

THE INDIAN VETERINARY JOURNAL



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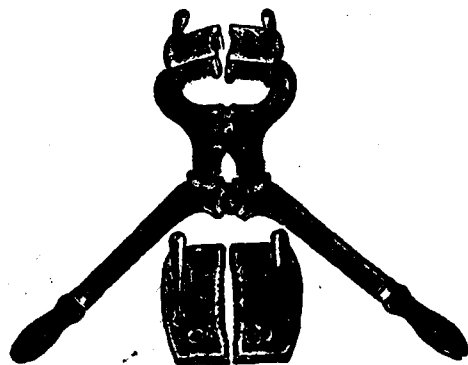
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January, 1934

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The Indian Veterinary Journal.

(The Journal of The All-India Veterinary Association)



Editor:

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

Veterinary Surgeon, Madras.

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EDITOR :

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

*Veterinary Surgeon and Proprietor, Dr. Pangal's Veterinary Institute,
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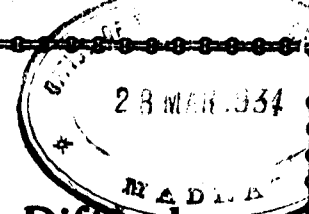
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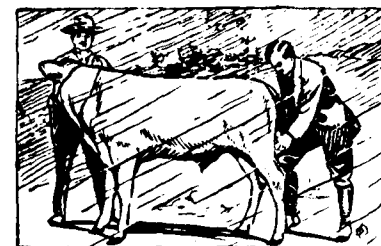
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(The Journal of the All-India Veterinary Association)

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JANUARY, 1934.

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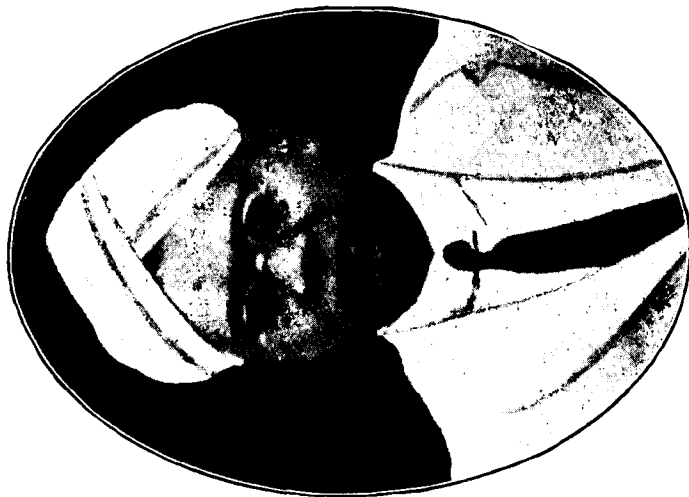
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District Veterinary Officer, Madras C.V.D.,
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THE Indian Veterinary Journal

Vol. X]

JANUARY, 1934.

[No. 3

Editorials.

CIVIL VETERINARY SERVICES IN INDIA.

IV.

The Punjab.

(Continued from Page 79, No. 11 Vol. X.)

The position in regard to the agency for the prevention and control of cattle diseases in the Province, in the early days, is discussed by the Director of Land Records and Agriculture in his review of the Administration Report of the Civil Veterinary Department for 1896-97, as follows:—

" Personally, I believe, that the tardiness of the people to report such outbreaks is due to their having no confidence in the remedial measures usually adopted, and their wish to avoid the attendant trouble and inconvenience. Next to rinderpest, anthrax which appeared in a more or less epidemic form in 24 districts, was the most fatal disease. There were 4,013 cases and 2,996 deaths reported. Amritsar, Shahpur and Lahore were the districts chiefly affected. Foot-and-Mouth disease showed itself in 26 districts, but not in a very virulent form. There were 13,039 cases reported, of which only 500 died. This is a disease which the people themselves know how to treat. Pleuro-pneumonia was reported from 11 districts. There were 233 cases and 66 deaths. " Other diseases " account for 31,645 cases and 2,965 deaths. The total for all diseases is 79,241 cases and 24,322 deaths. Last year the figures were 112,701 cases and 27,089 deaths, which fits in with what one generally hears from the people,

that during the year cattle suffered more from starvation than from disease. The Kangra district was the heaviest sufferer—3,358 cattle having died from rinderpest alone. The treatment of these diseases was left almost entirely in the hands of the District Board Veterinary Assistant, whose work is confined mainly to segregation and disinfection of diseased animals and advising cattle owners as to the best means of preventing the spread of the epidemic. The Superintendent, North Punjab, states that though in Lahore, Jhelum, Sialkot, Gujranwala and Shahpur there is a Veterinary Assistant in each tahsil, they are unable to cope with the many sporadic outbreaks that occur, and, of course, in other districts with a weaker staff the state of things is much worse. The fact is, I think, now clearly established that till the working of these Veterinary Assistants—of whom there are now 78 employed by District Boards at a cost for salaries alone of over Rs. 1,800 per mensem—is directed and controlled by a skilled supervising agency, they will make little headway even against the simpler form of cattle disease.

This skilled supervision cannot apparently be looked for from the present Superintendents, Civil Veterinary Department, who have very little time to spare from their horse-breeding duties. The matter has recently been under the consideration of Government, and a scheme for the appointment of a third Superintendent solely for work connected with cattle and cattle disease suggested. The organisation of a superior branch of the subordinate Veterinary establishments, selected from men who had gone through a third year's course in English in the Veterinary College, and would, under the Veterinary Superintendents for Cattle, supervise the District Veterinary Assistant, has been the subject of correspondence with the Imperial Government. If sanction can be obtained and funds provided for these two schemes, then much will have been done to put the veterinary system in the Province on a satisfactory footing.

