name the most common misconception among poultry-keepers I think I should say that it had relation to the feeding of green stuff. It is an undoubted fact that the average poultry keeper seems to think that a very limited quantity of green stuff is

*Copied from the The Indian Poultry Gazette, March 1926, Page 310.

sufficient for the birds. Particularly is this the case in connection with young stock. In fact, I have met poultry-keepers who firmly believe that any green stuff fed to the youngsters brought on diarrhoea and kindred ailments!

One good lady who keeps poultry for a hobby was horrified when I recommended her to give young chicks some chopped onions-although her plentiful garden had produced some most succulent "Spring" onions, that would have acted like magic with her chickens.

The functions of fresh green stuff are to regulate the bowels, and to impart stamina, and it is the essential vitamins in green stuff that provide the stamina. No amount of cereal food, no matter how excellent the meals given, can really take the place of fresh green food.

The proof of this lies in the very interesting results reached after a long course of scientific experiments conducted by food experts in Europe notably in Sweden. Professors there took patient and copious notes as to the feeding of green vegetables to school children, and found that roughly, 80 per cent of the cases of malnutrition could be traced to a diet deficient in fresh vegetables. Once these were given in adequate quantity, the vitality of the children increased enormously, with a corresponding increased capacity for resisting disease.

Chickens usually arrive at the time when it is possible to obtain various succulent young vegetables, and the two I most favour are lettuce and onions. It is not sufficiently appreciated that the latter are a fine preventive of gapes, and have very rich medicinal properties. Lettuce can easily be cultivated in the smallest garden, and every poultry-keeper should make a point of sowing lettuce seed and growing a nice "patch". It is a better vegetable than cabbage for giving to the youngsters, although cabbage is quite good.

The mistake so many enthusiasts make is to think that any old green stuff will do. Now, it emphatically will not do, and it is foolish to give dead and yellow

cabbage leaves to the birds. Green stuff must be fresh-though not wet. Once it is wizened and dried up all the vitamins have gone, and it is useless.

The method of feeding green stuff is also important, and despite all that has been written about hanging the leaves or vegetables up, high in the pen, one still finds the old practice of flinging the food on the ground prevalent. Cabbage leaves thrown on to wet and sloppy ground soon get foul, and are very largely wasted as the birds-being somewhat fastidious in their eating-reject the dirty food. The wise plan is to suspend the leaves from a hook in the roof of the run, high enough from the ground to ensure that in rearing them the birds get plenty of jumping and exercise. This keeps muscles in good trim and by affording work, keeps the birds out of mischief, and prevents them from getting that "mopey" habit with all its attendant evils.

As a general rule, green stuff can be given *ad lib* the more the better. Money saved on the vegetable account is certainly not money earned, and fresh green stuff is really a good investment, paying dividends in the way of healthier stock and subsequent greater egg production.

It is not only the adult birds that require green stuff; the chicks, from the earliest stages, will thrive better if some juicy leaves are given freely. Remember that youngsters out on free range get any amount of green stuff-and in keeping fowls on an intensive system the aim is to feed a diet as nearly approaching the natural one as is possible.

Green stuff makes an almost ideal midday feed, and whether one's ideas favour grain in the morning, or meal as the first feed of the day there is little doubt as to the wisest-midday-meal which should consist of fresh green stuff in liberal quantities.

COMMUNICATIONS.

From

RAO SAHIB M.R.Ry.

V. P. SUBRAMANIYA MUDALIYAR, AVERGAL,
G. B. V. C.,Retired Deputy Superintendent,
Civil Veterinary Department, Madras,
Vellacal, P.O.,
Tinnevely District.

To

The Editor,
The Indian Veterinary Journal,
Madras.

Dear Sir,

I thank you very much for your very kind notice of my humble work in veterinary and other fields. I give below an extract from a letter received from the Hon. Divan Bahadur Sir T. N. Sivagnanam Pillai, Kt., Minister for Development, Madras, as it would be gratifying to you as an evidence of how ably your editorial notes are written.

"I have read with the greatest pleasure the life history of yours published in the Indian Veterinary Journal, Vol. III No. I, and I hasten to congratulate you on the excellent way in which the Editor has reviewed your life work.

Yours sincerely,
V. P. SUBRAMANIYA MUDALIYAR,
19-7-'26.

To

The Editor,
The Indian Veterinary Journal,

Dear Sir,

The dole meted out to the Subordinate Staff of the Civil Veterinary Department in Bengal in the shape of salary is so hopelessly inadequate, that one despairs what evil destiny crossed his path that led towards a Veterinary living.

[The vein of despair born of acute economic distress is apparent on the face of this letter. Bengal is far behind other provinces in the matter of emoluments. Will the Powers-that-be condescend to compare and do the needful?—
Editor]

Pause, and see the condition of the other Subordinate Establishment in Bengal, and it will be an eyeopener. The higher services of this department are graded according to other services in Bengal, and rightly so; then why in the name of humanity, is the Subordinate Staff not treated in a similar manner?

Why is this invidiousness? It is for the authorities to speak out clearly.

Petitions and resolutions have been submitted, but as to their fate, one is left to conjecture, 'Will there ever be redress?'

You, Mr. Editor, at times appeal for more and original contributions to the Journal; but do you not know, that your readers have to worry more as to how to supply the where-withal of daily life first? You cannot expect a hungry man to probe deep into studies when his mind is distracted. His cry is for bread.

It is time the Bengal Association tackles this problem with more vigour.

Yours faithfully,
NEIL.

From

Mr. T. N. KULKARNI,
Veterinary Asst. Surgeon Nargand.
Dharwar Dt.

