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Journal

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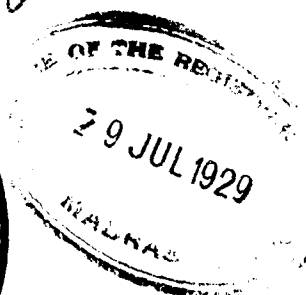
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THE
INDIAN
VETERINARY
JOURNAL



Vol. V.	EDITOR : P. SRINIVASA RAO, G.M.V.C., Veterinary Surgeon, MADRAS.	No. 4. April 1929.
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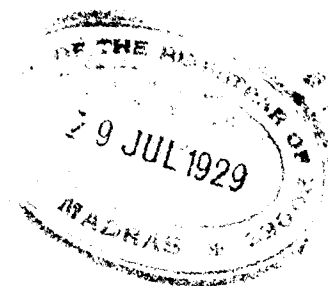
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April, 1929

No. 4.

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

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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:

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

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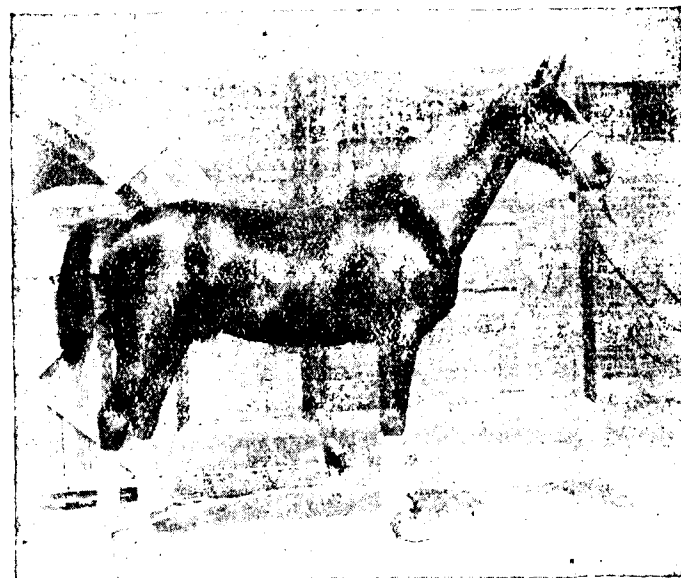
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THE INDIAN VETERINARY JOURNAL

(The Journal of the All-India Veterinary Association)

Vol. V.]

APRIL, 1929.

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THE Indian Veterinary Journal

Vol. V]

APRIL, 1929

[No. 4

Editorial

HOPE!

"Coming to the Veterinary Department, new Circles have to be created with a view to combat effectively the rising tide of rinderpest menace in the districts by serum simultaneous process. This method was found to be very effective and the results obtained so far are encouraging. We are producing the virus required in our own laboratory and we have proposals, which, I hope we could be in a position to sanction in the course of the year for the opening of a serum institute, on which many Hon'ble Members laid emphasis in their reference to the work of this department. Provision has also been made for extension of hospital and touring assistants. My attention has been drawn to the low pay of veterinary assistants. I have reason to think that there is a genuine discontent on this question, and I hope to take up this question in the course of the year and see if the position could be improved."

THUS spoke the Hon'ble the Development Minister to the Government of Madras, in the Legislative Council while speaking on the Budget estimate for 1929-30.

This is the first time, we think, that a Minister in charge of the Veterinary portfolio ever recognised "a genuine discontent on the low pay of Veterinary assistants" and gave expression to it on the floor of a Legislative Council. We offer our heartiest thanks to the Hon'ble Mr. M. R. Sethurathnam Ayyar for his masterly grasp of the real needs of the department. He will be remembered by the profession till eternity if he could translate his sympathy into action. Assisted as he is by an able and reputed Indian I. C. S., Mr. Tampoe, we feel sure that if any good should come at all, it should come during the tenure of office of this amiable

combination. Both do not believe in brass band and bugle, leaving behind nothing but din and dust. Silent and substantial work is real service to humanity and the land that gave birth to them. Yes, the profession is sick with shattered hopes, with none to console them with a word of encouragement. In the midst of this desolate condition, the words of the Hon'ble the Development Minister can only be compared to the finding of an oasis by a weary, blinded, exhausted traveller on the verge of death, in a desert land.

More Circle Officers may be created, serum and research institutes may be multiplied, further pile of buildings may be added on to those already existing, but we assure all those who are concerned in seeing real work turned out in the interest of the ryots, that unless and until the prospects of the department as a whole are immediately improved, they will be sadly disappointed.

The Hon'ble the Minister's promise that he hoped "to take up this question in the course of the year and see if the position could be improved" will, we hope, be solemnly kept up and justice rendered.

It may not be out of place to state here that the Madras Veterinary Assistant Surgeons' Service Association had appealed in December last to the Director of Veterinary Services, Madras, to lead them in deputation to His Excellency the Governor and the Hon'ble the Minister, to submit their prayers in person. We do not know what became of their appeal. But we submit that a more favourable opportunity like the present for a deputation has not presented itself till now. Will the Director of Veterinary Services take pity on his subordinates and arrange for a deputation and present their case strongly and effectively and in a manner productive of good results, which only he can do! Where there is a will there is a way!

We are at a loss to know what advice to offer to our colleagues in service, whether to "Live and Hope" or to "Hope and Live." We think it is the latter that befits their miserable condition. May God help them!

THE VISIT OF THE SCIENCE CONGRESS TO THE MADRAS VETERINARY COLLEGE.

The Science Congress met in Madras from 2nd to 8th January, 1929. The Congress included a visit to the Madras Veterinary College also in their programme. Accordingly they visited the College on 3-1-1929.

Mr. F. Ware, the Director of Veterinary Services and Mr. T. J. Hurley, the acting Principal of the College, received the delegates at the entrance and arranged to be taken round in batches, in charge of the Professors and the Lecturers of the College.

The Pathology and Bacteriology section in charge of Professor V. Krishnamoorthy Ayyar, had a good deal to excite the admiration of the visitors. The Professor's experiments on Bovine Lymphangitis and his invitation to the members of the medical profession to note the many points of similarity between the organism of this disease and *B. pestis* and to pursue the matter by those who are so inclined, received great attention. Equally interesting were his slides on diseases like the Infective Nasal Granuloma of cattle, Tuberculosis, Rinderpest, Hæmorrhagic Septicæmia and Black Quarter. Next the delegates were shown the entire process of virus production from experimental Rinderpest calves.

The Parasitology section, in charge of Professor M. R. V. Panikar, was full of specimens of both Endo and Ecto parasites and the delegates evinced great interest in what all they saw.

The Dissection room was again an object of great admiration of the visitors and they then went round the College Museum and the several wards of the hospital. The successful visit ended with a Magic Lantern exhibition on "Anthrax and how it spreads from Animal to Man" by Professor V. Krishnamoorthy Ayyar. The slides were prepared for propaganda work in the villages and advantage was taken of the presence of the distinguished visitors and the slides were screened. They were much appreciated by the visitors.

We dare say that the Madras Veterinary College impressed the delegates of the Congress with much of its

useful and valuable work and we offer our heartiest congratulations to the Director of Veterinary Services, the Principal, the Professors and the Lecturers of the College.

TO FOLLOW OR NOT TO FOLLOW.

We commented at length in our previous articles, on the many far-reaching proposals of the Linlithgow Commission, with regard to the development of Veterinary Services in India. Those are recommendations of a distinguished deliberative body, who bestowed much thought and time over the subject and toured extensively to gain a personal knowledge of the conditions obtaining in India. It was not a Commission with very many subjects to concern itself with, but it was a Commission specially constituted to study and report on the possibilities of the economic development of the land, through Agriculture and its allied sciences.

Well, it was such a Commission that said and said strongly too, that the Veterinary Services in India should be improved a great deal, if any good is to accrue to the ryot. To improve the Veterinary Education, to increase the number of Veterinary Surgeons in the land, to make their pay and prospects attractive, to open Research Institutes, to recruit Specialists in every branch of work, to increase the number of institutions for production of Sera and Vaccines, to carry on an intensive campaign of S.S. Inoculation against Rinderpest and many other subjects have all been ably put forward by the Commission, for adoption by the Local Governments. But the delay and doubt that mark the procedure of the various Local Governments, make us believe that the old order of things may not change, yielding place to new. If that be so, we have no hesitation to forecast that the Government are courting disaster. The world will know that the recommendations of even the Royal Commission are with impunity treated as a scrap of paper by the Provincial Governments, that they neither know to improve of their own accord nor show an inclination to follow the ways and means suggested for improvement by a responsible body, that all their talk about their interest in ryots and their cattle is not what it means; that India is becoming poorer day by day by loss of her cattle-wealth through ravages of epizootics, for

want of adequate Veterinary Staff; and thus the Government will stand condemned before God and Man. The despair will be complete, the mishap will be severe and the consequences beyond redemption, if even the Legislators of the land do not raise their little finger against the present attitude of the Local Governments.

So far as we can gather, it is only the Government of Madras that is trying to move a little in the matter. Even to them we can only say that there can be no half-measures in matters of Science. They must be full and complete, to bear fruit. The other Governments seem still to indulge in the soliloquy "To follow or not to follow" the recommendations of the Royal Commission. Prudence, Humanity and good Government can have only one answer to offer, one solution to submit and that is—Follow.

Notes

We invite the attention of our readers to an extract from the 'Statesman' of Calcutta on a paper read before the All India Cow Conference by Lieut. S. Dutt, B. Sc., M.R.C.V.S. of the Bengal Veterinary College.

We are sorry we are not able to present the full paper to our readers, as it has not been sent to us. But from what little had appeared in the 'Statesman' we cannot but admire Lieut S. Dutt for the bold and candid step he took.

India wants such men in official line also—men, who will speak out their mind in the interest of the land of their birth and the Science they have wedded themselves to. We cannot improve on the mead of praise bestowed on the Lieutenant by a premier 'Daily' of India.

Equally interesting is an extract, from the *Amrita Bazar Patrika* of Calcutta, on the Gopastami Celebrations in Cuttack. Our esteemed friend Rai Sahib P.N. Das, Assistant Director, Civil Veterinary Department, Bihar and Orissa, was the

President. We have been favoured with a copy of his speech, which we gladly publish elsewhere.

We owe a deep debt of gratitude to the several M.L.C's. who championed the cause of the Civil Veterinary Department, Madras, on the floor of the Legislative Council during the last budget session. It was a marvelous fight, we had the good fortune to witness!

We publish from the *Hindu* a report of the above discussion in this issue. We feel sure the entire profession in India will read it with interest and the M.L.C's. of other presidencies will follow up the lead so nobly given by Madras.

There were two token cut motions on the grant asked or the Veterinary Department. Mr. Karant's motion was for "criticising the Veterinary Policy of the Government" and Mr. A.B. Shetty's motion was for "discussing the recommendations of the Agricultural Commission in regard to this Department."

Both put up a vigorous plea which will be remembered for years to come. Mr. J. A. Saldana again came to our rescue in spite of his recent illness and he was a picture of sincerity when he thundered "It is the most neglected department.....Unless the Minister offered better pay and prospects and not merely a stipend, he could never hope to attract better or more men.

The Hon'ble Minister's reply was favourable; but one statement was rather disquieting. He said "Last year we wanted to open 12 dispensaries but for want of hands we could only open 7." Whose fault is it?

The Government do not employ all men who pass out of the Madras Veterinary College. They have got their own

board to select candidates for employment. The men, not selected, fearing to face unemployment seek service elsewhere and it is no wonder that the Government do not find men when required at a later date.

Now 20 men have passed out of the Madras Veterinary College this year. Will the Hon'ble Minister pass an order for their immediate employment! It will only be translating into action, his wish so heartfully expressed in the Legislative Council.

Original Articles

THE MANUFACTURE OF A CONVENIENT FORM OF FILM SPREADER

BY

D. C. MATHESON, F.R.C.V.S., D.V.S.M, (VICT.)

*From the Department of Pathology and Bacteriology,
The Royal (Dick) Veterinary College, Edinburgh*

The film spreader presently to be described is serviceable for the preparation of films of blood, milk, exudate, transudate, fluid cultures, or pus. The latter, if thick, may be diluted with sterile water or with physiological saline solution to a suitable consistency for the preparation of a film.

*The spreader may be made as follows:—*A clean glass microscopical slide, 1 by 3 inches, with smooth edges is taken and laid on the bench; a drop of Canada Balsam, dissolved in Xylol, is placed a little to one side of the middle of a clean No. 2 or No. 1 glass coverslip, which should be seven eighths of an inch square; the coverslip is then placed on one end of the slide so that the Canada Balsam spreads out evenly between the coverslip and the slide. The coverslip is to be so placed, that about one millimetre of the edge of it, projects beyond the edge of the slide. The projecting portion of the coverslip is for the purpose of spreading the film when the spreader is in use. The Canada Balsam is to be allowed to set firmly, after which, the spreader is ready for use. As

the Canada Balsam takes a little while to set, a dozen or so spreaders should be made, and the number replenished as needed so that several are always at hand, ready for service. If Canada Balsam be not available, the coverslip may be fastened to the slide with glue, melted paraffin wax, sealing wax, tallow, Kronig's lutant, (Langeron (1)), or even a rubber band. When using the spreader, the side on which the coverslip is fastened is to be the underside: that prevents the risk of blood or other material being drawn up in the small groove between the free end of the coverslip and the slide and so lost; it also permits of greater freedom in the angle at which the spreader is held during its passage along the slide.

For general purposes a No. 2 seven-eighths of an inch square coverslip is most serviceable on account of its greater strength; but for special purposes a No. 1 of the same size may be preferred on account of its greater flexibility. Both should have edges, as smooth and straight as possible; a rough edge yields an unsatisfactory film.

When arranging the slide, for the purpose of making a film, it is important to notice, as pointed out by Sir Almroth Wright (loc. cit. p. 68.) that one side of the slide is very slightly convex. The side may be found by spinning the slide upon a smooth surface; it will spin more readily upon the convex side: that side should always be used for smear purposes.

The slide, after testing, may be scratched, by means of another slide, at one end of the convex side: there will then be no difficulty in recognizing that side when required, for example, in the field.

The slide must be clean, and free from grease; it may be slightly roughened with emery paper (Wright (1)), or by rubbing with pumice stone or similar preparation: in this case it must be well washed subsequently with water and dried with a flickless cloth.

Method of using the spreader:—A drop of blood or other material is placed on the convex side of the slide, about one quarter of the total length of the slide from one end. The spreader is then to be taken (coverslip side underneath) and the coverslip edge is placed in front of and in contact with

the drop of blood, which, if freshly drawn, will spread rapidly along the whole length of the free coverslip edge, and, as soon as that happens, the spreader, held at an angle of 45° , is pushed steadily along the slide in one continuous movement, drawing the blood in an even film behind it to within a quarter of the distance, from the end of the slide, towards which the spreader is travelling. That will ensure compliance with the requirements that both edges and at least one end should be available for examination. The film must be spread in one continuous movement, without a check, and without going back over any part a second time.

The reason for the use of the seven-eighths of an inch coverslip is now apparent, being slightly narrower than the slide, it presents both edges of the film, it makes, for examination. The blood should always be drawn, never pushed: the slide is steadied by the left hand during these manipulations, but care should be taken that the steam from the fingers does not come in contact with the film. It is one of the advantages of this type of spreader, that the length of the handle obviates that difficulty. The excellent type of spreader devised by Kuhnhardt and Wright (Wright (1)), also possesses this advantage. By varying the angle at which the spreader is held during its passage along the slide, a wavy film of varying thickness can be obtained and such a film is occasionally useful, as pointed out to the writer by Rai Sahib Debakar Dey, when search is to be made for certain blood parasites e.g. piroplasmata. For some purposes an angle of 30° as suggested by Kolmer (3), for others an angle of 40° , as suggested by Burnett (4), may be employed. After use, the spreader may be placed in a 2% solution of lysol in water or in a similar disinfectant. After a few days sojourn therein, the coverslip can be detached readily and after appropriate cleaning both slide and coverslip can be made up again into a spreader. In the case where the spreader has been used for blood containing the Bacillus of Anthrax, it is best to dispose of it altogether after thorough disinfection. After the film is made and dried, if it is not to be examined forthwith, it is often better not to actually fix the smear, as the blood elements, parasites etc., retain their staining capacities longer, if not fixed until just before the stain is applied (Da Costa (5)), (Langeron (1)) (Burnett (4)).

These remarks do not, of course, apply to films of blood containing, or even suspected to contain the Anthrax bacillus or other dangerous germ; such films should be fixed as soon as they are dry enough on account of the risk of infection. In the case of blood containing the Bacillus of Anthrax, fixation must be adequate, but over-fixation is to be avoided as it interferes with the capsular reaction with Polychrome Methylene Blue stain (M'Fadyean (6)). To preserve the film during transport or while awaiting examination the method suggested by M. Calmette, Negri, and Boquet (7) may be used. The method is as follows:—The slide, on which the film has been made, is dipped into a mixture of equal parts of Xylol and Paraffin wax of a melting point of about 45° C. The slide is then exposed to the air, but protected from dust, until the Xylol has evaporated leaving a thin layer of wax over the slide. When required for examination, the wax is dissolved by a brief immersion of the slide in a bath of Xylol, finally rinsing the film with a little fresh Xylol. Toluol can be substituted for Xylol in the above method (Author). The slide is then to be wrapped in paper and labelled. If the film be not protected by wax as above, the slide may be wrapped in Japanese lens paper. Where it is of great importance, that there should be no mistake, as to the source of the film when examined subsequently, the necessary identification details can be written permanently on the slide by means of a diamond pointed or steel pointed glass writing pencil. Care must, however, be taken in such a case, that the slide be not used a second time until the original data have been obliterated.

The slides, wrapped in paper, and labelled as above, may then be put into glass bottles provided with well-fitting stoppers to protect them from dust or damp (Langeron (1)), or into a metal box having a tightly fitting lid, which may be wrapped round the edge with adhesive tape. The metal boxes supplied with sticks of soap may answer the above purpose admirably. Metal boxes are useful, on account of their strength, for field work, or for the dispatch of slides to a laboratory; the slides should be carefully packed to prevent them jostling one another during transport.

To protect the spreader from breakage during transport e.g. in field work, the following plan may be adopted. Two

spreaders are taken and an ordinary glass slide is placed between them, the coverslip side of each spreader being in contact with the glass slide, and the spreaders are so arranged that the projecting cover-slip edge lies just behind the end of the protecting middle slide. The three are then fastened together with a stout rubber band and placed in one of the circular tin boxes, already mentioned.

REFERENCES.

1. Langeron, M.—“*Precis de Microscopie*”, Paris, 1913, p. 447. *ibid.* 4th edition 1925. pp. 825–830.
2. Wright, A.E.—“*Technique of the Teat and Capillary glass tube*” London 1912, pp. 66–74.
3. Kolmer, J. A.—“*Infection, Immunity and Biologic Therapy*”, 3rd edition, Philadelphia and London, 1923, p. 182.
4. Burnett, S.H.—“*The Clinical Pathology of the Blood of Domesticated Animals*”, 2nd. edition, New York, 1917, p. 17.
5. Da Costa, J.C.—“*Clinical Haematology*”, 2nd. edition, London 1906, pp. 76–79.
6. M'Fadyean, J.—“A peculiar staining reaction of the blood of animals, dead of Anthrax”. *Journal of Comparative Pathology and Therapeutics*, Edinburgh and London, 1903, Vol. 16, p. 35. (see also page 360) See also Vol. 35, 1922, p. 232.
7. Calmette, A.—“Negri, L., Boquet, A.—“*Manuel technique de Microbiologie et Serologie*”, 2nd. edition, Paris 1926, p. 113.

NASAL GRANULOMA OF CATTLE IN BIHAR AND ORISSA.

EXPERIMENTS REGARDING MODE OF INFECTION AND TREATMENT.

BY

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INTRODUCTION.

Nasal Granuloma appears to have existed amongst the working bullocks in certain part of this Province for a very long time. The disease is believed to be commonly prevalent in other provinces of India too. The occurrence of the disease in the Madras Presidency was first reported by two veterinary assistant surgeons in 1919, in the third issue of the Madras Veterinary Journal, while its existence in Assam was mentioned in an official communication of the Muktesar Research Laboratory. Mention of this disease does not occur in English or continental literature, so that it would appear to be confined to the Indian peninsula. The disease generally goes by the name of "Nakhra" or "Sinsunia", *i.e.*, an affection of the nostrils. The popular idea is that the disease is an incurable one, there being considerable depreciation in the value of an affected animal owing to the difficulty of breathing interfering with work capacity.