The state of affairs indicated in the above report did not undergo any material change until after the lapse of a decade. A scheme for re-organising the cadre and work of the Department materialised during the year 1906—07 by which one Stationary Veterinary Assistant was allotted to each Tahsil and a Touring Assistant for each District. The Government sanctioned an assignment of one lakh of rupees a year for five years to District Boards to be spent on Veterinary work.

The number of hospitals and dispensaries at work was seventeen. At the end of five years, i.e., during 1911-12 the number of dispensaries rose to 109 with the prospect of every Tahsil in the Province

being equipped with a veterinary dispensary before the lapse of another year. The Government recognised the difficulty in obtaining suitable recruits for the department and the necessity to improve the prospects of the subordinate staff by the creation of a new grade of Deputy Superintendent. Next year the service was improved by the creation of a grade of Deputy Superintendents and by additions to the number of Inspectors. In the words of the Director of Agriculture in his note on the Administration Report of the Civil Veterinary Department for 1913-14, the actual position was as follows:—"For veterinary staff we depend upon the local Government: for everything else the District Boards pay. In regard to staff we are still disappointed in not getting a whole-time Superintendent for the North Punjab and a separate Superintendent for Haryana. Three posts of Deputy Superintendents have been sanctioned, and to one of these posts an Inspector has been promoted. The other two posts will not be filled up until suitable men have passed through the post-graduate course. I asked Government to allow one Veterinary Inspector for each District, but only 3 Inspectors have been added to the cadre, and we now have 15 Inspectors for 28 Districts. As regards Veterinary Assistants the Chief Superintendent was hitherto authorised to increase the cadre by 8 men annually; but now each individual case has to be reported to Government for orders. This has resulted in checking the expansion of the Department. I hope this is only a temporary check, for in all the centres of the province there is a great popular demand for more hospitals and for these we need more men. Cattle owners will not, and, indeed, in many cases cannot, take their animals long distances to hospitals, and if we are to extend the advantages of our treatment, and more especially if castration by excision is to displace the present cruel practice of mulling, hospitals should not be more than 20 miles apart".

In the course of the next five years the number of hospitals and dispensaries rose to 136 and in reviewing the Annual Report of 1919-20, Government expressed the opinion that these institutions were increasing in value and popularity and that there was room for many more Veterinary hospitals. That the programme of development indicated in the above report was being pursued is evident from the fact that in the course of the next three years or so the number of hospitals increased to 173. The policy of the Department underwent a change in the abolition of the posts of Itinerating Veterinary Assistants of which there was one post sanctioned for each district in addition to the Stationary Veterinary Assistants posted there. All these Itinerating Veterinary Assistants were put in charge of the newly opened hospitals. The itinerating system was first introduced in 1907 and it was intended that it should continue until there was one

Veterinary Assistant in each Tahsil. In 1928, the Punjab Civil Veterinary Department was separated from the Department of Agriculture.

In the words of the Government review of the Annual Report of the Civil Veterinary Department for the year 1929-30, "the Department has a definite programme aiming at:—

(a) "the improvement of the stock both for draught and milk purposes

(b) the control and cure of disease".

"The Veterinary Department in the districts is responsible both for promoting better breeding and for the control and cure of diseases and therefore the Live-stock Officer is also assistant to the Director of Veterinary Services, for breeding".

Cattle-breeding and Animal Husbandry in general have been under the direction of the Agricultural Department for a long time now in almost all the Provinces with one or two notable exceptions. The most outstanding exception is the Punjab where the Veterinary Department in addition to Horse-breeding, has controlled and directed the policy and operations in respect of the improvements of breeding cattle, sheep, &c., with such conspicuous success. The Hissar Cattle Farm, which is the largest of its kind in India, is a standing monument to the capacity and fitness of Veterinarians in the domain of Animal Husbandry and improvement of Live-stock.

The main argument in support of the policy in vogue at present whereby the Agricultural Department is in charge of this work, is that a plant breeder is also competent to be a stock breeder. All that we can say is that in the year of grace 1934, no one with any scientific knowledge of the subject will have the temerity to make any assertion of the kind. There is as much difference between plant genetics and animal genetics as there is between plant physiology and animal physiology; and a proficiency in the one does not necessarily mean proficiency in the other.

This question of Live-stock management and Animal Husbandry, has been a bone of contention between the Agricultural Department and the Veterinary Department in most of the Provinces, and in the majority of the cases the Agricultural Department with its superior influence has succeeded in getting the Government to decide in its favour.



S. R. HASSAN, ESQ., M.R.C.V.S.,
Assistant to Professor of Pathology,
The Punjab Veterinary College, Lahore.



F. WARE, ESQ., F.R.C.V.S., I.V.S.,
Director,
The Imperial Institute of Veterinary Research,
Muktesar, India.

With the awakening of public interest in such matters, questions are being occasionally asked as to what the Agricultural Department has to show in return for the money that is being spent in the improvement of the Live-stock. We understand that such is the position at the present moment in Madras and the whole question is being re-examined by the Government. Whether or not, as a result of the deliberation, the care and management of stock-breeding and animal-husbandry will be transferred to Veterinary Department we are not now in a position to say, but we know that public opinion, representing stock-breeding and their improvement is in favour of such a change being effected.

This is a digression and our only excuse is that such an important question of policy in connection with the Live-stock improvement is now engaging the attention of a Provincial Government.