To

The Editor,
The Indian Veterinary Journal.

Dear Sir,

I wish to draw the attention of my fellow professional brothers to the fact that the 20th century is a century of congress, conferences, national spirit, and societies. Progress is very fast. Men belonging to other branches of service are keeping pace with this progress but we in our own profession are following their example though slowly in almost all branches of advancement except in the Co-operative movement. Since 1904 this movement has progressed by leaps and bounds and at present there are in this presidency (Bombay) 70,000 societies having 30 lakhs of members and a capital of Rs. 30 crores.

All these societies are not of one kind. They are of so many kinds viz., Agricultural Societies, Cotton Sale Societies, Weavers Societies, Carpenters Societies, Govt. Servants Societies, Postal Servants Societies, Revenue Clerks Societies, Primary Teachers Societies, Dairy Societies, Cattle Breeding Societies, etc.. The working of all these societies with very few exceptions, is satisfactory.

It is a question why this movement has been overlooked by us for the last 22 years. Is it that the principles of this movement are not agreeable to us? Is there any objection to start a society of our own? Is there any impediment to the smooth working of such a Society? I am a strong believer in "Where there is a will there is a way".

It is not a question for the all India Veterinary Association, but it is a provincial or even district question. In the last meeting of the Bombay Veterinary Graduates' Association held at Ahmadnagar, I had submitted a resolution requesting that a committee be appointed to advise on the possibilities of starting a Co-operative Credit Society of the Subordinate Staff of the Bombay Civil Veterinary Department, but I regret to say that there was no mention of it in the proceedings. I think it is was thrown out into the waste paper basket but why so, I was not informed. I do not think it is too late to start one.

The advantages of such societies are well known to every body. The chief advantages being gradual saving of money, mutual financial help at very low rate of interest in time of need, close relationship of all the members and scope for charity out of the profit.

In conclusion I strongly hope that next Provincial Conference will discuss this very important question and take steps to start a society as early as possible.

ERRATA.

Read *passing in the first class* for *passing in the first class and that first in the presidency* in lines 22 & 23 of page 4, No. I. Volume III.

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The Indian Veterinary Journal.

**A Quarterly record of Medicine Surgery and of
General Veterinary Intelligence.**

**Devoted to the Cause of the Veterinary Profession
in the Indian Empire.**

EDITED BY

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

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Original Articles, Reports of interesting cases, Editorials, Veterinary Society Reports, Extracts, Reviews and Notices of Books, New Veterinary inventions in Medicine and Surgery, Therapeutic Notes, Service Notes and Correspondence.

Amongst the Contributors to the Indian Veterinary Journal are some of the most eminent men in the profession in India and abroad.

The Indian Veterinary Journal circulates among Veterinary men of all classes and ranks in Civil, Military, Municipal, Local Fund and Mission Services Private Practitioners, etc.

The Indian Veterinary Journal visits Government, Municipal and Local Fund and Private Hospitals, Dispensaries, Charitable Institutions, etc., etc., in India and abroad.

The Indian Veterinary Journal affords a very powerful medium for all advertisements appealing to the Veterinary profession in these countries.

It is especially suitable for advertisements relating to:—

Drugs	Soaps	Optical Goods
Fine Chemicals	Veterinary Books	Veterinary Publica-
Surgical Instru-	Hospital Furniture	tions
ments & Dressings	Appliances	Dietetic Preparations
India Rubber	Proprietary	
Surgical Goods	Medicines	Laboratory Fittings
Disinfectants	Toilet Goods	Etc.

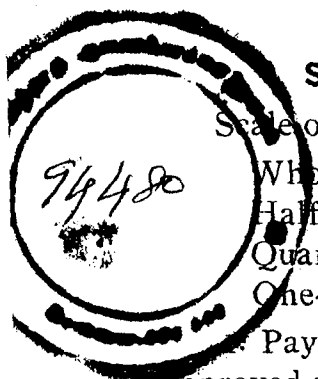
Advertisements of a select character only are admitted into the Journal.

All correspondence relating to Advertisements should be addressed to:—

The Editor, 18, Wallajah Road, Mount Road, Madras.

Remittance and Cheques should be made to the Editor.

N.B.—The Editor reserves the right to exclude from the Journal any advertisement which, in his opinion, is contrary to the ethics of the Veterinary Profession.



Size of Printed Page of the Journal.

Scale of Charges for Advertisement:—

Whole page per insertion		...	...	Rs. 15
Half page do.		...	...	" 8
Quarter page do.		...	...	" 5
One-eight page do.		...	...	" 3

Payment must be made **in advance**, except when approved accounts are opened and in such cases all bills are to be paid within 15 days of presentation.

2. The Editor declines any responsibility in the event of one or more of a series of advertisements being omitted from any cause whatever, and he also declines to account any responsibility for damage to or loss of blocks.

3. No guarantee is given that an advertisement will appear in any special issue, but care will be taken to meet the advertiser's wishes.

4. No deduction may be made from advertisement bills on account of alleged defective insertions; claims on such account will be adjusted by extra free insertion.

5. All extra space used during the period of the contract will be charged *prorata* to the existing contract.

6. No advertisement contracted for a certain period shall be withdrawn by the advertiser before the expiry of such period and if withdrawn shall be charged at a rate at the discretion of the Editor.

7. All sums due under the contract shall be recoverable either from the advertiser or from the Agent.

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Customs duty, to and fro postage on blocks, cost of mounting unmounted blocks, preparing blocks from matrices and bank commission on cheques will be charged to the advertisers' account.

SPECIMEN COPY FREE.

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