Messrs. Krishnamurti of the Madras Veterinary College and H. Cooper of the Muktesar Institute studied the disease particularly in relation to the pathological condition of the growth on the Schneiderian membrane and the causal organism responsible for the disease. The former read a very interesting article on the subject and demonstrated some specimens of the disease in the Second Veterinary Conference held at Calcutta in 1923. Both these authors described a ray fungus as the causal organism akin to the kind which is responsible for actinomycosis; but the exact mode of infection, the biological character of the organism, and the period of incuba-

tion are still obscure. All forms of medical and surgical treatment had proved valueless until 1921, when the veterinary surgeon of Saidapet Veterinary Hospital reported having used tartar emetic with conspicuous success and was even led to regard the drug as a specific for the disease, although Mr. Krishnamurti was inclined to consider that it had no curative value. The drug has since been used with considerable success in the treatment of a number of cases and it has even been reported that a veterinary assistant in Madras cured an advanced case with a single massive dose of tartar emetic administered intravenously. The drug would then appear to possess an undoubted curative value, although the statement that a single injection of the drug is capable of effecting a cure in the case of chronic affection without any detrimental results being produced in the patient is correct, needs confirmation.

OCURRENCE OF NASAL GRANULOMA IN BIHAR AND ORISSA AND APPLICATION OF TARTAR EMETIC IN THE FIELD.

In January 1923, and again in March of the same year specimens of Nasal Granuloma were forwarded to the Imperial Institute of Veterinary Research, Muktesar, and detailed reports on pathological condition of the growths obtained. Six affected cattle were also despatched to the Institute during August 1923, in order that they might be subjected to careful investigation.

During the cold weather of 1924, the Director, Civil Veterinary Department, Bihar and Orissa, decided to have an enquiry made into the incidence of the disease in the Province and the Veterinary Inspectors of the Central Range were instructed to report the number of affected animals in their respective jurisdictions and to test the curative value of intravenous injections of tartar emetic whenever an opportunity for the application of the drug presented itself. The number of cases reported was 1,513 all appearing in an enzootic form and out of these 71 cases were treated with intravenous injections of tartar emetic, in doses ranging from 10 to 20 grains in 20 c.c. of distilled water. Treatment could not be carried out in the case of the others.

In one out of six villages in which the operation was conducted, the animals were treated by means of five injections each; in four others, two to three injections; whilst in the sixth village, not more than one injection was given to each animal. The cases treated with the maximum number of injections were actually either cured or at any rate improved in condition, but those treated with fewer doses did not appear to have derived any lasting benefit. The number of deaths reported was only five. Although the immediate results of the treatment would thus appear to have been satisfactory, the actual curative value of the drug would be determined by the permanence of the therapeutic effect produced in the treated animals.

TRANSMISSION OF NASAL GRANULOMA AND TREATMENT OF THE DISEASE UNDER EXPERIMENTAL CONDITION.

With a view to studying the method of infection and to ascertain the value of the treatment as expressed by the permanence of the therapeutic effect produced by it a series of experiments was conducted upon five healthy and eight diseased cattle. The experiments extended over a period of 9 months from 28th March to 23rd December 1924.

All the experimental animals were maintained as far as possible under the same conditions as obtain in the villages and were in addition allowed to graze together during the period from 1st July to 14th November 1924. During the progress of the experiments all variations in weather conditions except severe cold were experienced.

(A) Mode of infection

Ordinarily, the disease is supposed to be directly transmitted from the infected to healthy animals but the possibility has also been suggested of the causal agent being harboured, in saprophytic form or otherwise, in soil, fodder or water.

In order to test these possibilities, a series of experiments was performed upon a herd of animals maintained at the Bankipur Veterinary Hospital composed as follows:—

Nos. 1 to 6		affected.
" 7 to 10		unaffected.
No. 11		affected (returned as unsuitable).
" 12		unaffected.
" 13		affected.

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The following is a brief account of the experiments carried out:—

(1) *Feeding and watering healthy and diseased animals in the same trough.*

(a) No. 7, aged Taylor bred cow, weight 4 maunds and 30 seers, purchased in the city. Fed and watered with:—

(i) No. 1, bullock, (affected with acute disease) from 28th March to 12th July 1924.

(ii) No. 5, bullock, from 13th July to 12th September 1924.

(iii) No. 13, bullock, from 13th September to 21st December 1924.

Result. The test animal failed to contract the infection.

(b) No. 8, bull-calf, 1½ years old, weight 1 maund and 30 seers, purchased in the city. Fed and watered with:—

No. 5 (affected with subacute disease) from 28th March to 13th September 1924.

As it failed to take the infection, a further attempt to set up the disease was made on the 15th September 1924, by means of an intravenous injection of 5 c. c. of emulsion of morbid material obtained from No. 13.

Result. The test animal failed to contract the disease.

(c) No. 12, aged bullock of medium size, brought from north bank of the Ganges (Hazipur). Fed and watered with:—

(i) No. 6, bullock, from 5th to 11th September 1924.

(ii) No. 13, bullock, from 12th to 14th September 1924.

(iii) No. 6, from 15th September to 21st December 1924.

Allowed to graze with the diseased animals on the maidan.

Result. The test animal failed to contract the disease.

(2) *Rubbing on the scarified surface of healthy nasal mucous membrane material from a diseased nasal growth.*

(a) *Healthy bullocks Nos. 9 and 10.*—Aged, of medium size. The former weighed 4 maunds and the latter 4½ maunds, both being brought from Hazipur (north bank of the Ganges). On

13th July 1924, the left nasal mucous membrane of bullock No. 10 was well scarified and rubbed with material obtained from a fresh diseased nasal growth in an outpatient (Case No. 550 of the Bankipur veterinary hospital). The patient represented a typical case of nasal granuloma and was brought from a village about 8 miles from the city.

The material was ground into a mortar to the consistency of thick paste and was then thoroughly rubbed into the scarified healthy mucous membrane.

The same operation was repeated on the 15th September 1924, with fresh material obtained from No. 13, also a typical case of nasal granuloma. The material was obtained by scraping the affected mucous membrane with a scoop and collected in a petri dish.

Operation repeated after six days.

Result. The test animals failed to contract the disease.

(b) On the 12th November 1924, another specimen of diseased growth obtained from an untreated case of typical nasal granuloma from village Nargoda in Dinapur Subdivision and the material rubbed on the scarified mucous membranes of the healthy animals Nos. 7 and 12.

Result. The test animals failed to contract the disease.

(3) *Subcutaneous injection on both sides of nasal peak of healthy animal with an emulsion of nasal growth.*

On the 15th September 1924, fresh nasal growth obtained from case No. 13 was ground down in normal salt solution and 30 c. c. of the emulsion was injected into healthy bullock No. 12 under the skin on both sides of the nasal peak.

Result. The test animal failed to contract the disease.

(4) *Submucous injection of healthy nasal mucous membrane with infected material.*

On the 12th November 1924, about 2 c. c. of an emulsion made from the fresh material from an untreated typical case of nasal granuloma obtained from village Nargoda (Dinapur Subdivision) was injected under the submucous membrane of the left nostril of healthy bullocks Nos. 9 and 10 admitted on the 12th July 1924.

Result. The test animals failed to contract the disease.

(5) *Intravenous injection of healthy animal with infected material.*

On the 15th September 1924, a thin emulsion in normal saline solution was prepared from the material obtained from case No. 13. 5 c. c. of this was injected intravenously into healthy bull calf No. 8 admitted on 28th March 1924.

Result. The test animal failed to contract the disease.

(6) *Application of "nose strings" used on diseased animals.*

On the 9th August 1924, two nose strings used on two typical cases were obtained from the Khajpura village, about 4 miles from the Veterinary Hospital, and were inserted, while still moist, into the nose of healthy animals Nos. 9 and 10.

The nose strings after insertion were occasionally pulled up and down until the nostrils bled. This process was continued for about a week.

On the 25th August 1924, the nose string of No. 11 diseased animal was interchanged with that of No. 9 healthy bullock and the process of pulling it up and down continued for three days.

Result. The test animals failed to contract the disease.

(B) *Curative treatment with potassium iodide and tartar emetic*

Treatment was applied in the case of 7 diseased animals as follows:—

(1) *Intravenous injection of potassium iodide at intervals of 7 days.*

(a) No. 1, an aged bullock, weight 5½ maunds, bought at Bhagbatipur, about 8 miles from the hospital.

When admitted, it snored even while resting and showed symptoms of severe asphyxiation when it was made to work. An examination of the nostrils revealed the presence of ulcerating growths which bled on the slightest manipulation. The animal was believed to have been affected for about 6 months.

(b) No. 6, an aged bullock purchased from the same village; weight 6½ maunds, condition fair.

Snoring was not marked but examination of nostrils revealed ulcerating growths.

Treatment. The drug was dissolved in distilled water in the proportion of 10 grains to an ounce and administered intravenously at intervals of 7 days, at the rate of 10 grains in the case of No. 1 and 5 grains in the case of No. 6. The treatment commenced on 28th March and terminated on 9th July 1924, so that No. 1 received a total of 140 grains and No. 6, 70 grains of potassium iodide.

Result. No improvement up to 13th July 1924.

(2) *Intravenous injection of tartar emetic at intervals of two days.*

No. 5, a six-year old bullock of medium size; weight 6 maunds, purchased from the village Bhagbatipur on 27th March 1924, and admitted to the hospital the same day.

It showed thick ulcerating granular growths in both the nostrils, markedly narrowing the nasal passages, with a thick whitish discharge. The condition of the animal was fair.

Treatment. The animal received 170 grains of tartar emetic in 34 injections at the above intervals between the 28th March and the 12th July 1924, the dose used being 5 grains of tartar emetic in 30 c. c. of distilled water.

Result. The animal showed no symptoms of reaction to the drug. It was cured and discharged on the 20th October 1924, and no recurrence of the disease was reported up to the date of the compilation of the paper.

(3) *Intravenous injection of tartar emetic at intervals of 7 days.*

No. 3, a grey bullock, 5 years old, of medium size; weight 4 maunds 10 seers, purchased from the same village and admitted to the hospital on 27th March 1924.

This animal was suffering from a subacute type of the disease. Snoring not very marked. Growth not prominent. The condition of the animal was fair.

Treatment. 140 grains of tartar emetic were given in 14 injections at intervals of 7 days, the dose used being 10 grains of tartar emetic in 20 c. c. of distilled water.

Result. The animal showed no symptoms of reaction to the drug. It was cured and signs of recurrence were not noticed up to 22nd September 1924, when it was sold to the Patna Administration Committee. No recurrence of the disease has been reported up to the date of the compilation of the paper.

(4) *Intravenous injection of tartar emetic at intervals of 11 days.*

No. 2, a brown, aged bullock of medium size; weight 6 maunds and 10 seers, purchased from the same village and admitted on 27th March 1924.

This animal was known to be suffering from the disease for about 2 years. Breathing was very marked on admission.

Treatment. It received 108 grains of tartar emetic in 9 injections up to 1st July 1924 at the rate of 12 grains of tartar emetic in 30 c.c. of distilled water at intervals of 11 days. The treatment was discontinued after the 9th injection on 1st July 1924, by which date all the visible symptoms of the disease had disappeared completely. On the 1st September 1924, i.e., two months after the last injection, it was noticed that the nasal mucous membrane had become slightly rough and superficially ulcerated. The animal was kept under observation up to 3rd October 1924 and no further aggravation of the symptoms was reported. As the administration of two additional doses at an interval of 4 days was not followed by any marked improvement, the drug was given every alternate day in doses of 10 grains dissolved in 20 c.c. of distilled water. In this manner it received 90 grains of the drug in 9 doses up to 4th December 1924, when it was discharged as cured.

(5) *Intravenous injection of tartar emetic at intervals of 14 days.*

No. 4, an aged bullock of medium size; weight 4 maunds, purchased along with other diseased animals from the same village and admitted on 27th March 1924.

The animal appeared to have been suffering from a subacute form of nasal granuloma although the duration of the disease could not be ascertained.

Treatment. The animal was given 80 grains of tartar emetic in 8 doses at intervals of 14 days from 28th March to

11th July 1924. There was no recurrence of the growth up to 3rd October 1924, when it was sold to the Patna Administration Committee.

Treatment adopted in the case of three bullocks two of which were first treated with potassium iodide and the third was used as a control.

Case No. 1, which received 140 grains of potassium iodide, having shown no improvement, was given $15\frac{1}{2}$ grains of tartar emetic in 50 c.c. of distilled water intravenously. The animal died the same night.

Case No. 6, which received 70 grains of potassium iodide in 14 injections, having shown no improvement, was given $105\frac{1}{2}$ grains of tartar emetic in 10 injections, the first dose being $15\frac{1}{2}$ grains in 50 c. c. of distilled water and subsequent 10 grain doses at intervals of 7 days. The animal showed all signs of recovery after the last injection.

Case No. 13. This animal which was admitted on 12th September 1924, was used as a control and it also provided material for experiments with effect from 30th November 1924. It was treated by means of tartar emetic administered in 10 grain doses, in 20 c. c. of distilled water, at 4 days' intervals; it thus received 90 grains of the drug when it was discharged as cured. A large, hard and painful swelling was noticed after the last injection. It later developed into an abscess but it eventually healed without giving much trouble.

SUMMARY OF RESULTS.

(a) *Experiments on transmission of nasal granuloma*

(1) Three clean cattle were fed and watered in company of diseased animals.

(2) Two clean cattle had their scarified mucous membranes rubbed at different times with material obtained from fresh nasal growths, the material being derived from three different sources.

(3) One bullock was injected subcutaneously on both sides of the nasal peak with 30 c. c. of an emulsion prepared from a nasal growth.

(4) Two clean cattle were given submucous injections of an emulsion made from an untreated case of typical nasal granuloma.

(5) One healthy bull-calf was given intravenous injection of an emulsion prepared from diseased material.

(6) Two healthy bullocks (Nos. 9 and 10) had strings from diseased animals put on their noses and the strings were occasionally pulled up and down until the nostrils bled.

The test animals in all cases failed to contract infection.

(b) *Treatment with potassium iodide and tartar emetic*

Altogether 7 cattle were treated and these resolve themselves into three categories:—

(i) Cases Nos. 1 and 6 were first injected with 10 and 5-grain doses respectively of potassium iodide intravenously at intervals of 7 days. The first animal received 140 grains and the second 70 grains of the drug in 104 days, but neither showed improvement. Both the animals were then given tartar emetic intravenously. Case No. 1 died after receiving the first injection of $15\frac{1}{2}$ grains in 50 c. c. of distilled water. Case No. 6 was discharged as cured after $105\frac{1}{2}$ grains of tartar emetic were given in ten injections, the first injection being $15\frac{1}{2}$ grains of tartar emetic in 50 c. c. of distilled water.

(ii) Cases Nos. 2, 3, 4 and 5 were regularly treated with varying doses of tartar emetic at different intervals. The first animal (case No. 2) received 108 grains of tartar emetic in 9 injections and subsequently received 90 grains in 9 injections. No. 3 received 140 grains of tartar emetic in 14 injections. No. 4 received 80 grains in 8 injections and No. 5, 1170 grains in 34 injections. The best results were observed in the case of No. 4 which made a complete recovery after it had received only a few injections.

(iii) Case No. 13 was first used as a control but was afterwards treated with intravenous injections of tartar emetic administered in 10 grain doses at intervals of 4 days. The animal recovered after receiving 90 grains.

CONCLUSION

Experience in the field and the results of the experiments described above indicate that under ordinary conditions nasal granuloma cannot be transmitted from animal to animal or through the agencies of soil, fodder or water.

The infection cannot also apparently be transmitted by subcutaneous, submucous or intravenous injection of diseased material.

The disease does not also appear to be capable of transmission through the nose strings of affected animals; at any rate the experiment failed to demonstrate such a possibility.

Treatment with potassium iodide is not effective.

For a medium-sized animal, the best results may be expected from injections of 10 grains of tartar emetic in 20 c. c. of distilled water administered at intervals of 4 days.

Massive doses do not appear to have any curative effect. A sound plan would appear to be to repeat the injections in small doses (10 to 12 grains) and at less than 4 days' intervals. When smaller doses are employed, the interval may be reduced to one day.

The administration of the drug by the subcutaneous route cannot be recommended, as such a procedure results in the formation of large and painful local swelling lasting for many days.

NOTE.—J. T. Edwards, D.Sc., M.R.C.V.S., Director, Imperial Institute of Veterinary Research, Muktesar, in commenting upon this article has made some valuable observations regarding treatment with potassium iodide and tartar emetic which are quoted below for general information. I believe this suggestion for the use of tartar emetic will prove to be the most practical as well as the safest method of treatment for adoption in the field.

"It is curious to note that potassium iodide exerts no beneficial effect upon the condition, especially as this drug has a pronounced effect upon the clinically similar condition, actinomycosis."

It may be that this is evidence that the condition is not in reality a streptothricosis, in spite of the fact that "granules" apparently indistinguishable from those of actinomycosis are discoverable in the lesions.

I note that one of your bullocks succumbed after the administration of $15\frac{1}{2}$ grains of tartar emetic in 50 c. c. of water intravenously, and that the dose you recommend varies from 10 to 12 grains in 20 c. c. of water.

We have found here (Muktesar) that cattle tolerate doses of 5 c. c. of a 3 per cent. solution per 100 lb. body weight quite readily, although when the blood is rich in trypanosomes the administration of this dosage may be followed by accidents, due, it seems, to sudden destruction of the trypanosomes and occlusion of the capillaries. For the larger animals in your experiments, averaging 500 lb. body weight, our dosage would therefore be 0.75 gram (or about 12 grains), which is just about the rate you recommend for treatment. We have found in addition that this dosage can be given daily for a number of days (10 or perhaps more). It is not safe to increase this dosage although some animals will tolerate twice the rate (i.e., 10 c. c. per 100 lb.), for three days.

In distributing the drug for treatment I think it would be wise to put it up in freshly prepared solutions containing a certain percentage of tartar emetic (say 3 per cent.) and instruct your staff to give it at a certain rate per unit body weight; otherwise, you may get accidents from overdosage.

Also, I believe in this treatment there is no question of a *dosis sterilisans magna*, i.e., sterilisation by the administration of a single large dose, but rather a therapeutic effect caused by the cumulative action of the drug administered in suitably large doses repeated at suitable intervals. We know that tartar emetic is excreted, or, at least, its action is not discernible in the blood stream (surra experiments) after an interval of 3 days. I see no reason, therefore, why the drug should not be administered at very short intervals with the object of curtailing—if the end results are dependent upon the total amount of the drug administered—the period of treatment. Again, according to this view, the initial doses should be small, to test the idiosyncrasy or the susceptibility of the animal to the drug.

It is of interest to compare the mode of treatment adopted in human schistosomiasis (bilharziasis) with tartar emetic (see Byam and Archibald, the Practice of Medicine in the

Tropics, Vol. III). If an analogous system were adopted for a bullock of 500 lb. body weight the system would be:—

A	First day	2 grains
	Second day	4 "
	Third day	6 "
	Fourth day	8 "
	Fifth day	12 "

(If preceding dosages are tolerated) 6th, 7th and 8th days same dosages as on the 5th

- B { Allow one clear week to elapse without treatment and then repeat the 5th day treatment for three successive days.
- C { Send the bullock now away, to be returned for inspection in a month's time, and if the lesions have not disappeared, repeat the treatment given under B."

THE SCIENTIFIC BICYCLE OF A VETERINARIAN.