The Annual Report of the Punjab Veterinary Department for the year 1931-32 furnishes ample evidence of its varied activities in spite of the financial stringency. The number of hospitals and dispensaries stood at 287, providing a net work of institutions for rendering veterinary aid.

The strength of the subordinates employed on district work was 358 and the number of Gazetted Officers, including the College staff was 35.

This brief review of the activities of the Department covering a period of over thirty years will, we hope, afford some indication of the very useful work which the Civil Veterinary Department has been doing in the Province for the good of the tillers of the soil.

MR. WARE'S PORTRAIT UNVEILED.

On the 25th November 1933, a portrait of Mr. F. Ware, F.R.C.V.S., was unveiled at the Madras Veterinary College, an account of which appears elsewhere in this issue. The portrait gallery of the College is undoubtedly enriched by such additions. It is a fitting and lasting tribute that the profession in Madras has paid to Mr. F. Ware for his invaluable services to that presidency. For very nearly two decades Mr. Ware was directing the policy and programme of the Civil Veterinary Department Madras with phenomenal success.

The President of the meeting was right in saying that "from practically nothing Mr. Ware had worked the department up to one of the most efficient departments in the presidency and that the

Civil Veterinary Department Madras of to-day was mainly his creation." Mr. R. D. Richmond who unveiled the portrait put it in a nut shell when he said "For Mr. Ware his work was his hobby." Those who came in contact with him were struck with his high sense of duty and his anxiety to maintain the purity and efficiency of his department at a high level. None can dispute the fact that Mr. Ware is a man of great administrative talents and it was the good fortune of Madras to have had him at the right hour.

A "hard task master", as per his own admission in the message read out at the meeting, Mr. Ware was dreaded much and yet admired more! By honouring him the profession in Madras has honoured itself. And we are sure that generations yet unborn will look up with pride at such portraits as pioneers who laid the foundation of our profession in India.

MR. S. R. HASSAN, M. R. C. V. S.

It is gratifying to note that this Officer who after passing out of the Punjab Veterinary College served in the Great War for a little over two years doing mostly laboratory work both on the Medical and Veterinary side, who held the post of a Staff Veterinary Assistant Surgeon at Patna, wherefrom who was recruited in 1921, as Assistant to Professor of Pathology at the Punjab Veterinary College and who was subsequently raised to gazetted rank in 1928, has now returned from England with the diploma of M.R.C.V.S.

Taking his degree as a Bachelor of Arts of the Punjab University in 1931, he managed to emerge out of the Royal College of Veterinary Surgeons, London, in less than two years' time with the diploma of M.R.C.V.S. Mr. Hassan to start with joined the University of Liverpool in the IInd year class and passed his examination with first class honours in all the subjects. While there he was given the chance to act as Demonstrator in Histology to the Class and he also attended the University lectures in Physiology, Chemical Physiology, Practical Biochemistry and Genetics. In addition he worked as a Research Scholar in the Department of Veterinary Pathology of the Liverpool University. Recognising his sound professional knowledge, the authorities granted him exemptions from several examinations as a special case.

During vacation he went to Germany and joined the University of Hamburg as a casual student and worked as a Research Scholar at the School of Tropical Medicine (Institut für Schiffs-und Tropenkrankheiten) Hamburg. His work at this Institution has been recognised and officially published.

At Dublin, he attended the course and passed L. M. Examination with distinction. He also acted as Internist to the National Maternity Hospital (Incorporated by Royal Charter, 1902).

Lastly he obtained the Diploma of M.R.C.V.S., from the Royal Veterinary College, London, in July 1933.

These facts speak for themselves. Our warmest congratulations to Mr. Hassan. On his return he was received by his many friends with great enthusiasm and was entertained at a 'Tea Party'.

Original Articles.

THE USE OF LOCAL ANAESTHETICS IN VETERINARY SURGERY.*

BY

DR. R. R. DYKSTRA, D.V.M.,

Dean, Division of Veterinary Medicine, Kansas State College of Agriculture and Applied Sciences, Manhattan, Kansas, U.S.A.

The comparative ease of application has caused many veterinarians to discontinue the use of general anaesthetics except in very unusual conditions.

In the veterinary clinic of the Kansas State College we are using solutions of procaine almost exclusively, though many other valuable agents are on the market. This agent is reasonably safe, and it may be used in comparatively large doses without fear, as its toxicity is relatively low. In large animals we have used as much as 20 grains epidurally and 100 grains by infiltration, in forty-pound dogs three grains epidurally and 12 grains by infiltration, and in two hundred pound swine six grains epidurally and 25 grains by infiltration without evident signs of intoxication. It is claimed that some animals possess an idiosyncrasy for procaine, though we have not observed this. We employ it usually in a one per cent solution—in sterile normal saline solution—and frequently to enhance its local action there is added some adrenalin chloride solution—from five to ten drops to each ounce of the anaesthetic solution.

Those resorting to the use of local anaesthetics should bear in mind that some tissues are highly sensitive, while others are com-

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paratively insensitive. The highly sensitive tissues are nerve tissues, serous membranes as the parietal peritoneum, parietal pleura and pericardium, mucous membranes near orifices, periosteum, synovial membranes, and skin. The less sensitive tissues are muscle, fascia, visceral peritoneum, bone, cartilage, fat, ligament, and tendons.

Three methods of application are in more or less general use as follows:

- I. Direct application.
- II. Infiltration.
- III. Nerve blocking.

In some instances a combination of these methods may be employed.

I. DIRECT APPLICATION.

In some minor operations involving the conjunctiva, and the mucous membranes of the mouth, nose, rectum and genitals, sufficient anaesthesia is produced by saturating a pledget of cotton with the anaesthetic solution and permitting this to remain in close contact for a few minutes with the tissues to be anaesthetized. This causes less pain in its application than through the use of a hollow needle, and is quite effective.

II. INFILTRATION.

There are a variety of veterinary surgical conditions in which no favorable opportunities present themselves for the application of a solution of a local anaesthetic other than by an infiltration of the diseased region. In such common conditions, for example, as poll evil, fistula of the withers, large masses of scar tissue, exuberant granulations, amputation of claws in cattle, etc., the region cannot be "blocked off" nor are local applications of great value. We therefore proceed with a "filling up" of the diseased region with the anaesthetic solution so that the tissue is thoroughly infiltrated. The anaesthetic solution is to be injected in particular in those places where sensitive tissues are to be incised, such as the skin, and in the areas where the deeper incisions are to be made. In poll evils, fistulous withers, etc., we may resort to extensive incision of tissues by preliminary subcutaneous injections along the lines of incision, and additional injections into the deeper parts of the operative field. Four ounces of a one per cent. solution of procaine will anaesthetize the field nicely. In high-strung, excitable animals—thirty minutes before the operation—one to two ounces of chloral hydrate dissolved in one quart of water and administered through a stomach tube is advantageous.

III. NERVE BLOCKING.

Undoubtedly the most effective anaesthetization is produced where the anaesthetizing agent is placed directly in contact with a sensory nerve supplying a certain area. This is spoken of as "nerve blocking." It has a wide application in veterinary surgery. Various regions in the head and limbs in equines may be entirely blocked off by an injection of from five to ten cubic centimeters of a one per cent. solution of a local anaesthetic, preferably with the addition of a few drops of an adrenalin chloride solution. The nerves that may be anaesthetized in the fore-limb are as follows:

A. THE REGION OF THE FORE-LIMB.

1. *Median Nerve.*—This nerve is best reached on the medial surface of the anterior limb, two or three inches below the elbow joint, just back of the radius, and covered by the skin and deep fascia of this region, as well as being overlapped by the anterior border of the flexor carpi radialis muscle. When effectively blocked there is a resulting anaesthetization of all the medial surface of limb from the point of injection downward, as well as partial anaesthesia of the lateral surface of the limb from the carpus downward.

2. *Ulnar Nerve.*—About four inches above the accessory carpal bone the ulnar nerve is quite superficial. It is lodged between the middle and lateral flexors of the carpus, and covered only by the skin and deep fascia of this region.

Blocking of this nerve alone is not productive of extensive anaesthetization, but in conjunction with blocking of the median nerve it assures complete insensibility of all the region below and including the carpus.

3. *The Lateral and Medial Volars.*—In older text-books on anatomy these nerves are designated as the external and internal plantars. The lateral volar is formed by a combination of median and ulnar branches, while the medial volar is one of the terminal branches of the median. They pass downward along the lateral and medial borders of the tendon of the perforans, and are in communication with each other by means of a transverse communicating branch which passes in an obliquely downward direction from within outward, about the middle of the metacarpus, superficial to the perforatus tendon, and just beneath the skin. If it is desired to block the medial half of the phalangeal region and foot, the fetlock, and both nerves are simultaneously blocked if complete anaesthetization of the entire region below the fetlock is desired. It is very essential to make injections over each of these nerves below the transverse communicating branch.

4. *The Lateral and Medial Volar Digitals.*—In some lameness, and in certain surgical operations, anæsthetization of the posterior half of the foot is necessary. The region is supplied with sensory fibers by the lateral and medial volar digital nerves which in both instances pass down the centre of the digital depression bounded in front by the first phalanx and behind by the tendon of the perforans. Local anæsthetics injected over these nerves are valuable in operations on corns, the fatty frog, navicular bone, etc.

B. THE REGION OF THE HIND-LIMB.

In the hind-limb we may also practice nerve blocking as follows:

1. *The Posterior Tibial Nerve.*—This nerve, or its two terminal branches—the plantars, to a considerable extent supply the hock joint and the region below it. When it is blocked, sensation in the regions mentioned is practically controlled. For anæsthetizing purposes, the injection is best made on the medial surface of the limb, about four fingers breadth above the tuber calcis and approximately one inch anterior to the tendo Achilles. In this region the nerve is readily palpated just beneath the skin and in its fascial compartment.

2. *The Deep Peroneal Nerve.*—This nerve is on the latero-anterior surface of the tibial region, and is most accessible about the middle of this region. It is approximately one inch from the surface, passing downward on the latero-posterior aspect of the muscular portion of the long extensor of the digit. Because of its comparatively deep situation it is reached—for the purpose of depositing the anæsthetic—only with difficulty and not at all with any degree of accuracy. However, it is essential to anæsthetize it, in conjunction with the posterior tibial nerve, if complete anæsthetization of the region of the hock is to be obtained.

3. *The Plantar Nerves.*—These terminal branches of the posterior tibial nerve are arranged very similarly to the corresponding volar nerves of the fore-limb. Their posterior terminal branches—the medial and lateral volar digitals—are also disposed as in the fore-limb, so that nerve blocking of these structures is performed almost identically to the technique in the anterior limb.

C. THE REGION OF THE HEAD.

1. *Maxillary Nerve.*—This nerve is one of the principal divisions of the fifth cranial nerve. It is purely sensory and sends filaments to the lower eyelid, the nasal septum, turbinate bones, hard and soft

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palate, gums, alveolar periosteum, upper molars, canine and incisor teeth, and upper lip.