BY

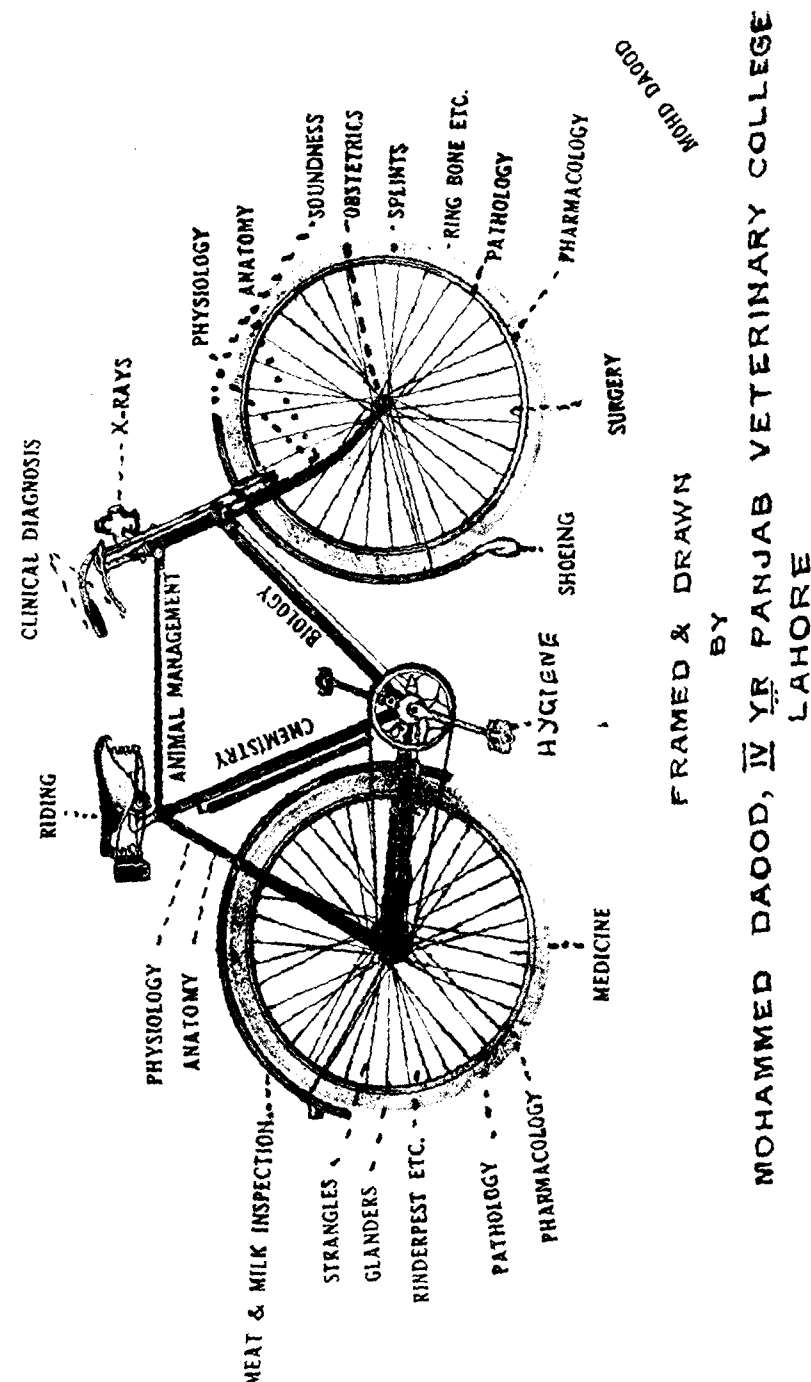
MOHAMMED DAOOD, FOURTH YEAR CLASS

*Read in the Meeting of the Punjab Veterinary College
Students' Debating Association
on 5th January 1929.*

Bicycle, as it is, is not a strange thing; on the other hand, it is a very very common means of conveyance of the day. It is known to all, and almost all know how to make use of it. But the Scientific bicycle of veterinarian is not known to all; nor can all make use of it, for the reason that it cannot be had easily and everywhere. It is a recent invention of my own, and might seem to you somewhat strange although many of you here, are quite familiar with the different parts of the same, which I am going to deal with now. As you will see, the material used for the preparation of the different parts is not the ordinary metal, steel. It is, on the other hand, something anew. The different parts of my scientific bicycle are the different subjects of the Veterinary Science.

By my introducing this bicycle to you, I want to show how the several subjects of veterinary science are connected with one another and how, one without the other is unable to constitute what may be termed "one solid thing." The importance of the relationship, or the close connections among these, cannot be too strongly emphasised for the reason that

THE SCIENTIFIC BICYCLE OF A VETERINARIAN



FRAMED & DRAWN

BY

MOHAMMED DAOOD, IVTH YR PANJAB VETERINARY COLLEGE
LAHORE

even the absence of an apparently unimportant part may stand as an obstacle in the way of perfectness.

In dealing with the thing, I have not taken each subject separately and discussed in detail, lest the paper should turn into a lengthy and tedious one. I have only tried to touch some important points here and there.

It won't be out of place if I say here that I have attempted to combine and connect the different subjects as suitably as they could possibly be done. In this, some may differ from me; and, just as there are varieties in the ordinary bicycles, they may resort to different combinations, according to their view.

At any rate, to begin with, the triangular frame work of my bicycle is formed by the three preliminary subjects—Chemistry, Biology, and Animal management. These three constitute the basis to which the several other subjects are connected further on. Without the frame work there can be no bicycle and so, without these subjects, no one can learn the subjects of *Materia Medica*, Parasitology, Bacteriology, etc. It is needless to say that, the stronger the frame work is, the better and valuable the bicycle is deemed, just as the frame work of B.S. A. cycle, for instance. Similarly, one who is thorough in these subjects is helped a lot further on.

The posterior angle of this frame work is saddled with the subject of Riding. From below the saddle run two solid rods down one each side. These are the two important subjects, Physiology and Anatomy, upon which depend much of the sense of distinction of the functions and structures when they deviate from their normal. It is on the knowledge of Anatomy and Dissection, that the subject of Surgery and operations wholly and solely depends. Therefore, the importance of these two solid rods is unspeakable as long as they have to keep in themselves the wheel of the bicycle.

Coming to the hind wheel proper, we know that it consists of a rubber tube, a tyre, a circular metallic rim attached with a number of spokes in a radiating manner. Similarly, the subject of Medicine constitutes the frame work, each spoke representing a single individual disease in itself.

Pathology constitutes the tube encircling the metallic frame work, which in turn wrapped round on itself by the protecting covering tyre of Pharmacology (and Bacteriology).

The close connexion and attachment of these two subjects with Medicine is as clear as day-light, and without the tube and tyre there is no wheel at all.

The subject of Veterinary Medicine dealing with the ailments of animals, has got two aspects; one of which is the theory of medicine which enumerates the principles on which disease acts and thus comprises the subject of Pathology which is really the scientific study of the disease: and it is upon this, that the remedies are applied, which, in turn, concern the subject of Pharmacology dealing with action of drugs on the body both in health and disease. The second aspect of the subject is the practice of medicine which consists of the application of those principles to the treatment of the disease and relief of pain.

Again, the hind wheel is connected with a mud-guard which guards against mud and dust: this may be represented by the subject of Milk and Meat Inspection, which also guards against the Public Health by protecting it from danger.

Thus, the hind wheel, all in all, is equipped with the rods, the metallic rim with the spokes, the tube, the tyre, and mud-guard. Similarly the subject of Medicine is closely connected with Physiology, Anatomy, Pathology, Pharmacology, and Milk and Meat inspection.

In the same manner, the front wheel represents the subject of Surgery connected again with Anatomy, and Physiology above, and wrapped round by the tube of Pathology covered by the tyre of Pharmacology, each work representing the individual disease, and the whole attached by the mudguard or soundness with a rubber flap of shoeing, connected by a rod of Obstetrics.

As a whole, the subject of Surgery deals with the study and treatment of all the diseases of the exterior of the body of animal, the repair of injury, and the treatment of such formations and deformities whether congenital or acquired.

Now the remaining lower-most angle of the triangle connects itself with a small free wheel, running free and

smooth as long as it is not chocked with dirt and dust; this is represented by the subject of Hygiene or the Preventive Medicine. This attempts to maintain the balance of health and prevention of disease. And, upon this, the working capacity and speed of the bicycle depends.

The longer it is kept clean, the longer the bicycle runs. Similarly Hygiene makes growth more perfect, life more vigorous, decay less rapid and death more remote; and thus safe-guards the interest of the whole against the errors of the parts by removing the avoidable causes.

The handle of the bicycle which is in connection with the whole of the bicycle and occupies the front and uppermost situation constitutes the subject of Clinical Diagnostics. This is the whole and the soul of the bicycle. As long as it is held in proper and correct position, the balance of the bicycle as a whole is kept up. Otherwise, the whole thing falls. This is the guide, so to say, and leads the bicycle on any direction or path it is wanted. If the path taken is correct, the bicycle runs smooth and free; if there comes any ditch or stone in the way, the whole thing shivers and if the path is uneven or altogether wrong, the bicycle is gone. So Clinical Diagnostics is a subject which controls the whole of Surgery and Medicine. Hence, the Correct Diagnosis of a case is of paramount importance for the correct application of the knowledge of Medicine and Surgery.

Some times, when the bicycle is ridden in darkness, the handle can not guide it, and at such a time, there comes the necessity of a lamp to be lit up, to find out the proper path. Similarly, in cases of difficulty in diagnosis, the lamp is lit and X rays are used to help us in arriving at a correct diagnosis; and hence the lamp is attached more to the front wheel rather than to the hind wheel.

So, the scientific bicycle of a veterinarian runs on the two important wheels of Surgery and Medicine connected closely with the other accessories of the different subjects, and the whole is guided by the handle of Clinical Diagnostics.

Having dealt with the Bicycle proper, we come to enquire as to who the rider of the bicycle is, and how and where it can

be got. It is quite clear that the rider is one who possesses a licence to practice veterinary medicine, and the licence is the diploma of L.V.P.

As regards its availability, it can not be had everywhere and at every price. To get the bicycle, one has to spend a lot of energy in the preparation of the different parts. It takes a long course of full four years, provided everything goes quite alright during the period. Otherwise, God forbid that, it takes a longer time altogether. Besides this, polishing of the parts is quite essential every now and then, for fear of their becoming rusted while the other parts are being prepared.

So, a student of the Punjab Veterinary College, Lahore, begins to prepare and ride the triangular frame work of Chemistry, Biology and Animal Management in the first year class; having done this, he places it before the examiner to be tested. If perchance, one of the parts is defective, the thing is not passed fit; and he is put to work again for a period of three months more to get it passed again.

In the second year he prepares the solid rods of Physiology and Anatomy, and also the rubber flap or Shoëing. In the third year he works at the preparation of the tubes and tyres of Pathology and Pharmacology, the free wheel of Hygiene and the handle of Clinical Diagnostics.

In the fourth or final year, he prepares the two metallic frame works of the wheels of Medicine and Surgery, the mudguard of Milk and Meat Inspection and that of Soundness, and the rod of Obstetrics; and in the latter part of the year, he combines them all to form a Bicycle. Ultimately, he places it well polished before the examiner to get it passed fit. The Examiner requires him to show that he can ride on it and keep up the balance to a fair extent. If he does so, he gets a licence for further use of the bicycle—the Licence being the Diploma of L.V.P.

At this stage, his pleasure knows no bounds on the accomplishment of the thing, and he enjoys his after life on this paying bicycle.

But, at the same time, it is of utmost necessity that the rider has to take care of the bicycle further on and see that it does not go wrong, or get rusty in after-years. To avoid this he has to keep it as clean and tidy as possible, get it polished now and then and overhauled occasionally. If he wants to become an expert rider he has to take care of the balancing of the handle. Or else, he may fall right ahead to break his knees or the skull even.

So the scientific bicycle of a veterinarian is not an easy thing to be had and dealt with. It requires keen interest and earnest attempts during the process of its being manufactured, and special attention and care afterwards, in order to enjoy its ride.

General Articles

PRESIDENTIAL ADDRESS

BY

RAI SAHIB P.N. DAS.,

*Assistant Director, Civil Veterinary Department, Bihar
and Orissa, in charge of Orissa Range,*

*at the Annual meeting of the Cuttack Gopastami
Celebration held on*

20th November 1928.

GENTLEMEN AND MEMBERS OF THE VICTORIA GOSHALA COMMITTEE :—

It is generally known why we have assembled here on this particular day—I mean one of the greatest auspicious days of the Hindus. It is needless on my part to recapitulate here the traditions about the sanctity of the cows which have found place in the Hindu mythology and in the Vedas. We know how the sages of India venerated the cows in the olden days and even the devine Sri Krishna did not hesitate to tend cows on the sacred banks of the Jumna. So useful are cattle in contributing to the existence and comfort of man, and so highly are they esteemed that it is no wonder that in primitive times and even to a certain extent at present, the people

should venerate them as objects of worship. We have, therefore, assembled here to day to worship the "Gomata" which is considered to be the life and soul of the human race.

The usefulness of the cows is perhaps well known to every one of us. Our country is an agricultural one and the real work of agriculture i.e. cultivating the land, drawing ploughs and carts and separating corn from ears are mainly done by oxen alone. In Europe, America and other parts of the world the work of agriculture is carried on by horses, mules and other draught animals and even by machinery. In fact the strength and power of oxen are mainly employed in human society in India where the power of horses, mules and modern machineries are neither available nor financial and intellectual condition of the ryots allow them to keep such animals or machinery.

Apart from the benefit we generally derive from the bullock power, we derive even greater benefit from the cows form preserving our health from their milk as well as from from its by-produces like ghee, dohi, butter etc. We all know that milk and ghee cannot be substituted by any other substance as far as their food value is concerned. In olden days there was a proverb that "Jabat Jibet Sukhang Jibet-Rinang Kritua Ghritang Pibet." Khona, the greatest astrologer amongst the Indian Bidusis (learned women) of the olden days says that "Jadi thakae aga-pachha ki-koribe Shaga-machha" i.e. if we have ghee and milk with out meals at the beginning and at the end then there is no necessity of having vegetables and fish. It is, therefore, superfluous on my part to explain the true value of milk for the formation and preservation of the human body and soul. Practically our life is vitally connected with the cows from birth to death. We are, therefore, so dependent upon the cows that we cannot sustain our life without them and for these reasons we venerate them as Gomata.

In the recent years the cattle population has been greatly degenerated a large number of them are in dying condition and many of them are being daily tortured in the hands of the ignorant and cruel masters. Sir John Woodroffe said in his Presidential address in the All India Cow Conference held in Calcutta in the year 1917, that "where the cattle are good

there the country is prosperous." Unfortunately we are quite reverse to this maxim as neither our cuttle are good nor our country is prosperous and I think that the present wretched condition of the bovine race is greatly responsible for our degenerated health and high percentage of infant mortality. With the change of time, the mentality of the peole has been changed to such an extent that we have entirely forgotten to realise the real spirit under-lying the true worship and treatment of the cows which are no doubt the fundamental principles of "Gowsheba" (worship of cows.)

There is no doubt that one of the most important problems of economic question of India Inter-alia is the protection of cows and thereby to increase the supply of milk for the preservation of health and thus reduce the abnormal rate of infant mortality. This can be achieved successfully if we manfully adopt the up-to-date scientific methods of breeding and rearing as well as of treatment of diseases of bovine population which carry away thousands every year. Many thoughtful men of the country are now thinking to improve the condition of cattle and activities are often seen in this direction but alas! the real improvement and preservation of the cattle are so slow that it will take many years before any appreciable improvement is made and thereby the condition of human society in India is uplifted. The condition of cattle of Orissa is most deplorable. They keep one dead level of inferiority They are half starved in dry months and remain under-fed during the rest of the year. In short they are mostly a lot of small, weak and emaciated creatures and possess a low degree of vitality and consequently the supply of milk to the people is hopelessly low. There are many people in the villages who have scarcely tasted milk in their life and there are many villages where a chattak of milk is not available.

However the question of the improvement and preservation of the cattle population has engaged the attention of many charitable people of the Hindu society for a long time. The outcome of which is the establishment of Pinjrapoles by the Marwari community, formation of all India cow protection society and many such other institutions, besides the activities of the Government of the country in this direction.

It appears to me that the Marwari community of India first took the initiative to save the cattle population as far as

possible from their suffering by opening the Pinjrapoles. We are grateful to them for such philanthropic work on their part. There are now in India about 600 such Pinjrapoles and Gowshalas and many thousands of suffering animals are daily rescued from the hands of their cruel owners and sheltered. In Orissa 11 Gowshalas exist with 1447 animals that are being sheltered.

To my mind the system of keeping the Gowshala on co-operative basis is the best means for the proper solution of the question of the preserving cows in this country and I hope this system will be extended to every group of villages in the interior.

As regards the proper method of running the institution I should suggest that in future there should be two sections in all such institutions i.e. one for the purpose of giving shelter to maimed, old and useless animals and the other for the improvement of breeds by adopting up-to-date methods of breeding and rearing. In course of my duty I had occasions to visit many Pinjrapoles in India specially in Bengal, Bihar and Orissa and I am convinced that a very few of them are maintained on proper and systematic basis and unless and until proper and vigorous steps are taken to improve the present condition of the Pinjrapoles the very object of such institutions will be frustrated and they will stand in the long run as a mere object of show. I, therefore, desire to invite the special attention of the managing Committee of all the Gowshalas of the Province to the points I mentioned here. I, however, congratulate the authorities of the Cuttack Victoria Gowshala for taking special interest to run the institution in the right direction, and its leader Rai Sahib B. C. Patnaik may be called the life and soul of the institution,

I thank you gentlemen again for the honour you have done me and the patient hearing given to my saying.

TREATMENT AND CARE OF ELEPHANTS

BY

DR. M. C. GUPTA (LATE MEDICAL AND VETERINARY.
OFFICER, MESSRS. MACGREGOR & CO., LTD.,
BURMA, TOUNGOO, 1924.)

The "cure" of disease was formerly regarded as the chief function of the practitioner. Implicit faith was placed in drugs and methods of treatment; to-day prevention is considered better than cure. If certain rules are observed, elephants may generally be kept fit for forest work. Few rules are necessary, but these few should be strictly obeyed. They are (1) washing, (2) grooming, (3) grazing and (4) rest.

Washing.—First and foremost, a good and invigorating bath should be given to the elephant early every morning as soon as the animal is brought in. To effect this, wherever possible, a good running stream should be selected. The usual custom amongst Burmese mahauts is to stand the elephant in water and to throw some water over it with their hands, a clumsy way to give an elephant its bath. The proper procedure is to do grooming and washing together. As soon as the elephant is made to lie down in the water the whole body should be properly scrubbed with some hard substance such as a brick. The Indian mahauts use burnt bricks, each mahaut taking his brick in his hand as he goes to wash his charge. In the sick camp I have tried scrubbing brushes which are as good as burnt bricks, but the cost of these is prohibitive. I have endeavoured to burn some bricks, but they have not turned out as good as the Indian ones. The Indian scrubbing bricks are light, spongy, and scrub the elephant's skin well. This sort of grooming will prevent skin diseases such as "thwesuma" (blind boils), abscesses, etc., gives the skin a healthy appearance and promotes the circulation of the blood. The Burmese mahauts sometimes use "*Do Nwe*"—a creeper which fulfils the same function as soap. Mahauts when bathing their elephants generally forget to clean out the ear cavities. It is a common thing, when inspecting an elephant, to find septic sores in the ear—obviously the result of improper attention at bath time. Assistants, as a rule, should make a point of examining the ear cavities whenever they inspect

an elephant. In the hot weather, when water in the streams becomes scarce, a well should be dug both for bathing and drinking purposes. The well should be often changed to keep the water free from contamination.

Grazing.—Good grazing is the secret of the elephant's good health. Every-day experience shows that mahauts do not trouble to take their elephants to suitable grazing, they generally loose them just outside their camps and the animals have to find their own fodder. This, under no circumstances, should be permitted. The *Sinoks* (elephant headman) should have strict orders that the mahauts are to take the elephants to good grazing some distance away from their camps. Grass is the natural food of elephants. *Kaing* and *kyu* are the chief varieties which elephants eat with relish. *Wa ywet* (bamboo leaves) and gonmin plants are also favourite fodders. As regards artificial food for sick and weak elephants *san londi* (broken rice), paddy and boiled rice are generally used. Paddy soaked in water for a couple of hours before use and with the husk removed, proved just as efficacious as rice itself, and cheaper.

To facilitate easy digestion and quick absorption these artificial foods should be given in small bundles of paddy straw or tender *kaing* grass. As oil cake contains a large quantity of fat this food is also used in the sick camp. It is first soaked in water and then mixed with paddy.

There is perhaps no animal less liable to sickness than the elephant if well fed. This point is of paramount importance. It is common enough to see elephants in poor condition, suffering from nothing but starvation, and being given medicines for general debility, when their appetites are good and they only require sufficient fodder to be cured. It may truly be said that all the ailments to which elephants are subject are directly or indirectly caused by insufficient feeding. Underfed elephants become weak and unable to stand exposure; they cannot perform their work, and are subject to the attack of even such remote diseases as sun-stroke.

Rest.—If elephants do not have sufficient rest, no amount of food will keep them fit. Rest the animals when they look tired. The hot months are as tiresome to them as to us.

Make it a rule to march your elephants in the hot weather before ten o'clock in the morning. Elephants generally sleep two to three hours, and the time at night they generally choose to sleep is between 1 and 3 A.M. Sometimes on a very hot day some animals will lie down in the middle of the day, this is an indication of a weak constitution.