When properly blocked it practically anæsthetizes all tissues on the same side of the head, situated anterior to a line drawn between the nasal canthi, though not including the mandible which has a separate nerve supply. It may be used therefore in trephining the sinuses—excepting the frontal—operations on the nose, nasal septum, and turbinates, removal of teeth, etc.

For blocking purposes the nerve is most accessible at a point where it traverses the pterygo—palatine fossa alongside the orbit and just before it enters the infraorbital canal.

The needle—about 16 gauge and having a shank at least three inches in length—is introduced at a point about one inch below the lateral orbital canthus—this is immediately below the facial crest and above the transverse facial vein—it descends along and in contact with the maxillary tuberosity until it reaches the maxillary foramen, this also being the point of entry of the maxillary nerve into the infraorbital canal, and here the anæsthetic solution is deposited. When the needle establishes contact with the nerve, the animal jerks the head suddenly. If blood flows from the needle the internal maxillary artery has been wounded, and the needle should be re-directed a little higher up.

A good practical method of testing the thoroughness of the anæsthesia is to prick the upper lip of the same side—complete insensibility should exist.

2. *The Mandibular Nerve.*—This also is one of the main divisions of the fifth cranial nerve. Strictly speaking it is a terminal of the mandibular nerve that concerns us, i.e., the mandibular alveolar nerve, or it is generally known as the inferior dental nerve. Shortly before entering the mandibular foramen on the medial surface of the ramus of the mandible, this nerve becomes exclusively sensory. As it passes through the mandibular canal it sends branches to all the lower molars, farther on to the inferior canines and incisors of the same side, their gums and alveolar periosteum, as well as the lower lip and chin. Anæsthetization of this nerve will therefore control all pain of dental operations of the lower jaw, and the lower lip and chin.

Before depositing the anæsthetic solution, which should be done at the point where the nerve enters the mandibular foramen on the medial surface of ramus of the mandible, we must have quite an accurate guide as to the location of the mandibular foramen. This is done by dropping an imaginary line from and corresponding to the general direction of the anterior border of the supra-orbital process of the frontal bone and across the masseteric region. A second

imaginary line directed backward from and corresponding to the general direction of infero-lateral border of the upper molars, and across the masseteric region. The crossing point of these two imaginary lines on the masseteric region corresponds almost exactly to the position of the mandibular foramen on the medial surface of the ramus, and may be used as a guide in the passage of the needle.

The needle to be used for very large headed horses must be as much as five inches in length and of 16 to 20 gauge.

If the animal is not too thick in the space back of the mandible and in front of the wing of the atlas the preferable point to start the needle is about two to two and one-half inches below the temporo-mandibular articulation. The sharp end of the needle is to be passed forward in close contact with the bone—the medial surface of the ramus—and until it reaches the point corresponding to the crossing of the imaginary lines on the outside of the masseteric region. This is the preferred direction of the needle as it will parallel the nerve for a distance of about one inch before the latter enters the mandibular foramen, and thus offering a better chance of reaching the nerve.

The needle may also be started at the lower border of the mandible and directed upward until the nerve is reached. It is much roomier to pass the needle from this border, but it is more difficult to deposit the anæsthetic exactly. The needle once correctly in position, the usual amount and strength of anæsthetic solution may be injected, and with resulting loss of sensation after an interval of five to ten minutes.

IV. REGION OF BODY POSTERIOR TO THE LAST RIB.

The above heading does not take into consideration that certain portions of the hind limbs are preferably anæsthetized by blocking the posterior tibial nerve and its branches, and the deep peroneal nerve.

With the above mentioned exceptions, regional anæsthesia of the posterior portion of the body is doubtless one of the most important advances in veterinary surgery during recent years.

This form of anæsthesia known as epidural anæsthesia, spinal anæsthesia, and caudal anæsthesia received a great impetus in America when brought to the attention of its veterinarians by Professor Benesch of Austria. He indicated and demonstrated its usefulness in cattle only. Almost equal credit should go to Drs. W. M. McLeod and E. R. Frank of the Kansas State College for their anatomical and clinical demonstrations of the value of this form of anæsthesia in the horse, swine, dog and cat. As a result of their work this method of anæsthetization has been very generally adopted.

The simplest statement regarding the indications for this method of anæsthetization is that whenever a painful operation is to be performed posterior to the last rib, or if motor resistance is to be overcome, we may resort to this form of anæsthesia. All operations on the genitalia—obstetrical or otherwise—, on the rectum, teat, urinary bladder, etc., come under this grouping.

1. *In the Horse.*—Epidural anæsthesia in the horse may be used very extensively. It will make painless such operations as ordinary castration, ridgling castration, hernia operations, amputations of the tail, obstetrical manipulations, etc.

There was a belief for some time that the sloping character of the croup in the horse would prevent an anæsthetic intraspinally deposited from gravitating forward so as to surround the lumbosacral plexus. By means of warmed, colored agar, McLeod demonstrated that these injections did gravitate forward to the lumbo-sacral region and that the sloping character of the group is not indicative of the general direction of the sacrum.

In the horse the posterior portion of the sacrum—the latter is a single fused segment—is fused with the first coccygeal vertebra. There is considerable space, however, between the first and second coccygeal vertebra. It is possible, therefore, in the horse to make an intraspinal injection in this latter space. Usually it may be recognised either by counting backward from the first sacral spine to the first coccygeal inclusive, or if the tail is bent sharply upward, the site of injection is at the point where the greatest bend occurs.