General capacity of an elephant for work.—An elephant should on no account be considered merely as a beast of burden. In the hot weather the working hours for a dragging or *aunging* elephant are from 7 to 10 in the morning and 5 to 7 in the evening. Any time worked over this is to detriment of the animal's health.

Sore-backs.—Sore-backs are sometimes exceedingly tedious to cure. The mistake usually made is to allow the wounds to heal on the surface, while mischief may be going on inside. A free use of the knife, great care in cleansing the wound, and the application of antiseptic dressings are the best methods of insuring a speedy cure. The deep burrowing holes (otherwise called sinuses) generally present in sore-backs should be well packed with tow soaked in the antiseptic ointment. In deep sinuses of long standing camphor oil may also be found useful.

Purgatives.—When elephants require a purgative they eat a considerable quantity of earth, kicking it up with their toes and conveying it to their mouths with their trunks. Sometimes they eat from 3 to 5 lbs. They generally do this when troubled with internal parasites. Certain soils, usually black and impregnated with a kind of *natron*, are preferred. Purging ensues from 12 to 24 hours after they eat earth.

Salt.—A daily salt ration should always be given, elephants in captivity cannot go to natural salt licks and this fundamental requirement must be made good.

Signs of health.—Continual motion of trunk, ears and tail, bright eyes, soft, pliant and freely moving skin, good appetite, mucous membrane of mouth, eyes and other external organs of a bright pink.

Detection of disease.—The early detection of disease is a matter of the greatest importance. If the malady happens to be an ordinary ailment, treatment applied in the first stages

stands a better chance of being successful than if applied later on and if the disease is infectious early detection will facilitate the adoption of measures to prevent its spread.

Symptoms of ill-health.—One of the first indications of ill-health is a loss of appetite. This can be seen by the 'empty' appearance of the elephant. While being "off his feed" denotes that there is something wrong with the animal, it must not be taken for granted that because the animal keeps on feeding there is not much the matter with him. Anthrax may be mentioned as one of the diseases in which the appetite of some elephants is retained, although the animal may be seriously ill. Therefore the retention of appetite in an elephant that is obviously ill may aid in the diagnosis of the disease from which it is suffering.

Elephant inspection.—When an elephant is inspected it must be observed very carefully. Eyes, ears, spine and the limbs should be seen. In fever and inflammations the mucous membrane turns red, when the liver is deranged it assumes a yellowish tint. Usually pale mucous membranes are a sign of weakness and debility, or are caused by some internal haemorrhage traceable to innumerable blood-sucking worms. The urine varies in colour, smell, and density according to the food taken. But usually it has a strong but not unpleasant smell and is greenish in colour. A clear urine or white sediment is not a good sign, and should be attended to. The dung should be bright green, fairly consistent but not dry, covered with slimy mucous and passed without straining.

Attention to these details and use of a few simple remedies will generally insure good health in the elephant camp. Indian mahauts are addicted to the use of various dopes including opium most of which are probably either harmless or useless.

Clinical Articles.

KERATITIS IN DOGS

BY

G. N. ROY CHAUDHURI,

Veterinary Surgeon, Calcutta.

Keratitis is the inflammation of the cornea and is a very common disease among dogs; the character of the inflammation as we find is mostly of interstitial type: Keratitis Punctata is very rare.

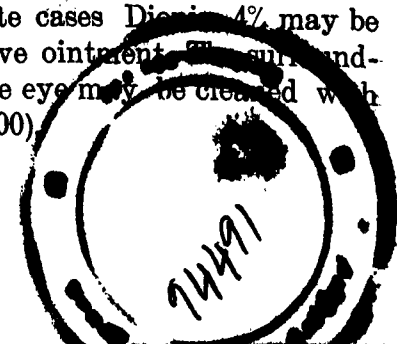
In my experience I find this occurs as a result of any long standing exhausting disease, viz.—Distemper, Tick-fever, Pneumonia, etc. or trauma—such as injury or violence to the eye.

Symptoms are characteristic:—The transparency of the cornea is lost, a cloudy state of the cornea with bulber and tarsus conjunctivitis, profuse lachrimation and some time a depression on the corneal surface results in corneal ulcer.

Mild Type of Keratitis:—These are recognised by the cloudy state of the cornea, congestion of both conjunctiva, incapability of looking at light, closed affected eye and the vision is lost.

Suppurative Keratitis:—The above followed by profuse discharge, ulceration of the cornea, a depression in it, indicating loss of substance. Suppurative Keratitis always leaves opacity permanently.

Treatment:—To keep the eyes clean by compressing with warm normal saline solution (i.e. 90 grs. to a pint) followed by instillation of 4% protargol lotion twice daily. Atropine sulph. 1% solution once a day to keep the pupil dilated to prevent anterior synchia. Later on when the acute symptoms have subsided a stimulating ointment viz. Hydrag. Oxide Flava 1½% should be applied into the conjunctival sac by a clean glass rod. In obstinate cases Diap. 4% may be added with advantage to the above ointment. The surroundings and the discharges round the eye may be treated with lotion Hydrag Bin Iodide, (1—8000).



Prognosis:—Some cases take 4 to 5 months to clear up. Milder ones clear up sooner. Often permanent opacity is left, in spite of all the treatment.

A FEW CLINICAL CASES

(1) Bull Dog:— Owner Mr. S.

Both the eyes were badly affected, opacity persisted for five months. Now perfectly cured. Sequel after high fever. Vision restored.

(2) Fox Terrier:— Owner Mr. T.

One eye was affected, caused by a tennis ball hitting it, cured after six months, permanent opacity left.

(3) Fox Terrier:— Owner Mr. S.

Was of suppurative variety. Cured after a month's treatment. Vision restored.

(4) Two Pekingese Dogs:— Owner Mr. T.

Suppurative variety. Ulceration occurred. Cured after two months' persistent treatment; vision restored.

(5) Great Dane Pup:—

Cured within a week; was of milder type.

In all the above cases I carried on the treatment described above.

Points of observation:—The duration of the disease being long the practitioner should not be disappointed. But persistently continue the treatment. A cautious prognosis should be made. Confusion should not also be made with Conjunctivitis, Iritis and Glaucoma.

[Ed. In our experience, subconjunctival injection with normal saline solution, has been found very effective in such cases.]

MELANOTIC SARCOMA IN A DOG.

BY

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

Subject:—A middle aged airedale dog, in a very good condition, admitted into the Infirmary for treatment on 10-12-28.

History—Information received from the owner, that the dog has been slowly developing for the past one year, two small subcutaneous tumours, as big as a pigeon's egg, one above the near hock joint and the other on the near foot. Both of them were not very hard, but well defined. The one above the hock, was ulcerated, discharging an offensive black matter. The animal did not show any sort of inconvenience with these tumours, but he was not very active in his movements. One of the eyes was mattering and a little congested. With the above symptoms the dog was kept under observation. Dullness and refusal of food increased the next day and the dog, to our great surprise, was found dead in the kennel on the morning of the 12th December. No definite diagnosis could be arrived at during these two days and such a sudden death was not anticipated.

A post mortem examination was made and the first noticeable symptom found, was a collection of small black tumours on the lungs, spleen, kidneys and lymphatic-system. They were varying in size from a pea to that of gooseberry. All of them were more or less round and soft in consistency. When one tumour was cut with a knife, it presented a smooth glistening surface. A specimen of the kidney tumour was sent to the Pathologist who reported that it was of a low malignant character with a greater amount of pigment.

I have referred to some of the latest books on canine medicine and found that tumours of this kind are rare in dogs. It is said that on post mortem on horses, that have had superficial tumours, one may find internal growths of the same kind. Anyhow, this is the first time I met with such abnormal growths in a dog during my fourteen years service and I am not sure any of my fellow practitioners in India have come across such.

AJWAN IN THE TREATMENT OF "PROLAPSE OF UTERUS"

BY

S. N. CHATTERJI,

Veterinary Inspector, Ranchi Circle.

All animals are liable to suffer from inversion or prolapse of the uterus but cow is the most frequent sufferer. There are various methods of its treatment so far tried, but during my experience for nearly a quarter of a century, I found that the affected animals treated with Ajwan always gave successful results. The line of treatment with this drug is very simple and at the same time economic and Ajwan is available every where. I had occasions to treat more than 25 cases and all except one were cured by a day's treatment. Some of the veterinary assistant surgeons have also tried the same treatment under my instructions with success and satisfaction.

Modus Operandi:—Before the affected part is handled, $\frac{1}{2}$ to 1 lb. of Ajwan should be thoroughly washed and cleaned with clean water and then it should be tied in a piece of clean cloth in the shape of a ball, to the size of a child's head or bigger or smaller according to the size of the animal. The prolapsed uterus should then be thoroughly washed and cleaned with a solution of Pot. Permanganate or other suitable antiseptic lotion and where these antiseptics are not available they may be substituted by the lukewarm water of decoction of Neem leaves or common salt solution (1 dram to 1 pint). It should then be replaced by gentle pressure in its proper position and Ajwan ball introduced into the vaginal canal and placed against the os—uterus. The animal should then be made to walk for a few minutes and should not be allowed to lie down at least for an hour or so, but in case the animal is unable to walk or stand, a rope truss should be applied and the hind quarters of the animal kept a little elevated. The Ajwan ball should be removed after 24 hours in case it is not expelled out of the vaginal canal.

Now the question is as to how the Ajwan acts.—The active principle of Ajwan is Thymol; when applied to the skin or mucous surface it causes irritation followed by anaesthesia. It is also a good antiseptic and disinfectant. So in this case it stimulates the affected part for a while and then

A Successful Experiment and the Consequent Thrill 355

paralyses the nerve endings and produces anaesthesia and ceases the straining; and as it has good antiseptic and disinfectant properties, it kills the germs of the affected part.

I hope my learned professional brothers would kindly give a trial to this method of treatment and inform the results through the aid of this Journal.

[Ajwan.—Ptychotis Ajowan; P. Coptica; P. Roxburgianum; Ammi Copticum. (N. O. Umbelliferae). *Sans.*—Yavanika; Ajmada; Agniverdhana; Deepyaka. *Eng.*—Bishops's weed; Omum (seeds). *Ger.*—Indiches Faltenohr. *Persian.*—Ziniana-a- Nankhvah. *Arab.*—Tolib-ul-Khubza; Amusa; Kamumi-muluki. *Hind and Duk.*—Ajawan, Ben.—Jowan. *Punj.*—Ajawain. *Cash.*—Jawind. *Mah. and Bom.*—Vova. *Kon.*—vovo. *Guz.*—Yavan; Ajamo. *Tel.*—Omamu. *Tam.*—Omum. *Can.*—Voma. *Mal.*—Homam; Ayamodakam. *Cing.*—Assamodagam. *Burm.*—Samhun. *Malay.*—Lavinjularmichi. *Ed.*]

A SUCCESSFUL EXPERIMENT AND THE CONSEQUENT THRILL.

BY

S. SAYEDAH MIYAN, G. M. V. C.,

Veterinary Assistant Surgeon, Body Guard, Trivandrum

It is not often that we get opportunities to carry out and put into practice our pet theories and experiments whatever be the profession we follow. But when once we get the opportunity and we perform our much thought of experiment, we certainly will enjoy the whole thing and feel the thrill of success. A Vet is no exception to this very humane quality in man.

Once I was called to a place 8 miles away to attend on a mare that was unable to foal. On arrival I found the mare already foaled and its uterus hanging down completely touching the hocks. It was indeed a very serious case and knowing that the chance for the animal's recovery was one to a hundred, I decided to perform a pet experiment of mine for which it was a fine opportunity.

I procured a supply of warm water at 95° F. and to 3 gallons of this added a dessert spoonful of Iey's fluid. Of

course I was very careful in this, since too much of Jey's fluid would act as an irritant to the delicate and sensitive genital organs. After cleaning and washing with this fluid, I carefully replaced it. Fortunately for me the place was also suitable for my experiment. It was an elevated place with a road down-hill leading to the main road beyond. The animal was taken to the high ground from which the road sloped down, and its hind legs resting on the higher level and fore legs in the lower ground, I filled its uterus with antiseptic warm water with the aid of a pipe. The animal was made to walk down hill so that the weight of the water might cause the uterus to return to its normal position. The water was discharged from the uterus when the animal came up. This was repeated, and a laxative ball was given—6 dr. of aloes, six powders containing $\frac{1}{2}$ a dr. each of pot. nit. and pot. chlorus, were given, one for each day. The animal recovered in a week's time.

Of course my satisfaction was intense and when I felt the touch of silver in the hollow of my palm (my well-earned and modest fee) I was all the more thrilled. *Brother Vets. please take note.*

A CASE OF PERFORATION OF CHEST-WALL THROUGH RETICULUM FROM INSIDE.

BY

M. C. PAUL

Veterinary Assistant, Abhayapuri

While on tour near Bongaigaon, E.B. Ry. I went to visit village Chhitkagaon and found the following case on 24-1-1929.

Subject:—A straw coloured bullock.

History:—The owner reported that about six months ago there was a circumscribed swelling over the right chest-wall. He applied a lot of country drugs, but although the swelling subsided after two weeks, he found an opening through which lung began to come out. This continued till this day. I enquired as to whether there was any wound, abrasion, puncture or injury or whether the bullock was gored by any other animal.

Symptoms:—The animal was weak and emaciated but was grazing regularly. The semi-solid food and air-bubbles came out intermittently. There was no difficulty of respiration. I cast the animal, secured it and then examined the wound by introducing the right forefinger. Only one finger could be introduced. I felt the inner surface of the wall of reticulum and thus confirmed my diagnosis. The seat of the opening was the 9th inter-costal space at the condro-costal articulation.

Cause:—From the report of the owner, it shows that the cause is internal and not external. This is, in my opinion, due to foreign-body either nail, pin, wire etc, which was swallowed by the animal with food materials. This in course of digestion has entered the reticulum. Instead of puncturing the pericardium as in Traumatic pericarditis, it has penetrated through the reticulum, both layers of peritonium, inter-costal muscles and the skin.

Prognosis:—Guarded.

Treatment:—As I was on itinerating duty anaesthetics were not available; the animal was cast and secured, hair clipped and signous with its surroundings washed with saline solution.

I introduced the left forefinger, raised the edge of signous in the reticulum. I caught hold of it by artery forceps. I passed the suturing needle through the edge. Then with another artery forceps caught hold of the sharp end of the needle and pulled it through the food material inside, so as to introduce the whole needle with silk thread inside the food. Then retracted the needle through the signous and washed. Likewise I passed four sutures and after washing the wound put four interrupted sutures bringing the edges together. I kept the muscle and skin wound open so that the food material if any out side the reticulum may come out during movement and due to pressure of viscera movement. The animal was let loose. He got up and began to graze as usual. I watched the animal for a few hours and neither food nor air-bubble came out.

At present the signous is almost healed up and the animal is improving.

REPEATED ATTACKS OF VERMINOUS OPHTHALMIA IN A HORSE

BY

K. M. NAIR, G.B.V.C., (POST DIPLOMA COURSE) LAHORE

*Veterinary Surgeon to H.H. The Maha Rani Regent,
Trivandrum*

Subject:—A 12 year old Indian stud bred gelding purchased from Husur remount depot (India) along with 3 other horses were brought to the stables in June 1924 and were stationed together with other horses. All the animals received food, water and grass from the same source.

On 13-5-25, *Filaria oculi* was detected in the near eye and removed surgically and the animal was discharged for work on 4-6-25. Again on 4-12-25, the off eye was affected and the worm removed successfully and the animal discharged for work on 3-4-26. (All the 3 worms are preserved and they are exactly of the same size.) Owing to the peculiarity of the case the animal was always kept under observation for the next appearance of the worm but instead of the worm the animal suddenly developed paraplegia and was found unable to get from bed in the morning of 28-8-28 and died on 2-9-28, in spite of best treatment.

In Trivandrum Verminous ophthalmia though not very common we used to get cases both among Walers and other horses and the cause of the affection can be attributed to the infected grass supplied by grass-cutters from ridges of paddy fields and often from the sides of the road. Hitherto no case came to us in Travancore where the same animal was affected twice. Recently when I had been to the Hissar cattle farm (Punjab) there was a case of *Filaria Oculi* in a mule and I asked the authorities whether they have observed any case like the one described above and I was informed that they had none like that.

In this stable where 24 animals have been purchased in December 1925, only the above mentioned animal developed *Filaria Oculi*. This is the same case in the Body Guard stables where a dozen animals have been purchased at about the same time and no case of *filaria oculi* occurred in that stable for the past several years. All the animals of our stables are fed and watered from the same source and from the same tap

but only this particular animal got the affection. In Trivandrum almost all the animals receive grass from the same localities but we do not hear of any case for the last few years. Why this animal alone among the many stabled together suffered cannot be accounted.

In this locality Filariasis in man is very common. (Particularly near about the stables men with big leg are very common.)

Now again we had a case, a shetland pony purchased from Calcutta in September 1925, was found with profuse lachrimation on the 21st October 1928, and on examination worm in the eye was detected and I removed it after taking all precautions and discharged for work on 5th November, 1928.

So for the animal is sound in both the eyes and goes well in harness.

In conclusion, I think that when the worm found its way to the anterior chamber of the eye and was removed by surgical means, no Kumri resulted, but when in the last attack the worm found its way to the spinal cord, it resulted in Kumri.

[Many cases, when worm was removed from the eye, have come to our notice, which developed Kumri after five or six months. Ed.]

Notanda

(R. S. N.)

1. *Action of magnesium salts, particularly lactate, in Tetanus*:—Magnesium tends to keep the calcium content of the blood serum above the tetany level. It is suggested that magnesium, by uniting with the excess of phosphorous, keeps the calcium in solution. The sedative effect of magnesium greatly reduces the excitability of the central nervous system whereby the more violent symptoms of tetany are held in check.

(*American Journal of Physiology, July 1927.*)

2. *Canker of the ear in dog*:—Methylated spirit and water, 1 in 7, and then work with boric acid into the ear.

3. *Subcutaneous injection of 10 c. c. of Normal Horse Serum is a specific cure in diarrhoea in cattle.*

(Hamilton Kirk.)

4. Hot soda water bath (in mange) before application of the dressing is suggested.

5. *Removal of blood stains*:—Wash with a weak solution of tartaric acid and then rinse with cold water.

6. Ready method for emesis in dog:—Washing soda to less than a walnut.

7. Dr. H. A. Cookson is of opinion that T. B. persists in butter from tuberculous milk.

(British Medical Journal, October 1926.)

8. Bovine tuberculous bacilli produce:—

- a. Enlarged lymph glands.
- b. Abdominal T. B.
- c. Lesions of bones and joints,
- d. Meningitis.
- e. Acute miliary T. B.
- f. Rarely, secondary extension to lungs, and

Human bacilli produce:—

- a. Pulmonary T. B.
- b. Tuberculous laryngitis.
- c. Secondary intestinal ulceration.

It is possible that a primary bovine infection, such as enlarged neck glands, may produce immunity against pulmonary T. B. for life.

(Nathan Raw. M. D.)

9. *Treatment for stomach worms*:—A one percent copper sulphate solution and 1 per cent by weight of powdered tobacco. The tobacco is steeped in water overnight and the copper sulphate then added.

Fast the animal overnight. No purgation occurs and the worms pass for about four or five days. The reported efficacy is 90 to 100 per cent.

Dose:—Sheep, 100 c. c., (3.5. ounces), Lamb, 50 c. c., Cattle—Calves, 100 c. c.; yearlings 150 c. c.; adults, 300 c. c.

(Philippine agricultural review, 3rd quarter, 1928.)

10. *Treatment for diarrhoea in Coccidiosis*—

R

Tr. Opium

Spts. Camphor.

Aromatic sulphuric acid a. a. 120 c. c.

Mice. Signa:—

Give 50 to 75 c. c. in one half bucketful of rice gruel from 2 to 3 times daily.

(Philippine agricultural review, 3rd quarter, 1928.)

11. The best purgative for horses is aloin, the neutral principle of aloes. Usually 15 grams is sufficient for a horse weighing 500 kilograms. The drug is dissolved in a half litre of water and given in solution.

How heat cures pain. There are many theories as to how heat exerts an analgesic action, any one of which is as good as any of the others. Among the more common explanations are:—

1. It produces collateral hyperemia and thus relieves vascular tension in the affected area.

2. It relieves the vascular stasis which characterizes the process we call inflammation,

3. It inhibits the action of the thermic nerves,

4. It causes active hyperemia and thus the veins carry away the toxic products elaborated by the inflammatory process while the arteries bring more oxygen.

5. It relaxes the tissues, particularly the underlying muscle tissue which under the stimulation of pain are in a state of contraction.

The North American Veterinarian, November, 1928.

Never inject anything cold into the uterus. Oleaginous injections not excepted.—Ferguson.

N. A. V. February, 1929.

In the treatment of the external auditory canal, harsh swabbing should be avoided. Patient softening of excretions and gentle wiping is the preferable procedure. The lesions are frequently aggravated by harsh treatment.

N. A. V. February, 1929.

For joint-ill of colts try injecting them subcutaneously with 500 c. c. of their mothers' blood. The practice has been highly recommended in continental Europe. The treatment is based upon the generally accepted theory that joint-ill, or pyosepticemia of colts is of maternal origin.

N. A. V. February, 1929.

Glucose injected directly into the blood, muscles, or subcutem, is therapeutically effective in many pathological conditions because it accelerates sugar metabolism, which is but metabolism another way of saying that it stimulates functional energy.

N. A. V. February, 1929.

Kahlenberg and Barwasser (*Jour. Biol. Chem. Oct. 1928.*) have shown that boric acid applied to the unbroken skin is absorbed and can be recovered in the urine in fifty seconds. In a previous work the senior author had shown that the absorption is a specific property of boric acid.

N. A. V. February, 1929.

Contrary to the teaching of Koch, the anthrax bacillus does not enter the body by way of the intestinal tract, according to laboratory tests carried out by Rovida and Schwarz in Italy. These authors confirm the work of others (Besredka, Sanarelli, et al) to the effect that in the absence of lesioned mucosæ, the anthrax spore and bacillus are harmless.

N. A. V. February, 1929.

Magnesium sulphate prolongs the action and increases the value of morphin from 250 to 500 per cent. The effect of this synergism is obtainable by simply administering the morphin in 2 c. c. of a 25 per cent solution of the magnesium salt. As a preliminary anesthetic to ether, the magnesia-morphine combination is manifestly life saving, according to high authorities in human surgery and obstetrics.

N. A. V. February, 1929.

Therapeutical Notes.

The quality of hen eggs is dependent upon the feed. Thus it has been demonstrated that cotton seed meal is a less expensive source of protein than meat scraps, but if more than 10% to 15% of cotton seed meal is used in the feed, the yolk of the egg will be spotted and at times of a very dark colour.

Veterinary Medicine, February 1929.

Tetanus anatoxin is said to protect animals for a long period of time against tetanus. By test it has been shown that the subcutaneous injection of 1 c. c. of tetanus anatoxin will protect a guinea pig against several hundred lethal doses

of tetanus toxin given a month later. Two injections of 10 and 30 c. c. of anatoxin are given at an interval of one month to protect a horse against relatively large doses of toxin. Tetanus anatoxin can be used in preparing a horse for hyperimmunization.

Veterinary Medicine, February 1929.

Raw Milk as a Therapeutic Agent. Raw milk, warmed and bound upon wounds by means of the usual surgical dressings and renewed three or four times a day or oftener, is a wound treatment of choice, acting in the same manner as the local application of blood plasma which is so favorably mentioned by surgical authors.

The analgesic action of milk is striking and its microbicidal property is well known. Applied to inflamed raw tissues it is compatible with the cells and tissues, placing them in a natural medium. Like the natural humors of the body (blood, plasma, lymph) milk excites the vitality of cells and of leucocytes. The body fluids are known to be microbicidal without the aid of leucocytes and phagocytes. Milk has the same action.

Lactotherapy is coming into general use both in human and veterinary medicine. As a non-specific protein this therapy is new but as an application to wound it is old. Who does not know of the old, empirical practice of soaking wounds with milk?

Noel (*Rec. de Med. Vet., Aug., 1928.*) writes an interesting article on the subject from Tunis containing seven case reports which show that milk properly applied to wounds without the aid of the usual chemical antiseptics has exceptional healing properties. It spreads up regeneration in suppurating wounds and fistulæ which otherwise cicatrize in a lingering fashion.

Milk used for wound treatment should be obtained from healthy cows, preferably from cows several months along in the period of lactation. The applications, says this author, must be repeated at least twice a day in winter and from four to five times a day in the summer time. Otherwise the effect is inverse since milk not only loses its antiseptic property

in the presence of discharges but actually favours putrefaction when kept in or upon a wound too long without being removed.

This report recalls the work of Houdemer (*Rev. vet. mil.*, Dec., 1927) and of Schmidt (1925) in human medicine, both of whom found parenteral administration of milk (intramuscular injections) exceedingly curative in diseases of the eye, particularly in affections located in the anterior parts of the eye ball (pannus, ulcer of the cornea, purulent conjunctivitis periodic opthalmia, etc) in which 10 to 20 cubic centimeters of sterile milk are injected daily (for the horse).

The North American Veterinarian, November 1928.

Ethyl oil in pneumonia. Bontz (*Berl. tier. Woch.*, June 30, 1927) employs intramuscular injections of ether in oil with excellent results in the treatment of bronchitis and pneumonia. The treatment is based upon the irritative action of ether on the lungs, suggested by the irritative therapeutics of Bier, who sought to excite dangerously lesioned lungs by means of small doses of ether. Bier employed gram doses of ether intramuscularly (in man), but later to prevent too rapid absorption mixed the ether with olive oil, and to prevent the pain of the injection incorporated 1 per cent procaine. It was found that within an hour after the injection the patient could taste the ether in the mouth. Bier's results were excellent. Bontz tried the same treatment on horses and found it helpful. Recovery was rapid.

Five to 10 grams (1.25 to 2.5 drams) of equal parts of ether and olive oil are injected into the musculature of the neck every day in carrying out this line of treatment.

It is worth noting that ethereal oil and ethereal camphorated oil have been prescribed internally by American veterinarians for several years.

N. A. V. February, 1929.

Kamala and copper sulphate for tapeworms in sheep. Brandenburg (*Jour. Am. Vet. Med. Ass'n.* Nov. 1928) prescribes a mixture of Kamala and copper sulphate with good results as a teniacide for sheep. Three ounces of freshly powdered copper sulphate is mixed with each pound of pow-

dered kamala. The mixture is administered in capsules after fasting the flock 16 to 24 hours. The dose is graded from one and a half drams for adults down to half a dram for lambs weighing 25 to 40 pounds. Several hours after dosing, the flock is given an allowance of hay as a fill and then turned out to higher, better-drained, non-infested ground. "The treatment is not fool-proof. Veterinarians should learn to use it intelligently in sheep," the author says.

This anthelmintic mixture was found effective against *Tenia expansa*, a cestode causing considerable losses among the flocks of the Northwest.

N. A. V. February, 1929.

Subcutaneous injections of Oxygen. Kirk (*British Medical Journal*, August, 1928) describes the use of oxygen injected subcutaneously in lobar pneumonia and in conditions other than lung diseases. The results were gratifying in more than 200 cases treated. No untoward local or general effects were noted. The most striking results were obtained in extensive burns in which severe acidosis develops. The doses given were from 200 to 400 c. c., repeated in six hours if most of the former injection was absorbed. The use of subcutaneous injections of oxygen has frequently been mentioned in *The North American Veterinarian* in regard to its use in both small and large animal practice. Judging from the literature abroad in both human and veterinary medicine, the American veterinarian appears to be the loser in not giving this therapy a trial. An oxygen tank, a rubber hose and a hypodermic needle is the only apparatus required.

N. A. V. November, 1928.

Eggs of Roundworm Hard to Kill:—A bath in a 50 per cent sulphuric acid solution or in 50 per cent solutions of hydrochloric, nitric, or acetic acids, saturated solutions of copper or iron sulphate or copper acetate, would be too much for most living things. But the egg of the ascarid best of swine, otherwise known as the roundworm, can take such a path, and thrive. The eggs will actually develop and become infective while in solutions of such powerful chemicals, specialists of the department have found. Moreover, they

can endure temperatures as low as 16 degrees below zero, Fahrenheit, and when they thaw out will develop if conditions are favourable. Other eggs buried for more than a year have survived. Of the disinfectants known to science only certain phenols have proved to be at all effective against ascarid eggs.

The Jen-Sal Journal, September, 1928

Kamala a Dangerous Drug for Poults:—The reports of death following the administration of Kamala to young turkeys are altogether too frequent to consider Kamala a safe product. As a precaution in dispensing or prescribing Kamala for young turkeys it is well to administer the drug to only a small number of the flock as a test of the condition of the birds for their tolerance to Kamala. We have had reports from veterinarians in Kansas, Ohio, Texas and Maryland telling us of the death of an entire flock of young poults following the administration of Kamala, a very disastrous and embarrassing situation. Chickens seem to tolerate this drug much better than turkeys. Kamala is contra-indicated in all birds showing any evidence of bacterial infection, roup, cholera, typhoid, and chronic tuberculosis.

The J. S. J. September, 1928.

Iodine and Temporary Sterility:—Two Jersey cows and a Jersey bull were reported to have been running together for nearly twelve months and the cows were not in calf. The owner stated that he had never seen either of the cows in oestrus, nor had the bull shown any mating propensities. The class of country involved was heavily timbered hills with poor, sparse pasture. A certain amount of top-dressing with superphosphate had been applied from time to time, and rock salt was available. The Extravagant dose of five grains of potassium iodide twice daily per animal was given in solution in the feed. Three weeks later the younger cow came in oestrus and was duly served. Six weeks later the older cow came on and similarly excited the bull. Both cows have proved to be in calf to the single mating.

G. Pethers, B. V. Sc., Mont Albert, Victoria.

Extracts

Abridged Report of Royal Commission on Agriculture in India.*

ANIMAL HUSBANDRY.

The latest statistics give the following figures for the different groups of livestock in British India.

	Millions.
Cattle and buffaloes	151.0
Sheep and goats	62.5
Horses, mules and donkeys	3.2
Camels	0.5

In the 66 Indian States for which statistics are available, there were, in 1924-25, over 36 million cattle and buffaloes, 25 million sheep and goats, one million horses, donkeys and mules, and 262,000 camels. In no country of the world are cattle of more importance than they are in India. Milk though important, is a secondary consideration. The primary function of the cattle is as draught animals for the plough or the cart. Without the ox, no cultivation would be possible: without the ox no produce could be transported.

In spite of the wide differences between province and province, in physical features and in the numbers of the cattle, there seems to be a general similarity in India in the methods of management by cattle owners. A detailed study of a few closely settled districts suggests that the total number of ordinary cattle is primarily determined by the number of animals needed for work on the land. A comparison of the number of cattle kept in India with those kept in other countries indicates the possibility of reducing the number of working bullocks without necessarily reducing the existing standard of cultivation. There would, in fact, appear to be an excess in the numbers of the cattle necessary for cultivation if these cattle were efficient. The figures suggest the existence of a vicious circle. The number of cattle within a district depends upon and is regulated by the demand for bullocks. The worse the conditions for rearing efficient cattle, the greater the numbers kept tend to be. Cows become less fertile and their calves become undersized and do not satisfy cultivators who, in the attempt to secure useful bullocks, breed more and more cattle. As numbers increase, or as the increase of tillage encroaches on the better grazing land, the pressure on the available supply of food leads to still further poorness in the cows. As cattle grow smaller in size and greater in number, the rate at which conditions become worse for the breeding of good livestock is accelerated. For it must not be supposed that the food required by a hundred small cattle is the same as that needed by fifty of double the size. As cattle become smaller, the amount of food needed in proportion to their size increases. Thus large numbers of diminutive cattle are a serious drain on a country in which the fodder supply is so scarce at certain seasons of the year as it is in India. The

* From the Royal Commission on Agriculture in India Report.

process having gone so far, India having acquired so large a cattle population and the size of the animals in many tracts having fallen so low, the task of reversing the process of deterioration and of improving the livestock of this country is now a gigantic one; but on improvement in its cattle depends to a degree that is little understood the prosperity of its agriculture and the task must be faced.

Unless substantial changes in the existing management of cattle are introduced, a progressive deterioration in the quality of the cattle is to be feared. Four cardinal points in a policy of improvement must be (a) a reduction in the number of plough cattle; (b) an increase in the efficiency of plough cattle; (c) attention to all matters that would tend to decrease the number of bullocks required for cultivation; and (d) an effort to secure better treatment for dry cows and cows in-calf.

The most important matter in connection with the maintenance of stock is the manner in which it is fed. In India, where stall feeding is little practised, the facilities for grazing are the principal consideration. It may be said that, in nearly every part of India the common grazing lands and all grass lands close to villages are generally hopelessly overstocked. The custom that an animal, if not working should find its own food in the jungle when there is no fodder available on his holding results in the cultivator being unwilling to make any unusual sacrifice for the well-being of his cattle. The general position as regards cattle management may be summed up as follows. The ordinary cultivator does what he can for his plough cattle and his cow buffaloes; quite often he does well for them, but bad seasons create difficulties for even the best cultivators, and the best of their cattle. The cow is less fortunate; she gets little stall feeding and has to seek the greater part of her food where she can; young cattle and the male offspring of her rival, the she-buffalo, share her fate and pick up their livelihood on common grazing grounds or by raiding crops.

It is only fair, however, to note that there are exceptions and that where their treatment is good, many fine cattle belonging to a number of well recognised breeds are to be found. Amongst them the best known are perhaps the Hariana and Sahiwal of the Punjab, the Thar Parkar and Sindhi of Sind, the Kanbroj of Gujarat, the Gir of Kathiawar, and the Ongole of Madras.

The two important factors in cattle improvement are feeding and breeding. We place feeding first because no outstanding improvement in the way of breeding is possible till cattle can be better fed. The crux of the situation is the period of scarcity which in most, though not in all parts of the country, is the two or three months preceding the break of the south-west monsoon. Since it is the curtailment of uncultivated land as population has increased during the past century that is the most obvious cause of the present over-stocking of village grounds, it is not surprising that many witnesses have advocated the extension of grazing land. After an exhaustive survey of the possibilities, we are of opinion that no large additions to existing grazing areas are possible and efforts should therefore be concentrated on increasing the productivity of the land already

growing grass. The scope for such efforts is very great. The productivity of the existing grazing grounds could be increased in the following ways.

(a) grazing on the common land could be regulated and rotational grazing established with the consent of the majority of those possessing grazing rights and by means of authority conferred on a group of villagers, for instance on a *panchayat* or co-operative society;

(b) in some instances, a definite area of the common land could be separated off for a village co-operative cattle improvement society;

(c) in hilly districts, where the grazing facilities are better than they are elsewhere, an attempt should be made to demarcate areas to be assigned at nominal rates to groups of occupiers of village lands on the following conditions:—

(i) the area shall be grazed in rotation;

(ii) cattle not owned by the group shall be excluded;

(iii) part of the area shall be reserved for cutting grass for use in the hot season.

Where use cannot be made of natural grazing grounds owing to lack of water, the possibility of obtaining a supply should be investigated. In some parts of India, there may be considerable tracts of grass land which are not being fully utilised owing to lack of water.

As a supplement to, or a substitute for, natural grazing, the cutting and storage of dry grass is important. The possibilities of silage are also great, though the practice is attended by difficulties and has not been adopted by cultivators. Much propaganda is necessary. In many other directions, the fodder position can be improved. The use of the chaffcutter, the addition of cheap meal and condiments to make straw more palatable, harvesting at the right time so as to get full value from the straw, the encouragement of the growth of fodder crops are some of the lines for further trial and investigation. The cultivation of Egyptian clover (*berseem*) seems to hold out great possibilities if the seed can be cheaply grown in quantity in India. Every encouragement should be given to the cultivation of leguminous crops by the remission of charges for water from government sources of irrigation or by the grant of concession rates.

With regard to the improvement of cattle by careful breeding, the aim should be to establish pure and improved types of the best cattle now available and this should not be endangered by an attempt to produce a "deal purpose" animal suitable both for draught and for milking and *ghí* production. As a general rule to be followed in the breeding of draught cattle, we are of opinion that milking qualities should be encouraged only in so far as these are entirely consistent with the maintenance of the essential qualities which good draught cattle must possess.

Although government departments have now made a serious beginning with cattle improvement, very little progress has yet been made by government cattle farms towards meeting the total requirements for young bulks. As a general principle regulating such distribution, we commend for adoption elsewhere the policy pursued in the United Provinces

of limiting the issue of breeding bulls to selected districts with a regular inspection both of the cows and their progeny and of the bulls placed out. We, therefore, endorse the recommendation of the Bombay Cattle Committee of 1923 that intensive breeding operations should be conducted in selected areas. We consider the selection of areas and inspection of stock to be absolutely essential to securing any marked improvement from the issue of selected bulls from government farms.

The production of milk for urban consumers presents problems of great complexity. The cultivator, of course, uses milk and its products but for these he relies to a great extent on the buffalo. He is principally concerned with the cow as the mother of his bullock and attaches only secondary importance to its milking capacity. The essentials for a successful scheme of urban milk supply are a tract of country in which fodder is plentiful or can be easily grown, adequate arrangements for transport and a suitable type of cow. A cow for dairy purposes should average 5000 lbs. of milk during a lactation period and the aim should be to get an animal an average of 800 lbs. Improvement of indigenous breeds by selection is with a safer policy for agricultural departments to pursue than cross-breeding and this process should also be applied to buffaloes. The supply of milk to urban consumers is at present most unsatisfactory. Municipal corporations of the larger cities, in addition to organising co-operative societies for the supply of milk should promote the establishment of large dairy farms and devise means by which capital and business ability may be attracted to large scale milk production.

As a rule, the control of livestock improvement should be entrusted to the agricultural departments but we do not recommend any change in the present arrangements in the Punjab where the Hissar farm has been in charge of successive veterinary officers with exceptional qualifications as stock breeders. When veterinary officers show a special aptitude for work on livestock improvement, they should be posted to livestock farms. Each major province should have a whole-time livestock expert.

At present, there is an Imperial Institute of Animal Husbandry and Dairying at Bangalore. This is divided into two sections, an animal nutrition section under a physiological chemist and a dairying and cattle breeding section under the Imperial Dairy Expert. The latter section, in addition to the farm at Bangalore, has attached to it farms at Wellington and Kernal, and a creamery at Anand in Gujarat. We consider that the staff of the animal nutrition section should be enlarged and that a scheme for a research institute for the investigation of animal nutrition problems should be prepared. There should be close touch between the staff of this institute and workers on the problems of human nutrition. In view of the fact that agriculture is now a provincial subject, we do not recommend the permanent retention of the dairying section of the institute nor of its cattle breeding stations with the exception of the station at Kernal which is well suited to become a centre for any cattle breeding experiments which may be required in connection with central research. Each province now has or will shortly have its own livestock expert. Cattle breeding problems are in the main local and it seems natural and proper that the

ordinary work of cattle breeding should be undertaken by the provinces themselves. Further we consider it the duty of the provincial colleges to provide instruction in dairying for their own students. Such research work of an all-India character as is necessary in connection with dairying could be conducted more advantageously at Pusa or some other scientific centre, where chemical assistance is readily available than at the Anand creamery. We do not recommend that these proposals should take effect till the present Imperial Dairy Expert retires. The three farms and the Anand Creamery should be retained until the enlarged nutrition institute has been established and the suggested changes at Pusa have been carried into effect.

As has already been noted, one of the members of the Council of Agricultural Research will represent the interests of animal husbandry. He should be an authority either in livestock breeding, animal nutrition or veterinary medicine. As he cannot be expected to be equally competent in all these three branches, arrangements should be made for *ad hoc* committees of experts under his chairmanship to deal with special questions.

DISEASES OF LIVESTOCK AND THEIR CONTROL.

The working capital of the cultivator is mainly represented by his livestock and losses of his cattle from disease press hardly on him. The recorded figures, imperfect though they admittedly are, indicate that the annual number of deaths is very considerable and that rinderpest takes the largest toll. Apart from losses by death, extensive indirect losses occur from the large number of cattle temporarily incapacitated by disease. The more serious diseases of cattle in India are rinderpest, haemorrhagic septicaemia and foot-and-mouth disease. The general prevalence of these diseases is probably one of the most serious obstacles to the improvement of cattle.

The outstanding problem which faces the civil veterinary departments, is thus the control of contagious diseases. The proposals we make in regard to the organisation of the departments, the training of their staff and the research they should undertake hinge on this. They will thus be more readily understood if we discuss the measures necessary to combat disease. We discuss rinderpest in detail because it is the most formidable disease of cattle in India and because the measures necessary to control it are typical of other contagious diseases.