A needle having a shank two inches in length and of 16 gauge may be used. It is inserted in a downward and forward direction or at an angle of about 45 degrees exactly in the middle line in the centre of the depression previously mentioned.

We may inject from 10 to 40 cubic centimeters of a one per cent. solution. A properly made injection will result in complete anæsthesia in about ten minutes.

2. *In the Bovine.*—In cattle the injection may be made either in the first intercoccygeal space, or it may also be made through the sacrococcygeal space. In these animals the exact place to make the injection may also be located by moving the animal's tail, there being only very slight movement between the sacrum and first coccygeal, with rather extensive movement between the first and second coccygeal vertebra.

We may use the same type needle as in the horse, or a shorter one will do. In making the injection the needle should be held

much more vertical than in the horse, or at least than a 15 degree slant. The same amount of anæsthetic may be used as in the horse.

3. *Maxillary Anæsthesia of the Dog.*—This is a form of anæsthesia first developed, to the best of my knowledge, by Dr. E. R. Frank of the Kansas State College. In discussing this operation Doctor Frank states as follows:

"The instruments of choice are a glass hypodermic syringe which is easy to sterilize and convenient to handle, and a 20-gauge needle, two inches long.

"Procaine has been the preferred anæsthetic, because it is constant in action and is comparatively non-toxic.

"To block the infraorbital nerve, select a point about one and one-half inches below the lateral canthus of the eye, in the space between the posterior border of the malar bone and the anterior border of the coronoid process of the mandible.

"The field should be shaved and disinfected and an insensitive wheal made in the skin at the point of insertion of the needle. The needle is inserted vertically through the skin and pushed through the soft tissues in the space between the anterior border of the coronoid process of the mandible and the malar bone, until its point has passed the edge of the latter. It is then directed forward along an imaginary line that would reach the gingival margin of the upper incisor teeth, until the point of the needle reaches the maxillary foramen, where the nerve is lodged and the injection is to be made. This is at a depth of approximately to one and one-half inches from the surface, in a dog of average size. Inject two cubic centimeters of a two per cent. procaine solution. Incline the dog's head downward, so the solution will remain around the nerve. Anæsthesia should be complete in ten minutes and last for approximately twenty minutes."

4. *Mandibular Alveolar Anæsthesia in the Dog.*—"The blocking of the mandibular alveolar nerve is relatively simple. Pass the finger along the lower border of the mandible, from front to back, to where there is a depression. The point at which to insert the needle is at the lowest point of the depression. Insert the needle directly upward close to the medial surface of the mandible, for a distance of one-half to three-quarters of an inch and inject two cubic centimeters of a two per cent. procaine solution. Anæsthesia will take place as described for the infraorbital nerve. The only clinical use of dental anæsthesia so far has been the splitting and extraction of teeth in cases of dental fistula."

5. *Epidural Anæsthesia in the Dog.*—In epidural anæsthesia in all animals the chief value lies in its comparative freedom from harmful after-effects. This is owing to the fact that the anæsthetic solutions are deposited outside of the dura mater. In the dog the dura mater terminates at least one-half inch anterior to the lumbo-sacral space so that this is the preferred site of injection in the dog.

The operator should be equipped with a glass syringe of five to ten cubic centimeters capacity with a shank two to three inches long and of twenty gauge. The site of injection is a depression in the middle of the spinal region, and it may be accurately located by drawing an imaginary line transversely across the posterior borders of the wings of the ileum. This line passes almost exactly over the depression. Insert the needle in the depression in a vertical direction, then tilt it slightly backward and continue to pass the needle downward until it has entered the spinal canal. In small dogs it need be passed only to a depth of one-half inch, and as deep as two inches in the larger dogs. The dosage of a two per cent. solution of procaine is five cubic centimeters for a Terrier, twelve cubic centimeters in a fifty-pound dog, and twenty cubic centimeters in a dog weighing 100 pounds. After the injection, the dog should be held in dorsal recumbency for a few minutes so that the anæsthetic solution will flow forward and thus prepare the animal for operations anterior to the tail, while for operations on the tail proper the animal should be permitted to sit on his haunches for a few minutes.

6. *Epidural Anæsthesia in the Cat.*—In cats the same instruments are used and the technique is the same as in the dog. Usually three cubic centimeters of a two per cent. solution is sufficient to render the posterior portion of the body insensitive in cats.

7. *Epidural Anæsthesia in Swine.*—Hogs weighing more than 200 pounds are not good subjects for epidural anæsthesia because the lumbo-sacral space—and this is where the injection is made—almost completely closes up in the mature hog.

The lumbo-sacral space is located by drawing an imaginary line across the anterior borders of the wings of the ileum. The site of injection is at a point two and one-half inches posterior to this line and exactly on the middle line.

The needle, preferably 18 gauge and with a shank three inches long, is inserted in a downward and forward direction. In a forty-pound hog it may be necessary to introduce the needle one and one-half inches, or as much as four inches deep in very large hogs. For

abdominal operations the hind parts should be elevated for several minutes following the injection. Five cubic centimeters of a one per cent. solution is frequently sufficient for a forty-pound hog, though larger animals may require from fifteen to twenty cubic centimeters.

CONCLUSION.

We are convinced that the correct use of local anæsthetics in veterinary surgical practice will control the pain of a large number of surgical operations, and do it by a method that will prove to be practical in the hands of those compelled to work without expert assistance.

LICHEN TROPICUS IN HORSES.*

BY

CAPT. S.C.A. DATTA, B.SC., M.R.C.V.S.