Rinderpest was formerly the most dreaded of all livestock scourges in western countries. It is now non-existent. The inadequacy of the veterinary staff, the prohibitive cost of compensation combined with prejudices against the destroying of healthy animals which have been in contact with infected ones render the adoption of western methods impracticable in India. Nor is it possible to isolate and safeguard parts of India by interposing belts of protected country between permanently infected areas and areas from which the adoption of intensive measures has succeeded in eradicating the disease. In these circumstances and for the present, rinderpest and other contagious diseases must be combated

by measures designed to protect the individual animal rather than by those which aim at stamping out the source of infection.

The method in general use at present for dealing with rinderpest is inoculation by what is known as the "serum-alone" method. The blood serum of an animal which has recovered from the disease is injected into cattle which it is desired to protect in doses proportionate to their weight and their breed. Protection lasts only for a brief period. With the dose commonly used an animal is safe for a period of nine to fifteen days. Animals after protection by serum are allowed to mix freely with infected stock in the hope that they may contract a mild form of rinderpest and thus remain permanently immune, for, after recovery, an animal is immune from further attack. This "serum-alone" method is now very largely and effectively used in India in checking outbreaks of rinderpest.

The serum-alone method is, however, subject to the very serious limitation that it confers complete immunity for less than a fortnight whilst infection may persist in a village for a much longer period. Animals are, therefore, liable to contract disease unless they are re-inoculated and, when they do so, the process is discredited in the eyes of their owners. Re-inoculation, on the other hand, is not only expensive but when an outbreak is widespread, is often impossible.

The principle on which protected animals are exposed to infection is sound but it would appear in practice that the chances that the disease will be contracted at the right moment are not good. To ensure infection, therefore, another process known as the serum-simultaneous, or active, method of conferring immunity has been devised. In this process a small quantity (from $\frac{1}{4}$ to 1 c. c.) of virulent blood taken from a diseased animal is injected into the animal at the same time that serum is used. A mild attack of rinderpest follows, the tissues of the animal prepare their own "antibodies" and an immunity which, in some instances, has been found to be permanent and, in others, to last for about three years is set up. The efficacy of the method has been proved in countries as far apart as Russia, South Africa and the Philippines while its success in Egypt is of particular interest to India. In India, only one experiment on an intensive scale has so far been made—in the Mysore State. Experience obtained there shows that the serum-simultaneous method is safe, effective and readily accepted by cultivators. Our examination of the evidence available as to the results obtained in India and other countries from the use of the serum-simultaneous method of inoculation has led us to the conclusion that the introduction of this method is strongly to be recommended and that, indeed, it offers the only hopeful means of combating the ravages of rinderpest. Provided the materials used for inoculation are properly controlled, and the work of inoculation is carried out under the supervision of an experienced veterinary surgeon, careful to guard against such accidents as may occur, the risk involved is so slight that, in view of the great benefits incurred, it should be accepted without hesitation.

We are aware that there are practical difficulties which indicate the probability of some opposition from cultivators to the adoption of

this method. In these circumstances, we consider that resort to compulsory inoculation would, at present, be undesirable. Cultivators should be given an opportunity of seeing what inoculation can do to protect their cattle before they are required to accept compulsory measures. To this, we would make one exception. We consider that compulsory inoculation by the simultaneous method should be enforced for all animals kept by milk sellers in large cities.

Outbreaks of rinderpest will supply favourable opportunities for popularising the use of simultaneous inoculation among cultivators and it may be hoped that co-operative breeding societies and cow-keeping societies will also show an example to the cultivator in this matter.

Experience has shown that when charges, however small, are made for inoculation, the extended use of preventive inoculation is greatly checked. We, therefore, recommend that all charges for inoculation, not only against rinderpest but also against other contagious diseases, should be abolished.

Rinderpest, although the most important, is only one of the serious infectious diseases to which Indian livestock are liable. In discussing the measures which should be undertaken to deal with it, sufficient has been said to show that the suppression of epidemics must make large demands on the professional skill, the energy and the judgment of the officers in charge of the operations and that the type of education which such officers should possess is of a different order from that necessary for officers competent to deal with the diseases and injuries that are met with in ordinary veterinary dispensary practice. It will also be evident that to cope successfully with epidemic diseases, the number of officers employed by provincial governments must be largely increased. But as no staff, however large and skilled, can be fully effective, unless Government have the power to control the spread of infection, we recommend that a Contagious Diseases of Animals Act should be passed with a view to ensuring a uniform procedure in dealing with contagious diseases. The Act should empower local governments to apply by administrative order to any tract such of its provisions as may be applicable in the circumstances of the case.

The provision of veterinary aid in India is at present totally inadequate. Apart from a few practitioners in the large towns, there are no veterinary surgeons in private practice in India. There are in civil employ about 32 veterinary surgeons in the Indian Veterinary Service and 52 in the provincial services whilst the number of veterinary inspectors and veterinary assistant surgeons in 1927 was about 1,400. Several of the superior staff are employed in teaching and other duties. Thus some 33 only are available for the control and treatment of disease and of this small corps of officers, less than one-half are licensed to practise veterinary medicine and surgery through possessing the diploma of the Royal College of Veterinary Surgeons.

These figures sufficiently show the inadequacy of the existing arrangements for controlling contagious diseases and attending to animals suffering from ordinary ailments and from injuries.

Veterinary aid is supplied by permanent dispensaries, by itinerating veterinary assistants or by both methods. We recommend the establishment in each district of a central veterinary hospital having accommodation for in-patients with a number of dispensaries serving subdivisions of the district. To meet the obvious shortcomings of the single dispensary serving a large tract of country, we recommend that the staff attached to dispensaries should be increased and men sent out to tour in the surrounding districts. The value of most veterinary dispensaries would, in this way, be more than doubled.

Our view is that the control of contagious disease must rest with the provincial Government whose staff, so far as is practicable, should consist of qualified veterinarians. The duty of providing a local veterinary service for treating diseases not scheduled as contagious and dealing with operations and wounds should, when the necessary arrangements can be made, rest with local bodies. It is in the light of this distinction that we proceed to frame our proposals for the future organisation of the veterinary departments.

The first necessity is a very substantial increase of veterinary officers of all grades. The aim should be to provide at least one veterinary assistant surgeon for every 25,000 cattle and one qualified veterinary surgeon for each district, who would have on an average about 600,000 cattle, in addition to other livestock, in the area under his charge. There are 373 districts in British India, so that, on this basis, the number of Provincial Service officers required would be in the neighbourhood of 300, allowing provision for leave reserves. The number of veterinary assistant surgeons would roughly be increased fourfold, that is, to about 6,000 officers. The co-operation and assistance of Indian States would also be necessary. If their staff were on the same scale, the total number of qualified veterinary surgeons in the employments of Government and that of Indian States, including the staff of the veterinary colleges, and officers employed in supervising duties, would be over 400 and the total number of veterinary assistant surgeons about 7,500.

The organisation which we would therefore propose is as follows: In each province there would be a Chief Veterinary Officer who might be styled Director of Veterinary Services. He would be in administrative control of the veterinary work in the province. The principal of veterinary college should stand in the same relation to the Director of Veterinary Services in the province as the principal of an agricultural college to the Director of Agriculture. The posts of Director and Principal should be scheduled as selection posts outside the cadre of the provincial veterinary services. It is most important that the holders of these posts should be officers of ability and strong personality and, if need be, the provincial Government should be prepared to recruit an officer from outside the country. The rate of pay attaching to both posts should be reconsidered.

Under the Director of Veterinary Services in each province there would be deputy directors in charge of circles. These officers would be members of the present Indian Veterinary Service or of the new superior provincial veterinary services. Ordinarily vacancies in the latter service will be filled by promotion from members of the existing provincial veterinary services. The duties to be performed by the deputy directors will be responsible and vacancies should be filled by direct recruitment whenever an officer with the requisite abilities is not available from the existing Provincial Service. We suggest that an appropriate scale of pay for the new superior provincial veterinary services would be the existing scale of the Indian Veterinary Service. Underneath these administrative officers would be qualified veterinary surgeons, members of the provincial veterinary services and the aim should be to provide a qualified veterinary surgeon for each district. The primary duty of these services would be the control of epidemic diseases but it would also be entrusted with the supervision of dispensaries and of touring veterinary assistants. The present scale of pay of the provincial veterinary services, Rs. 250 to Rs. 750 per mensem seems adequate. Beneath this grade would be the subordinate veterinary services consisting of veterinary assistant surgeons in charge of the veterinary dispensaries and the veterinary work in the area commanded. The grade of veterinary inspectors, where it exists, should be abolished when the duties of inspection can be taken over by duly qualified veterinary surgeons. We do not recommend the complete provincialisation of the Veterinary Department. The subordinate veterinary services will continue, as at present, to be lent by Government to local boards. Progress in the direction of transferring greater responsibility to local bodies in veterinary matters, though desirable, will have to be made more gradually. When the complete control of the veterinary work, apart from that connected with the control and prevention of epidemic diseases, is entrusted to them, the assistance given by local governments to their branch of veterinary aid should take the form of a conditional grant-in-aid which might be given on a *pro rata* basis. It should be made a condition of the grant-in-aid that local bodies should look to the provincial veterinary services for advice and inspection and should consult the Director of Veterinary Services in regard to all appointments. In the mean time, local bodies should be consulted in regard to appointments, transfers, promotions, punishments, and dismissals of veterinary assistants employed in their dispensaries.

When the complete control of the veterinary assistant surgeons employed by them passes to the local boards, it will be necessary to create a veterinary reserve corps of selected veterinary assistants to deal with contagious diseases. Experienced veterinary assistants would be selected for membership of this corps by arrangement with the local bodies under which they are working. This, it is hoped, will render it possible to deal effectively with contagious diseases without interfering with the work of the dispensaries.

For the training of veterinary surgeons, that is the provincial veterinary services and the assistant veterinary surgeons, two entirely distinct courses of study are required with different entrance requirements and different classes at all stages. The framing of a suitable curriculum for the training of the latter class in the existing veterinary colleges should be referred to a body of experts. Special prominence should be given in the course to the anatomy and the diseases of cattle. For the provincial veterinary services, that is, for the district veterinary surgeons, the course which should be settled by conference between the university and veterinary authorities concerned, should extend over a period of five years from matriculation and should end in a degree. We do not recommend the establishment of an all-India veterinary college nor the expansion of the Muktesar Institute as an educational centre. We consider that the most satisfactory method is to train candidates for the provincial veterinary services in all provinces at one of the existing veterinary colleges. The additional expenditure involved in adapting the selected college to undertake higher veterinary education should be met by the Government of India. A short period at Muktesar should be included in or supplement the course at the selected college. We recommend that the course of training for the provincial service should at present be limited to candidates nominated by the Government of India, provincial governments or Indian States, and that they should receive suitable stipends from the authority nominating them during their period of training. Officers on the teaching staff of the veterinary colleges should be expected and encouraged to undertake research work. In order to carry out successfully the training of the greatly increased number both of veterinary surgeons and assistant surgeons which our proposals require, it is most important that the principals and the staff of the colleges should be picked men. The staff should form part of the new superior provincial veterinary services. As a rule, special recruitment will be necessary but officers in the ordinary line of the Indian Veterinary Service and the new superior provincial veterinary services should be eligible for appointment. In order to secure officers with the requisite qualifications, it may be necessary to give special pay personal to the individual officer and based on his qualifications and experience.

At present, veterinary research is mainly concentrated at the Imperial Institute of Veterinary Research at Muktesar. We consider that this Institute is all that is required to deal with general problems of veterinary research and that any extension of central research in the immediate future should be provided by such additions to the staff and equipment of Muktesar as the nature of the work contemplated may call for. The Director of the Institute should be selected for his scientific qualifications and should be a man of outstanding position in the profession. As the number of superior posts at Muktesar is so small, we do not consider that any advantage would be gained in present conditions by the formation of a Central Veterinary Service. When an appointment, including that of Director, falls vacant, the officer recruited to fill it should be given a scale of pay in accordance with his special qualifications and experience. In

view, however, of the very heavy administrative work which the manufacture of the various sera and vaccines involves, we consider that the Director should have attached to him, an officer with administrative experience to relieve him as far as possible of administrative detail. It is also important that an Institute such as Muktesar should have a thoroughly competent staff for secretarial work and estate management. The expenditure on research in Muktesar should be separated as far as possible from that on manufacturing operations and we consider that the provinces and States should share in any profits from the manufacture of sera and vaccines in proportion to their purchases. We recommend that the administrative control of the Muktesar Institute, at present vested in the Agricultural Adviser to the Government of India, should pass to the Director of the Institute, whose position, *vis-à-vis* the Muktesar Institute on the one hand and on the other the Council of Agricultural Research, would be precisely that of the Director of Pusa to his own Institution and to the Council.

The Council of Agricultural Research should have a small Standing Committee to deal with veterinary matters with powers to co-opt members and constitute special committees for particular subjects. In these circumstances, we do not consider that the revival of the Inspector General of the Civil Veterinary Department or the creation of a post of a Veterinary Adviser to the Government of India is necessary.

CATTLE PROBLEM IN INDIA.*

Epidemic Threats and Task of Veterinary Department.

BY

B. DUTT, B.Sc., M.R.C.V.S. OF BENGAL VETERINARY COLLEGE

Two main suggestions for dealing with the cattle problem in India:—

Eradication of disease before attempting to improve stock; and more positive work for the Veterinary Department by combining the study of nutrition, weeding, and disease under one Central Livestock Department; were made by Lieut. S. Dutt, B.Sc., M.R.C.V.S., of the Bengal Veterinary College in the course of an interesting paper read before the All-India Cow Conference.

The speaker began by quoting the under-Secretary of State for the Colonies, Mr. Ormsby-Gore, who told the Imperial Agricultural Research Conference in London that: "I use the word 'Veterinary' in what I regard as its only proper sense, that is, as including animal husbandry, animal nutrition and animal genetics and not merely the pathology of domestic animals."

"My contention," said Lieut. Dutt "is that these branches are not separate problems and to produce the fullest measure of benefit they should be administered by one single officer of either Livestock, or veterinary department. The veterinary service cannot prove its proper utility and gain public esteem if it has to be content only with the negative aspect of prevention or the tackling of disease. That these aspects are so closely

* Extract from "The Statesman". Wednesday, January 24th, 1929.

built together and are interdependent will be evident from the fact that a well balanced diet determines the degree of physical development and general well being of animals, and, as such, is a preventive of disease. Dr. Crew of the Institute of Animal Genetics at Edinburgh has shown that by breeding from stock that is known to have a high degree of resistance to an epizootic, it is possible to raise a stock almost free from the dangers of cattle epidemics.

I am fully convinced that the stamping out or prevention of cattle disease is the very first preliminary to any successful scheme of cattle improvement. If the losses due to epidemics are not reduced or stopped the "vicious circle" from which India has been suffering badly will not be broken. Unless that is clearly understood, endeavours by methods of selective breeding and scientific feeding is, in my opinion, useless.

LOSS OF ANIMALS.

The Indian Veterinary Service has not been in existence for more than thirty years. It has already set up rudimentary machinery for combating cattle plagues. The work that awaits to be done however, is enormously large and the available resources are, in the same measure, meagre. The fact that India is so vast with scarcely any natural boundary between its provinces,—makes the problem more complicated. It is not easy to estimate the exact loss that the agriculturist has to suffer every year due to these scourges. The figures supplied by the Civil Veterinary Departments must fall short of the actual casuality. Suffice it to say, that animal losses are appallingly great.

Unless the feeling of uncertainty of cattle life from the agriculturist's mind is removed and animal life is made more vigorous and secure, the improvement of livestock cannot attract private enterprise, capital or intellect. The apathy against cattle raising has been very largely caused by economic factors. In India we are overstocked with quantity of cattle at the expense of quality and hence the prolific diseases. The essentials of success in any campaign against cattle pests are four in number. In the first place, knowledge of the science of disease, causes, methods of cure, prevention and local and foreign experience is essential. Our problem is not the lack or insufficiency of our knowledge of these diseases.

FIGHT AGAINST DISEASE.

It is no mean achievement for the Veterinary profession in the British Isles to have cleared the country of sheep pox, glanders, cattle plague, pleuropneumonia and rabies in the present state of our knowledge, which is by no means complete. The veterinary profession has held its own with its confreres of the medical side and to-day the Royal Society of Medicine and the British Medical Association welcome veterinarians on terms of cordiality and fellowship. The fighters against disease have combined in public spirit and civic responsibility. The record of Veterinarians in India has not been insignificant. Martyrs like Shilston and Gaiger and scientific workers like Evans who did the pioneer work on trypanosomes, stand to the credit of India.

Secondly, men of the requisite type have to be trained to gain public confidence and professional skill. That brings in the question of veterinary

colleges and suitable curricula. The colleges are already there. It is only necessary to reorganise them in the light of the present day requirements and difficulties. I cannot lay too great emphasis on recruiting the very best men for the Veterinary profession.

Thirdly, nothing can be done without funds. In this connection, the credit of pioneer work must fall on the State. There are a few private organizations that have the same object in view but though their objects and sentiments are to be admired, their methods are not modern or efficient, unless Veterinary work inspires more confidence and is raised in public esteem, voluntary contribution for such work cannot be hoped for.

In the fourth place, no success is possible without public co-operation. Co-operation is only possible with people who have the same angle of vision and the same line of thought. To make co-operation possible, these different grades of people have to be levelled by education. Propaganda is very necessary. A positive propaganda to awaken a desire in the community of better things, clearer milk, more efficient bullocks and a campaign of "drink more milk" will bring far better results than a negative propaganda like "do not kill cows". The experience of the publicity campaigns of the Indian Tea Cess committee is an example in point.

It passes my comprehension how a population that is so fastidious about its food—does not insist on clean milk production and incidentally on a systematic veterinary inspection of dairy cows, premises and utensils. I confess, I am unable to understand the workings in the minds of people who resist the slaughter of cattle for food purposes by certain communities and yet do not lift their smallest finger against the indiscriminate slaughter that is brought about by preventible epidemics on a very much larger scale.

Disease can be carried by animals to man as well as by human beings to animals. The Veterinary expert that eliminates and destroys the sources of infection of anthrax and rabies is no less important in public service than the medical officer that combats the problem of cholera or small-pox. Our own life is very closely bound with animal health or otherwise, and the lack of proper veterinary health departments for meat and milk inspection for urban supplies has been a potent source of danger to human life.

RINDERPEST'S TOLL.

The commonest scourges in India that take the heaviest toll are rinderpest, haemorrhagic septicaemia, foot and mouth disease, tuberculosis and parasite infestations. Rinderpest is the most dreadful of all. There is no lack of scientific knowledge about this disease, thanks to Imperial Institute of Veterinary Research at Muktesar in Naini Tal. Methods of inoculation should be popularized to win over the sentimental objections to use cow's blood. Inoculations should be done on a voluntary basis. Initially it must be allowed free, otherwise the cost will be a deterrent to extensive use. In the course of time, public opinion is bound to gather round the serum-simultaneous method and it will be time then to insist on compulsory immunization. Suitable cattle for the production of materials for inoculations are available in the hill-bulls of Naini Tal and

the corn can be produced very cheap. "In no sphere has scientific research conferred greater benefits on agriculture than by the means of controlling livestock disease and it may be added that India has no reason to be dissatisfied with the contributions which its scientific workers have made to world knowledge during the last thirty years."

The recently brought out "goat virus" method does offer a very strong hope that in the course of a few years, at any rate, it may substantially increase our powers of control of rinderpest. Experience now is very insufficient and a definite assertion is not justifiable.

I suggest that a more expanded and better organized livestock department will mean a substantial increase in the wealth of the cultivator as also a corresponding increase of the resources of the State will be achieved. It is a matter of paramount importance that the cattle wealth be first protected from the menace of these virulent scourges before any real progress in the improvement of rural India or agriculture for that matter, can be effected."

"GAI RAKSHINI".

The Cow Conference has recently concluded its annual deliberations and as usual, the papers read were marked by moderation of statement and care in the collection of facts. For the first time too, we believe in the history of the Conference, these present included Government officials. One official, indeed, read a somewhat remarkable paper in which the suggestion was made that in order to deal with the cattle problem in India, the study of nutrition, breeding and disease should be combined under one Central Livestock Department. The author of this proposal was Lieutenant S. Dutt of the Bengal Veterinary College. Very rarely do technical experts, dealing with subjects connected with their own profession, go into questions such as those of administration, though obviously the administration of an activity is as important as the activity itself. Starting with Mr. Ormsby-Gore's definition of "Veterinary" as including animal husbandry, animal nutrition, and animal genetics, as well as animal pathology, Lieutenant S. Dutt insisted that the Veterinary Service cannot prove its proper utility and gain public esteem if it has to remain content with the negative aspect of prevention of disease. Husbandry, nutrition, and genetics are not separate problems. To produce the fullest measure of benefit all four subjects, husbandry, nutrition, genetics and pathology should be administered by the one department, which Lieutenant Dutt would call the Livestock department.