"Lichen tropicus" is the name recently given to a chronic equine condition, which has been known since at least about 1879 to occur in various parts of India. It is remarkable that up till now neither the cause has been ascertained nor any satisfactory method of treatment evolved. The disease is characterised by its seasonal occurrence, being prevalent during the hot weather and disappearing with the advent of the winter. The disease is generally restricted to the more hairy parts and hence the term "Mane and Tail" disease, and although the human condition "lichen tropicus" has no resemblance to this condition, the term 'lichen' describes truly the clinical picture.

As a result of histopathological studies upon specimens of skin from clinical cases, the author reviews the existing hypotheses regarding the condition, and regards certain interesting and constant features such as the presence of eosinophiles and microfilariae, and considers so-called Lichen tropicus of horses to be a cutaneous microfilariasis resembling *Craw Craw* of Man in West Coast of Africa and *Cascado* of Cattle in Sumatra.

*Abstract of an article to be presented before the 21st Indian Science Congress, Poona, January 1934.

General Articles.

FOOD ANIMALS.

BY

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Man obtains his supply of meat-foods from a variety of animal life. His bromatological fauna includes almost all classes of the zoological kingdom, extending from the lower animals to the vertebrates. The major part of his meat supply, however, comes from the herbivores and certain omnivores in the class Mammalia, i.e., the animals that live on plant foods or lower animals. Their meat is palatable. On the other hand, the meat of carnivorous animals, i.e., animals that consume the flesh of higher animals is less palatable, and as such, is not used for human food. Next to mammals in importance as a source of meat-food, is the class Aves (fowls and birds), and then the Pisces (fish). Animals belonging to other classes like Reptilia (turtles), Mollusca (oysters and clams), Crustacea (lobsters and crabs), etc., are only occasionally consumed by man and serve more as delicacies than as staple meat-foods.

In a broad sense, the term "food animals" may include all animals that are slaughtered and killed through the abstraction of blood and whose flesh serves as human food, but in a restricted sense, the term is applicable only to the slaughterable domesticated mammals, like cattle, sheep, goats and hogs, and even domestic poultry do not come under this term.

The following table gives a catalogue of the bromatological fauna of the world:--

CATALOGUE OF THE BROMATOLOGICAL FAUNA OF THE WORLD.

Phylum Echinodermata:

Class Holothuroidea: ... Sea-cucumbers or Trepangs (marine); are eaten by Chinese, Japanese and South Indian people.

Phylum Arthropoda:

Class Crustacea:

Order Decapoda:

Sub-order Macrura:

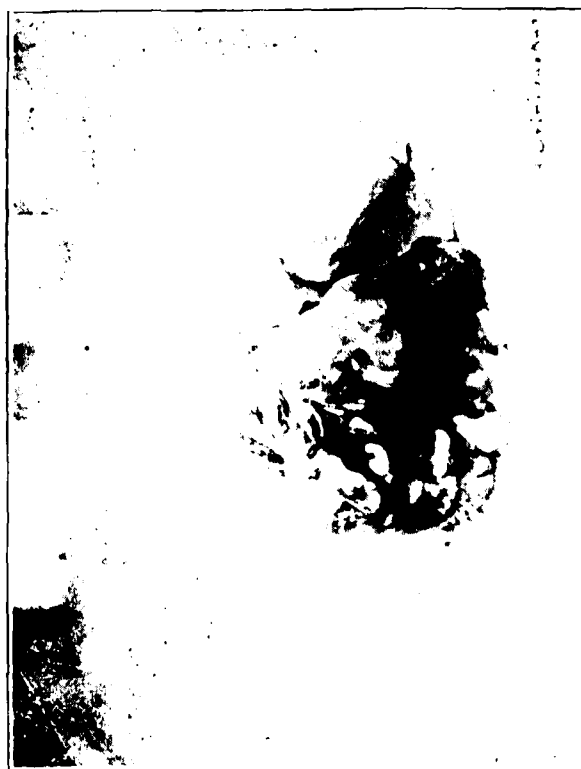
Prawns (*Penaeus*, *Palaemon*, etc.),
Shrimps (*Crangon*, *Lucifer*, etc.),
Lobster (*Homarus*).

- Fresh water Crayfishes (*Astacus*,
Paranephrops, *Cambarus*).
 Rock-lobsters (*Scyllarus*).
- Sub-order Anomora : ... Hermit Crabs (*Pagurus*).
 Cocoa-nut Carbs (*Birgus*, *Gala-*
thea, *Hippa*, *Porcellana*).
- Sub-order Brachyura : ... Crabs (*Cancer*, *Maia*, *Grapsus*).
- Order Amphipoda : ... Fresh water Shrimps (*Gammarus*).
 Sand-hoppers *Talitrus*, (*Orchestia*).
- Class Insecta
 Order Orthopteroidea :
 Sub-order Orthoptera : ... Grass-hoppers are eaten in India.
 Locusts (*Locusta*) are eaten in
 India, Africa and Asia Minor.
- Phylum Mollusca :
 Class Pelecypoda :
 Order Filibranchia : ... Sea-mussel (*Mytilus*, *Anomia*, *Tri-*
gonia).
- Order Pseudo-lamellibran-
 chia ... Scallops (*Pecten*).
 Oyster (*Ostrea*).
 Pearl Oyster (*Meleogrina*).
- Order Eulamellibranchia :
 Sub-order Integripallia : ... Fresh water Mussel (*Anodonta*
Unio).
 Cockle (*Cardium*, *Mya*, *Pholas*).
 Giant Clam (*Tridacna*).
- Class Gastropoda :
 Order Pectinibranchia :
 Sub-order Platypoda : ... Whelks (*Buccinum*, *Nassa* *Pur-*
pura).
 Tritons (*Tritonia*).
- Sub-Class : Euthyneura :
 Order Pulmonata : ... Land Snails (*Helix*, *Carinaria*).
 Slugs (*Limax*).
- Phylum Chordata :
 Section Craniata (Vertebrata) :
 Class Cyclostomi : ... Lampreys (*Petromyzon*, *Morda-*
cia, *Geotria*, *Ichthyomyzon*).
 Hags (*Myzine*) eaten in Australia.
 Slimy Eels (*Paramyxine*, *Bdello-*
stoma) eaten in Europe.
- Class Pisces :
 Sub-Class Elasmobranchii : Dog-fish (*Hemiscyllium*).