It is a pity that this proposal, so replete with common sense, was not put before the Agricultural Commission, which could hardly have avoided supporting it. Still it is not too late, now for the Government to take it into serious consideration. The Veterinary Services in India have undoubtedly been of the greatest benefit to the country, but there is no reason at all why their scope should be as strictly limited as it is. The condition of cattle in India, as regards liability to disease, numbers, usefulness, and general value to the public at large, is obviously a subject that should be studied as one whole. A recent book by Albert Howard and

* Extract from "Statesman" dated January 11th, 1929.

Gabrielle Howard, well-known economic botanist and great authority on the problems of agriculture in India, refers to the tremendous obstacles in the way of improving Indian cattle caused by the reverence paid to the cow, a reverence which resists the slaughter of even useless cattle and yet overlooks cruelty to living animals, and is indifferent to losses by preventable disease. There is no method available in India at present for the improvement of breeds by the latest of modern selection methods. "The country is covered with poor cattle all of which consume valuable food." The Howards themselves admit that the proper people to tackle these problems are not crop experts like themselves but experts in animal husbandry. Where are such experts more likely to be found than in the Veterinary Services?

A PRELIMINARY NOTE ON THE CHARACTERS OF THE CAUSAL ORGANISM OF BOVINE LYMPHANGITIS AND ITS RELATIONSHIP TO BACILLUS PESTIS.

BY

V. KRISHNAMURTHY AYYAR, I.V.S., MADRAS.

The author records in this paper his further observations on the characters of the causal organism of Bovine Lymphangitis and compares them with those *B. pestis*. The observations so far made indicate that the organism is very closely allied to *B. pestis*.

STUDIES IN BOVINE LYMPHANGITIS. (FURTHER OBSERVATIONS).*

BY

V. KRISHNAMURTHY AYYAR, I.V.S., MADRAS.

In a paper published as one of the Memoirs of the Department of Agriculture in India, Volume 4, No. 2, 1927 entitled "Studies in Bovine Lymphangitis" the author has discussed in detail the conclusions arrived at by Holmes, Raymond, and Sheather who investigated the disease in India. At about the same time, Daubney in an article entitled "Bovine Lymphangitis or Tropical Actinomycosis" published in the Journal of Comparative Pathology and Therapeutics, September, 1927, described an outbreak of a disease that occurred in Kenya in 1925. His conclusions were that the disease was due to an actinomycosis and that it was identical with that met with in India. After a perusal of this article the author thought it necessary to record further the observations made by him with regard to some of the aspects of this disease.

Between 11-8-28 and 1-10-28, the author had occasion to examine materials sent by the staff of the Civil Veterinary Department collected from different cases from different parts of the Presidency. Details of 173 such cases are given in the form of a statement. These confirm amongst other things the author's original conclusions that the disease manifests itself in most of the cases in a localised affection involving the superficial lymphatic glands of the body and of these glands the precrural glands are affected, most of the prescapular and other glands ranking next in order, and that is due to a bipolar organism which can be detected in the lesions.

* Read at the Indian Science Congress, 1929.

Agglutination tests conducted with available sera taken from experimentally and naturally infected animals against the organism have given positive results.

A vaccine prepared with a broth culture of the organism was supplied to the staff of the Madras Civil Veterinary Department for treatment in 96 cases. In 54 cases out of 72 in respect of which reports have been received, marked improvement has resulted from the vaccine treatment.

A NOTE ON THE TREATMENT OF JOHNE'S DISEASE BY THE INTRAVENOUS INJECTION OF FORMALIN.*

BY

V. KRISHNAMURTHY AYYAR, I. V. S. MADRAS.

The author records his observations on the treatment of Johne's disease with the intravenous injection of formalin. The results obtained so far as the particular case treated by him was concerned appear to indicate that though a decided improvement was observed in the condition of the animal treated no curative effect was noticed in as much as Johne's bacilli were found in the rectal washings as well as on the mesenteric membrane of the intestines after *post mortem*.

The author considers it probable that the absence of any characteristic lesions in the intestines in certain cases in spite of the presence in them of bacilli in numbers is due to a want of resistance of the invaded tissues of the particular individual against the invading bacilli.

He also describes in the paper the method employed by him for the detection of Johne's bacilli in cattle suffering from the disease.

HOMOEOPATHY FOR ANIMALS.†

RUDOLPH H. SCHNEIDER, M. D., BOSTON, MASS.

Without doubt there is as much good in homoeopathy for man's best friend, his dog, as there is for himself. Of man you are all well informed but of his animal companions I wish to affirm its truth. Of course, as Hahnemann stated, no good should be expected, nor hope of cure entertained upon an ill-chosen prescription—one not based upon the full symptomatology of the case in question. This is as certain with animals as it is with man, and herein lies its greatest pitfall as to its usefulness in veterinary medicine—the inability of the veterinary physician to obtain a full symptom—picture of the diseased animal.

The highly essential subjective symptoms are all excepting those which we can transpose from what our patient expresses in actions into what he would predicate of himself, were he able to speak. These symptoms then become more or less unreliable for a misinterpretation of gestures would be easy.

The objective symptoms represent our largest array of indices, and of these many are very common, hence of little value. Thus we are left to

* Read at the Indian Science Congress, 1929.

† The Homoeopathic Recorder, Derby, Conn. September 1928.

choose from a limited and crude symptomatology. The finer shades of differences in symptoms which make one remedy applicable and the other useless or only palliative, are absent. This leaves us to depend largely upon peculiar symptoms, as you shall note in the cases I have to report. They border on the keynote type of prescribing—a kind of homoeopathy much to be discouraged as it is likely to lead to error and disappointment; but if with them we have some corroborating symptoms we are certain of a cure if the case is curable. In spite of these handicaps and the fact that the drugs have been proven on the human being, we are more than justified in administering homoeopathic remedies to our animal friends, even in the event of possible erring, for in most instances we would do much less harm with an improper prescription than would be the case in mixing things up with allopathic drugs no more related to the disease in question than a gun-shot and in all likelihood just as disastrous.

I have had an abundance of experience in both schools of medicine and I, for one, prefer the accuracy of homoeopathic prescribing to the ever-changing, guessing and dosing methods of allopathy—and I herewith submit a few case reports for your consideration—to pass judgment upon the soundness of my belief.

CASE NO. 1.

The first case I have to report was amongst my early acquaintance with homoeopathy and I was looking for hard cases. It was a three months old mongrel puppy which the owner brought to me with the intention of having him destroyed. I persuaded her to let me try my treatment.

Had an intestinal form of distemper with a prolapsed rectum. Was treated for nearly a month both allopathically and surgically without avail. To be sure I had no more than a skeleton to prescribe for excepting for a few symptoms. The stool was the most outstanding feature. Stool with severe straining and tenesmus during and after passage of small, blood-streaked, mucous evacuations. Frequent stools. Prolapse of about three inches of the bowels with each movement which had to be manually replaced after each passage. Breath horribly offensive. Tongue and oral cavity slimy looking with much drooling of saliva.

Merc. sol. 2x—three times a day. After several days, when presented for examination, he looked a little brighter. Thinking I could not lose much time on this case I gave *Merc. sol. 1 M.*, for I had read that it works faster in a big *x* potency, and from the fact that he was brighter and had come to eat a little, I felt I had the correct remedy. I had to supply the owner with sugar pellets to administer every four hours.

A week later my patient had improved in every way. A good appetite had developed. Stools less frequent and with less prolapse—now only an inch protruded. His condition progressed favourably for another week but as he had not put on any flesh I thought I had to do something else. The owner had asked me about his having eaten his own stool, when she did not watch him, previous to this sickness. Having learned that Sulphur was a dirty remedy I could think of no filthier reason to give Sulph. than to

this pup. So I gave him a dose of the 1 M. and in two weeks he was fat and in every way a healthy four months old doggie with a delighted mistress.

CASE NO. 2.

5-year-old Boston terrier. Diagnosis—unknown.

However, he was a very sick dog from the description I got of the case. I never saw my patient but prescribed on the symptoms. His devoted mistress told me she had been treating him under the direction of a veterinarian, whom I know to be very skilful, for a period of three weeks and that during that time neither she nor the dog had had much rest or sleep.

She said he was very thin. Ate little or nothing. Could keep nothing on the stomach. The singular fact about the case was that every time he passed a stool, which was diarrhoeal, it was accompanied with distressing nausea and urination. These seizures were also accompanied with agonizing pains. This trio of simultaneous symptoms struck me as being peculiar and diagnostic of the proper remedy if there was such a medicine. *Ser. Ica.* was the first prescription to give me time to think things over. In 24 hours I found the simillimum and it was administered in one dose of the 1 M. potency. Bell's book on *Diarrhoea* gave me the remedy I sought and which did marvellous work. That very night both the dog and mistress had a good sleep. After this all the horrible symptoms vanished and my patient sought food. Unquestionably the improvement continued to a complete recovery in a week's time even to the extent that the dog was putting on flesh.

I heard nothing more from this lady until some months later when she called me to inquire as to whether, if her dog took sick again during her summer vacation, it would be all right to give him the *Ser. Ica.* pills she had left. I assured her it would be all right until she could get other medicine from me through the mail. I have never heard any more about this dog being sick.

All thanks to *Crotalus horridus*.

CASE NO. 3.

Gastritis in 2-year-old spaniel dog.

Came to me in a condition which urged me, and in all confidence of my ability to make a prognosis, to tell the owner that the dog would die within 24 hours. She expected as much but requested me to try treatment.

The dog had been sick for three days when I was consulted. He started with bilious vomiting, which then became bloody and finally chocolate-colored, with a horribly offensive odor-cadaveric. General prostration, almost too weak to vomit or walk, subnormal temperature and feeble pulse were present when I saw him, but he had been very restless and was thirsty for frequent small laps of water. You will agree with me that I had a desperate case at hand and I am certain he would have died, as I predicted, without the intervention of *Artemisia*. This I gave in the 1 M. potency in water, two teaspoonfuls every hour for three doses when my patient was resting peacefully.

He put in a good night and was refreshed and stronger the following morning. No more medicine.

The next day he drank and seemed to enjoy a little milk and beef tea. Improvement continued without further medicine until on the sixth day he was discharged in perfect order.

I believe this was a case of ptomaine poisoning, and I firmly believe, from past experience, that nothing but this remedy could have saved this dog from his grave.

CASE NO. 4.

Paralysis of hind legs in setter dog.

The history brought out the fact that the dog had been away hunting for several days in rainy weather. He first became weak in the hind legs—then paralytic when he was presented for examination. Without any other symptoms I gave *Rhus tox.* 1 M., upon these generals—getting wet when overheated.

Improvement was marked after a few days so that he could stand erect and support his entire body weight upon the hind legs by placing his front paws against my body. He did not seem to gain any more and remained a little unsteady on the hind legs when walking, but would improve after moving around a little while. Repeated *Rhus tox.* 1 M. on the 5th day. Still on the tenth day he remained the same and I felt he needed something deeper in action. So upon the strength of the fact that *Chlor. carb.* is often needed after *Rhus*, and also that the dog showed by his teeth and limbs that there was a lime deficiency present in his early life, for I could gather no other symptoms, I gave that remedy in the 1 M. potency of which brought about the desired effect and completed the cure in a little over two weeks from the time of my first observation.

CASE NO. 5.

Paralysis of hind legs in setter dog following distemper. Had been treated allopathically for distemper until a paralysis of the hind legs developed, when I was consulted. He was restless and it seemed due to the fact that he was anxious about being unable to walk. He would cry and try and finally would get upon his feet. After staggering about a little he would get somewhat stronger and steadier but would soon fall down exhausted. Again and again he repeated this same cycle. *Rhus tox.* 1 M. one dose, followed by some improvement. He now seemed content to lie quietly.

He improved very little and after a week seemed to remain stationary. From my experience with the previous case I decided to give him a dose of *Calc. carb.* 1 M. I had an additional symptom in this case, namely, that this dog would eat raw eggs when he had no appetite for anything else.

A speedy improvement resulted. At the end of a week he was well on his feet again and in two more weeks was able to take his usual daily exercise—running with the horses on their morning canter.

Some months later this same dog developed a distressing cough and after the failure of the local veterinarian to help him I was again called some 20 miles away to prescribe. The outstanding features were that the

slightest motion excited the cough as did also the change of atmosphere—going from cold into warm air. *Bry. alb.* 1 M. promptly cleared the whole case.

CASE NO. 6.

A heart-broken spits female dog.

Presented without any signs of sickness. Examination revealed nothing—nor could the owner see anything out of the ordinary except that the dog would eat nothing since having been boarded out for four weeks during her season, (oestrus). Knowing the dog's disposition I can realize that she might not have received very kindly treatment by a stranger. This was the first time she had been away from home in six years. When she returned home she was heart-broken as nearly as I could make it out. It was a week after her return that I saw and prescribed for her. I administered *Iguatia* and then *Natr. mur.* in the course of the following ten days upon what I took to be the results of grief. No relief followed.

At this time I glanced a new symptom, namely, an anxious restlessness at night. The owner at this time suggested that I ought to give the dog something to make her sleep, for her constant pacing about at night kept them from getting any sleep.

I gave her a dose of *Arava. alb.* 1 M. dry on tongue and changed the *Picrate* pills and I heard no more of the case till some months later when the owner told me that everybody including the dog slept well that very night and within thirty-six hours the dog was in every respect herself again.

CASE NO. 7.

Spaniel with neuritis of docked tail.

No symptoms excepting that he suddenly started gnawing his tail until it became raw. As is customary it had been cut short when but a few days old. Now he was a year old. I gave the owner a sedative antiseptic ointment to apply. She returned in a week telling me that he was no better and that her husband, who knew I was familiar with homoeopathy, was disappointed that I had not given the dog a remedy. Very well, but what would it be, I thought my diagnosis—a neuritis in a covered nerve. Then I remembered that Kent tells of the wonderful control *All. cepa.* has over such states. *Allium cepa.* 1 M. held for a while when I had to repeat. I gave three doses in all, each only palliated. I now suspected that perhaps it was not entirely a neuritis and the possibility of a small fragment of bone therein suggested itself, so I gave *Silica* 1 M. This was soon followed by improvement and complete cure within a period of 10 days.

You can here note the necessity for prescribing for animals on little or nothing, for if this dog had any other symptoms they were not in evidence.

CASE NO. 8.

Spits dog, 3 yrs. old. Eczema.

Sent to hospital on two different occasions within a month where it was treated with sulphur lotions externally applied. The owner told me that if it was going to keep coming back as it had on the two previous

occasions she wanted the dog put asleep. I told her I would treat it entirely with internal medication and that if it cleared up it was not likely to return.

It was a weeping eczema on the back. The exuding fluids glued and matted the hair together and the skin was sore and at places raw from rubbing.

Graphites 1 M. dry on tongue and plenty of *Sac. lac.* The itching subsided within a few days and in a few more days the eruption improved. In two weeks the case was cleared up and I have heard of no repetition.

I had a similar case in a 5-years-old cat but there it affected all the body. *Graphites* 1 M. one dose and a raw food diet cured her in a month.

CASE NO. 9.

Airedale female dog, 9 years old. Incontinence of Urine.

Afflicted with involuntary voiding of urine whenever she would lie down and sleep. Her age corresponded to that of a person at eighty.

Causticum 6x tablets. One three times a day. A few days' administration eradicated the trouble and she has remained well.

I have found *Causticum* almost specific in this condition of old dogs both in the 1 M. potency given in a single dose, and the 6x in repeated doses.

CASE NO. 10.

Hound dog with so-called venereal warts.

Examination revealed that his entire buccal cavity was literally a mass of seed warts growing out from the cheeks, tongue, lips and gums. They were so crowded together you could only get a glimpse of the mucous membrane here and there. *Thuja occ.* 10 grains dissolved in 8 ounces of water was prescribed as mouth wash twice a day. This served as a topical application as well as for internal administration. In ten days all the warts had disappeared.

It is said of this condition, in text books, that they disappear as rapidly as they appear—without treatment; but this has not been my experience. I have never seen a case that acted that way and I have waited months on a case for an unaided cure, finally resorting to the knife only to learn later that they had come back. A few cases remained clear after the excision.

I have treated several cases like the above with the same satisfactory results. I also treated three cases with the 1 M. potency which likewise cured. Several other cases improved very slowly and it is possible that some other remedy would have done better work.

I have chosen cases for this report that do not generally have the self-limited status and you can therefore realize, from what I have told you, why I am justly proud of homoeopathy.

DISCUSSION.

CHAIRMAN WRIGHT: Dr. Mc Laren says to me that he supposes this comes under the head of Pediatrics because it deals with our animal children. (Laughter).

Dr. BAKER: I have had quite a little experience with prescribing for animals, for fun. I cured a cat with *Cantharum*, who had symptoms. I advised the owner to give chloroform, but she refused.

I had one rather amusing experience. An old farmer came into the office one evening from six or eight miles below the city and wanted me to prescribe for his wife. He couldn't give me any symptoms. I told him I didn't think I could do much, but I gave him a remedy. As he was going out he said his best cow was sick. I said: "Suppose I try the cow." About a week later he came back smiling, and I thought, "Well, I must have hit the wife." I said: "Did I help your wife?" He said: "No, you didn't help my wife, but you cured the cow." (Laughter).

Dr. NELSON: When I was practicing in the Rocky Mountains I had a little experience. There was a cattle ranch thirty miles from town; the owner came into the office and asked me if I ever treated a horse. I told him no, I never had, but if I did I would try to treat it as I would a man as near as I could. He said it had a cold and whenever he tried to treat anything of the kind it would always die. I asked him how the cold was and he told me as near as he could, and I told him if I was going to prescribe for it I would give it a little sulphur—just flowers of sulphur. He didn't have any and he asked me if I had some. I happened to have some in the office. I fixed up a powder of crude sulphur and he gave it to the colt. The next time he came in he said the colt was all right.

Dr. GLADWIN: It is a great pleasure to prescribe for animals because they cannot deceive you, in regard to the symptoms. You always know the symptoms that you do have are right, but you don't have many.

I remember once one of my patients called me and told me that a man had just come in and told her that one of their horses had not urinated that morning; it would try and it couldn't. It was one of those high-stepping horses, but it had been out in the rain two days before. When the attendant put his hand on the back of the horse it would flinch, and he found the place over the kidneys to be hot. I said: "Give her *Rhus tox*." In three hours she had me on the phone—the horse hadn't urinated yet. I said "Tell me something more." She said: "I can't—wait a minute, the man just came in and said it had urinated alright and doesn't flinch when you put your hand on its back."

I had another—a patient that was a good deal harder to prescribe for than that one. It was a little thoroughbred pony. It was full of life, high-spirited, they had paid a great price for it, and after they had had it a few months, they discovered that the pony had "big head." I don't know anything about horses' diseases and I didn't know what "big head" was, but they showed where the bones across the forehead were getting big. The father explained to me that it was an incurable disease. He said: "What would you do?" I said: "I would give it *Phosphorus*." He said: "Are you sure that will cure it?" I said: "No." "Well, do you expect me to trust a valuable horse to you when you don't know whether you can do anything for it or not?" I said: "You said it was incurable, didn't you?" He said: "Yes." "Well, I can't do any worse than kill it,

I gave the *Phosphorus*. In six months I gave it another dose of *Phosphorus*, and the thickening of the bone cleared up. It didn't go any further at all; it stopped after the first dose and cleared up afterwards.

Dr. OLDS: Some years ago when I was living in Florida I owned a mule. I owned it some of the time and a neighbour of mine owned it the rest of the time. When I had use for the mule I owned it, and when he had use for the mule, he owned it. At this particular time he had the mule. He came over, he lived about two miles from where I did, and he said: "Doctor, I am afraid we are going to lose that mule." I said: "What is the matter?" He said that the mule got out into the corn patch and ate a lot of green corn and now she is so swelled up I am afraid she is going to burst. Can you do anything for her?" I said: "I don't know, but we will try." So I sent over a dose of *Calcium*. Then I should say in an hour I got a call from him. He said: "Did you hear anything?" I said: "No, Why?" He said: "That mule is passing gas so you can hear her way over there." (Laughter.)

Dr. DIENST: Madam Chairman, I was thinking it is a very unfortunate thing for a homoeopathic physician to be known as a horse doctor. It recalls to mind some of my most embarrassing moments.

One of the leading judges of Chicago was the President of the Black Angus Cattle Corporation. He had a farm and a beautiful home right on the town limits in which I lived at that time. It was my pleasure to go in and out of his home frequently as the family physician. One morning I got a call to come down to the barn. I said: "What for?" "Never mind, you come down and see." I said: "See here, Judge, I am not a horse doctor." "That doesn't make a bit of difference, come down to the farm." I didn't want to sacrifice the little fee, so I marched down to the barn with my case in my hand and I found the judge and the hired man perturbed because of the condition of three cows; one was very highly priced calf which was dying at the time and of course nothing could be done.

I said: "Judge, let me see the other two calves." One of them was lying rather helplessly, high temperature, it had been out in the rain the day previous, and no other symptoms could I find. The second calf had also a high temperature. Quite a diarrhoea, and seemed very weak. There were no symptoms upon which to choose a remedy and I don't know when I have felt so embarrassed. I said: "Judging from the appearance of these calves and from what we were taught in our materia medica this one calf needs *Dulcamara*." He said: "Go and get it." I said: "I have it with me." He said: "How about the other calf?" I said: "I think that calf needs *Arsenicum*." He said: "Alright, let's give it to them."

We fixed up three powders, one to be given and I gave that to each one of them to be sure that they had that much, in an hour the second powder, and in two hours after the second we would give the third, if necessary. That was done. The calves recovered. Here is the unfortunate part of it—my neighbour across the street is a veterinarian. He had been taking care of these calves for the past four or five days; they were getting worse. As soon as the calves recovered the judge told the veterinarian that he

was no good, that he had to call another doctor who cured them. He said: "Whom did you call?" He said: "I called Dr. Dienst." I don't know what language was used, but it wasn't pleasant, and it was not the kind we teach in Sunday school. (Laughter.)

Dr. GREEN: I remember a good many years ago that I had read that colic in cows would respond to Colchicum. I had only one chance to use it. I never saw the cow but it was done by telegram from one of my patients in New Hampshire who had a medicine case of his own. I wired to give Colchicum and that fixed the cow just as well as it did in Doctor Dienst's case.

One of my friends had a beautiful angora cat, a black one, who had a skin disease on her neck that made a terrible sore, extending way down to the bone, and the veterinarian seemed to be unable to do anything further than attempt to heal it over on top, but not underneath; it would heal and then break out again. My friend asked me if homoeopathy could do anything for kitty. I gave the cat a dose of *Silica* which opened the top of the wound wide, and began to heal it from the bottom, with healthy granulations, and it was cured in two weeks, and then my friend presented me with a little pin with a cat's eye in the middle and a poem supposed to have been written by the cat to thank the Doctor.

PROCEEDINGS OF THE MADRAS LEGISLATIVE COUNCIL,
REGARDING THE CIVIL VETERINARY DEPARTMENT
DURING THE BUDGET SESSION ON 22-3-29 and 23-3-29.

GOVERNMENT'S VETERINARY POLICY.

Mr. KARANT'S TOKEN CUT.

The Hon'ble Mr. Seturatnam Ayyar next asked for a grant of Rs. 1042 lakhs for Veterinary department.

Mr. Karant moved a token cut to criticise the Veterinary policy of the Government. He pleaded for strengthening the Veterinary staff so that they might better and more efficiently cater to the needs of the villagers. Cattle mortality last year was the largest for 15 years. 76 thousand cattle had died in one year which meant a loss of at least 38 lakhs for the ryots. He said that the pay for Veterinary assistants should be raised so as to attract a larger number of men to this department.

MINISTER'S REPLY.

Replying to the debate, the Hon'ble Mr. Seturatnam Ayyar said that he had nothing to add to the answers given at the general debate. As for the dearths in Veterinary hospitals, he had said that there were not enough trained hands in the presidency. Last year they had wanted to open 12 dispensaries but for want of hands they could only open 7. If sufficient number of trained hands were available, they would be glad to open more dispensaries. As for training, he would say that they had just increased the number of stipendary students of the college from 15 to 30 and in the course of a few years if more men were available, the Government would

be glad to move in the matter. As for pay of Veterinary assistants, he had already promised to look into the matter carefully and he had nothing more to add to it.

Mr. B. Munisami Naidu spoke next. He wanted that the departments should be made more efficient. He understood that the Government proposed to appoint a Committee to discuss various matters relating to this department and he wanted that some of the members of the House should also be included in the Committee. Secondly, he would suggest that all the Veterinary Assistants might be attached to hospitals instead of some of them being left to do touring work. A dispensary was necessary for at least every taluk and the touring Assistants might be attached to the dispensaries, the area under each dispensary be reduced and the Assistant might be asked to tour the villages on certain days of the week. Thirdly, he would suggest that all the bulletins issued by this department be collected in a book form and distributed. That, he said, would go a long way in spreading a knowledge of the work done by the department.

The motion was then put to the House and was lost.

THE LINLITHGOW REPORT.

Mr. A. B. Shetty next moved a cut of Rs. 100 to discuss the recommendations of the Agricultural Commission in regard to this department. He wanted that more dispensaries be opened in coming years. It was regrettable, he said, that the Royal Commission had not recommended anything in regard to pay, etc. of the men in the department.

The President intervening said the token cut was to discuss what the commission had recommended and not what it failed to recommend.

Mr. A. B. Shetty said that the subordinates in the department were ill-paid. He also suggested the adoption of the courses of 5 years as recommended by the Commission. If more men were wanted, the best thing would be to improve the pay and prospects offered by the department.

At this stage, the Council rose for the day.

23rd March 1929.

After question time in the Madras Council on Saturday, discussion was resumed on budget grants.

Mr. A. B. Shetty speaking on his token cut in the Veterinary demand said that the serum-simultaneous method of inoculation was the best method of combating rinderpest among cattle. This had been tried with success in Mysore. The number of assistants, he said, were not able to cope with the work and in some cases it was said the serum was not effective. It was necessary they should have their own institute for producing serum in sufficient quantity. Compulsory inoculation must be resorted to. Legislation also must be had to strengthen their hands to carry on effective work in this direction. Another common complaint was that the dispensaries were mostly located at district headquarters or towns and did not bring Veterinary aid to villages. He wanted two assistants for each dispensary, so that one might do touring work. There was want of men no doubt, but they should attract men by offering increased pay and better prospects. They must also have a Veterinary Surgeon for each district. He hoped these matters would receive due consideration.

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their main source of income, was derived from the villagers. The Development Department was not at all developing but was stagnant. The touring and hospital veterinary assistants, he said, should be increased in number. There was indeed suspicion on the part of the people of any Government servant and he pleaded for the servants of this department moving more freely with the village folk and educating them by really doing beneficent work.

MINISTER'S REPLY TO CRITICISMS.

Replying, the Hon'ble Mr. Sethurathnam Ayyar said that the subject had to be carefully considered. They had been also considering the question of producing virus in their own laboratories and for opening a serum institute. Provision had been made, he said, for increase of the Veterinary assistants to some extent and what further steps should be taken would be considered in the course of the year. As for the increase in the number of dispensaries, he must say there was a difficulty in getting trained hands to run them. If candidates were available they would certainly provide more dispensaries. The recommendations of the Royal Commission, he said, were being considered by the Provincial Committee. On the whole he hoped to see better results this year.

The motion was by leave withdrawn and the demand was put to the House and carried.

College News.

MADRAS VETERINARY COLLEGE

The following are the results of the diploma examination held in March 1929 (1928-29).

Class A.	40 appeared,	27 passed.
Class B.	29 appeared,	20 passed.
Class C.	27 appeared,	20 passed.

The following are the names of the final year students, that passed in order of merit.

Meers 1. S. Vanjeeehwara Aiyar. 2. B. Kapinappa. 3. G. B. Redhakrishnan. 4. R. Veeramani Aiyar. 5. E. L. Spykerman. 6. M. Muthugopal. 7. M. G. Badsha. 8. K. Govindasastry. 9. K. Thiruvengadaswamy Pillay. 10. A. Ramasamy Aiyar. 11. K. Kanakasabai. 12. B. Manavaluswamy. 13. D. A. Ramanathan. 14. P. S. Swaminathan. 15. T. Krishna Rao. 16. M. V. Srinivasa Rao. 17. V. Venkataramanayya. 18. S. V. Ramaswami. 19. P. Madhava Menon. 20. C. Alexander.

Mr. Rama Menon, a Veterinary Assistant Surgeon from Cochin State has been sent to Madras Veterinary College, to study the technique of serum simultaneous inoculation against Rinderpest, to introduce S. S. inoculation in the state. We are glad to note that, that little state wants to advance in these matters also.

Departmental News.

UNITED PROVINCES.

Captain W. H. Priston, F. R. C. V. S., L. V. S., Superintendent Civil Veterinary Department, United Provinces, to officiate as Veterinary Adviser to the Government, Vice-Captain. S. G. M. Hickey, M.R.C.V.S., L.V.S., granted leave.

Captain. S.G.M. Hickey, M.R.C.V.S., L.V.S., Veterinary Adviser to the Government of United Provinces on leave for a total period of 8 months, with effect from March 10, 1929 or subsequent date.

Captain Priston, F.R.C.V.S., Superintendent, Civil Veterinary Department, Agra, returned on 10th February, 1929, after one year's leave of absence.

Mr. T. S. Davis, G.B.V.C., P.V.S., officiating Captain Priston.

Mr. T. S. Davis, G.B.V.C., Deputy Superintendent, Civil Veterinary Department, United Provinces, is carrying out Serum-Simultaneous inoculation against Rinderpest at the Muttra Government Cattle Farm. This is the first time.

C. V. D., MYSORE.

Mr. J. K. Nair G. B. V.C. Mr. K. Ranganatha Rao, G.M.V.C., T.V. Manickaraj, G.B.V.C., have been promoted to the grade of Assistant Superintendents.

Mr. Nair is entrusted with the duty of investigating into the several diseases of sheep. Mr. Ranganatha Rao, into the several diseases affecting cattle and horses in Mysore. These two officers are at present working in the Public Health Laboratories. The state, we understand, provides separate Laboratories for these officers. Advance Mysore.

Major R. W. Simpson has gone to England on eight months' leave from February 1929 and Mr. K. Krishna Ayyangar, G.B.V.C. is officiating as Superintendent, Mysore Civil Veterinary Department.

C. V. D., MADRAS.

There is a strong rumour that the posts of the personal assistants to the Circle Officers in the Madras Presidency, will shortly be abolished. The number of the Circle Officers will be increased from 7 to 12 and there will be redistribution of districts into 12 circles. Probably this is to gradually give effect to the recommendations of the Royal Commission on Agriculture in India.

It is not known if any Deputy Directors will be appointed to the Civil Veterinary Department. It is not known what their duties will be. Instead of trying to imitate the Agricultural Department, we would strongly advise the Government to follow the Medical Department in this respect. If at all the Deputy Directors are to be appointed, the best among the existing provincial officers should be promoted to these posts.

After all why make the top heavy with discontented subordinates at the bottom?

Mr. H. C. Sampath Ayyangar, Circle Officer, Coimbatore, has been granted two months leave.

Mr. M. Ananthanarayana Rao, Circle Officer, Bellary, has been transferred to Coimbatore vice Mr. A. K. Mitra, who relieved Mr. H. C. Sampath Ayyangar, at Coimbatore.

Reviews.

Diseases of Animals in Tropical Countries. We are in receipt of the second edition of a book entitled "Diseases of animals in Tropical Countries" by G. R. Edwards, M.B.C.V.S., *Late Assistant Chief Veterinary Officer, Rhodesia*, and G. K. Walker, C.I.R., O.B.E., F.R.C.V.S., *Colonel, Indian Veterinary Service (Retired), Late Principal and Professor of Veterinary Medicine at the Punjab Veterinary College, India*, published by Messrs Baillière, Tindall and Cox, 7 & 8, Manselton Street, Covent Garden, W. C. 2, London, 1929.

The size of the book is 9x5½ inches containing XI+407 pages with 37 figures and costs 25/- net.

The diseases are set out in 3 parts:

Part I deals with diseases caused by Vegetable Parasites under which there are 2 sections, viz., Diseases caused by Bacteria and diseases caused by Vegetable Fungi.

Part II deals with diseases caused by Animal Parasites, Protozoa, Worms, Arachnids and Insects.

Part III deals with diseases caused by Undetermined Viruses.

The introductory chapter consisting of 12 pages deals with the classification of parasites causing infectious diseases, Predilection seat, Koch's postulates, the detection of disease and general preventive measures.

This important matter as well as the study of the diseases is put forth in such a simple but masterly language that the reading by itself is pleasing. The learned authors have consulted the various literature on the subject and have given to the public at large the gist of their findings as well as their own experiences.

We have gone through the book with great pleasure and our warmest congratulations are due to the authors for their excellent book which is so up-to-date and in so popular a language.

We earnestly wish that this book may catch the eye of the authorities concerned in the various teaching institutions of India, both Agricultural and Veterinary, and made a text-book for students. Further, all those engaged in the handling of Livestock in the Tropics will surely be the better for possessing a copy.

THE ART OF MILKING By PROFESSOR A. C. AGGARWALA, B.Sc. (Honours) M.B.C. V.S. Professor of Hygiene and Dietetics, Meat and Milk Inspector, Punjab Veterinary College, *Veterinary Bulletin*, No. 20. Published by the Department of Agriculture, Punjab.

Milk is an ideal food for infants and an article of every day consumption by child and adult in India. Still the production "of the Nature's most nourishing and perfect food" is in a primitive stage and conducted by people "who are absolutely ignorant of hygienic principles and cleanliness." Consequently, the contamination in milk is very high and the "perfect" food is in many cases an "unwholesome" food. The milking of cows is really an art and Professor Aggarwala has therefore done an immense service by his drawing attention to this all important subject and discussing it in a simple and precise manner in his fully illustrated hand-book "The Art of Milking." The author has rightly insisted on the ex-

trreme necessity for the cleanliness in the surroundings and the milkman and has also dealt on the Psychology of the milking cow. The most important and interesting portion in the book is the methods of "the actual operation of milking" and this portion has been written in a very able and lucid manner. A good number of milk cows have been hopelessly ruined by bad and defective milking and this portion must, therefore, appeal to everyone interested in "dairying."

The illustrations considerably enhance the value of this brochure and we wish the author gets it translated in the different languages in India.

The Seventh Congress of the Far Eastern Association of Tropical Medicine

"The movement which was started by the enterprise of a small group of earnest workers in Manila in 1908" has been so steadily progressing "that it now embraces nearly all countries of the Far East"; and "the Far Eastern Association of Tropical Medicine is now generally recognized as the most representative and authoritative organization dealing with the Public Health and diseases of warm climates." Started from small beginnings, the Association has been successfully drawing together the scientists from different parts of the world "mainly for one purpose viz. the increase of our knowledge of disease." Epidemic diseases peculiar to the tropics have been many and the ravages by these have on many occasions assumed enormous proportions. "It is an important feature of such congresses as this that they emphasize to our profession and the public the great importance of measures against disease in tropical countries and bring home to the Governments of such countries a fuller realization that the organization of an adequate public health administration is one of the greatest of their many responsibilities." Consequently the congresses have been of immense benefit to the humanity at large.

The Far Eastern Association of Tropical Medicine which held its last conference in India in 1937—the first time it held its sittings in this country since its inauguration—has been a splendid success, judging from the nature of the papers read and the number of subjects discussed. The first volume of the Transactions of the Congress which we have just received contains a fine collection of very interesting papers. This volume is divided into two sections containing papers on diverse subjects. It is not possible in a short review to go through each and every paper, nor is it even practicable. Technical papers apart, it is enlightening to go through the study of the heart—not the political heart—of Bengal and the evils of Fan-chewing-habit which is practically universal throughout India. We would specially invite the attention of all those interested in public health to these and other connected papers.

Some of the papers are in French and we wish there had been an English Translation of these for the benefit of those who do not know that language.

The illustrations are very clear and fine and the Publishers have done their part of the work very well.

We eagerly look forward to the remaining two volumes of the Transactions.

Annual Report of the Civil Veterinary Department, Madras, for the year 1937-38

"The year under review was one of steady progress and development" and there were nearly a dozen Veterinary Dispensaries opened during the period. As usual, the mortality from contagious diseases especially Rinderpest, has been very heavy and we are told that, in consequence of a scheme submitted to Government, a "real effort" to combat the disease Rinderpest, will soon be made. We hope that it would be a really "real effort."

It is gratifying to learn that S.S. inoculation against Rinderpest is slowly gaining ground both among the officers and the people and that "experience has shown that most of the writers on the subject in the past have been unduly pessimistic and cautious to a fault."

"The number of available Veterinary graduates is hardly adequate for the requirements of the Presidency" and with the increase in the number of students in the College, the Government hope "that a greater number of students will be passing out of the College in future and that veterinary graduates will be available in greater numbers hereafter." We protested last year against this policy of "trapping in" students for the College without materially improving the prospects of the Department and we feel very sorry that the Government should still persist in this shortsighted policy. (Vide. Indian Veterinary Journal, Vol. IV, No. 4, P. 375.) Our remarks of last year still hold good and we commend them once again to the Government and its advisers.

Report on the working of the Civil Veterinary Department of the Central Provinces and Berar during the year 1937-38

This report is interesting reading. Lack of funds and lack of adequate staff—although a most regrettable common feature in almost all the provinces of India—seem to have been even greater in this province. "Although the cadre of Veterinary Assistant Surgeons was filled in 1935 to 145, the number in actual employment since that date never exceeded 120." Again "the fall in the number of castrations is regretted." "I must, in justice to the subordinate staff, say that during the year we were always about 20 Veterinary Assistant Surgeons below our strength." The chief reason for this deplorable paucity of staff is, in our opinion, to be found in the low standard of pay offered to the subordinates of the service. And we are afraid, that until this is improved, the Department will continue to suffer from want of hands and the people from want of adequate timely veterinary aid.

In spite of all these 'chilling' circumstances, it is a matter for congratulation that "the work of the Department exhibits a fair measure of progress in most branches of its activities." We hope that the efforts of Major Stirling to put things on a better and more satisfactory basis will soon bear fruit.

Annual Report of the Civil Veterinary Department, Punjab, Punjab Veterinary College, and the Government Cattle Farm, Niswar, for the year 1927-28.

It is a matter for genuine pride that Punjab is maintaining the good progress all round and that the Veterinary work in the Province is "one of continued development and expansion". "The problems of Animal Husbandry and Nutrition are very properly engaging the imagination of the Department: which is recognising that the first need is to breed and rear healthy animals and then to prevent and cure disease." This is as things should be and we heartily commend the above statement to the Government of the other provinces where livestock problem is not in the hands of the Veterinary Department.

It is to be deeply regretted that even in this province, the deadly disease Rinderpest is continuing its heavy toll. This is mainly due to the "Serum-alone" inoculation that is still being carried on against this disease. The experience of some provinces like Madras and Mysore clearly show that the S. S. inoculation for Rinderpest is quite a safe method to be put into practice in the field and we hope that Punjab will soon start on this "the most hopeful means of dealing with this pestilence".

The Annual Report of the Mysore Civil Veterinary Department for the year 1927-28.

This is the first time we have received a copy of this report. On going through it, the first impression that strikes us is that the Department has been working and that fairly successfully, against great odds. To extract from the report, "There is also much discontent among the lower subordinates, owing to their pay not being improved. At present they are the poorest paid men in the service and with no prospects. This results in their leaving just as they have learnt enough to be useful assistants to the Veterinary Inspectors. This unsatisfactory state of affairs greatly retards the smooth working of the Department. The people, who in consequence suffer, are the ryots, as they do not get the same attention paid to their live-stock as they would if there was not this continual introduction of untrained and inexperienced men to assist the Inspectors, and to treat animals in the absence of the Inspectors from headquarters."

"Several of the older institutions still remain very poorly equipped, and such instruments that they do possess, are becoming useless through wear. Liberal grants are required for the re-equipment of these institutions."

"This state of affairs handicaps work considerably, disheartens the staff and gives rise to complaints from the people. Several of the institutions are still located in very unsuitable positions."

In spite of these adverse circumstances, we are glad to note that "the Department seems to be gaining ground in the confidence of the people and is carrying on an increasing measure of co-operation."

This Premier Indian State is the first province in India which has boldly and successfully launched on a campaign against Rinderpest by S. S. inoculation and it is gratifying to note that the campaign is being pushed on with sustained vigour.

The activities of the Department are being carried on a restrained and limited scale and we hope that, as days advance, they will be enlarged liberally to the extent they richly deserve.



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