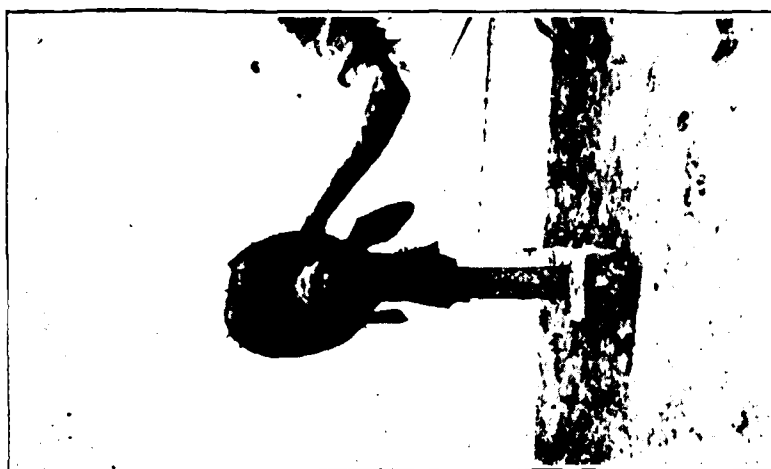
- Sharks (*Porbeagle*, *Sphyrna*, *Pri-*
stis, *Pristiophorus*, *Selache*, *Car-*
charodon, *Lamna*, etc.).
- Rays (*Urolopus*, *Pristis*).
- Sub-class Holocephali : ... Cat-fish (*Chimaera*) "King of
 Herrings".
- Sub-Class Teleostomi : ... Elephant-fish (*Calleryhynchus*).
 Perch (*Anabas*, *Caraux*, *Perca*).
 Cod (*Gadus*, *Merluccius*).
 Trout (*Salmo*).
 Sturgeon (*Polyodon*, *Acipenser*).
 Pike (*Lepidosteus*, *Esox*).
 Bow-fin (*Amia*).
 Mackerel (*Scomber*).
 Turbot (*Lota vulgaris*).
 Flounder (*Pleuronectes flesus*).
 Sole (*Solea vulgaris*).
 Coffer or Trunk-fish (*Ostracion*).
 Carp (*Cyprinus*).
 Herring (*Clupea harengus*).
 Eel (*Muraena*, *Anguilla*).
 Salmon (*Salmo salar*).
 Globe-fish (*Diodon*, *Tetrodon*).
 Sprat (*Clupea sprattus*).
 Dab (*Pleuronectes Limanda*).
 Roach (*Leuciscus*).
 Bleak (*Alburnus*).
 File-fish (*Balistes*, *Monacanthus*).
 Porcupine fish (*Diodon*).
 Sucking fish (*Echeneis*).
 Dragonet (*Callionymus*).
 Monk or Angle fish (*Rhina*, *Squa-*
lus).
 Sardine (*Alausa*).
 Bitterling (*Rhodeus*).
 Halibut (*Hippoglossus vulgaris*).
 Haddock (*Gadus aeglefinus*).
 Ling (*Molva*).
 Whiting (*Gadus merlangus*).
 Brill (*Rhombus laevis*).
 Plaice (*Pleuronectes platessa*).
 Hake (*Merluccius vulgaris*).
 Red Mullet (*Mullus*).
 Skate (*Raja*).

	Coal-fish or Saithe.
	Tench (<i>Tinca</i> , <i>Aspius</i>).
	Pilchards (<i>Clupea pilchardus</i>).
	Sea-bream (<i>Abramis</i>).
	Thorn-hound (<i>Acanthias vulgaris</i>).
	Nose-fish (<i>Chondrostoma nasus</i>).
	Loach (<i>Botia</i> , <i>Misgurnus</i> , <i>Cobitis</i> , <i>Apua</i>).
	Gudgeon (<i>Gobio</i>).
	Smelt (<i>Osmerus</i>).
	Grayling (<i>Thymallus</i>).
	Anchovy (<i>Engraulis</i>).
	Stickleback (<i>Gastrosteus aculeatus</i>).
	Gurnard (<i>Dactylopterus</i>).
	Wrasses (<i>Labrichthys</i>).
	Sun-fishes (<i>Orthogoriscus</i>).
	Rohu-fish (<i>Labio rohita</i>)—met. with at Lahore.
	Gar-fish (<i>Belone</i>).
	Bombay duck (<i>Harpodon nehereus</i>) etc., etc.
Sub-Class Dipnoi :	... Mud-fishes (<i>Protopterus</i> , <i>Lepidosiren</i>)—eaten in Australia.
	Burnett Salmon (<i>Ceratodus</i>).
Class Amphibia :	
Order Anura :	... Frogs (<i>Rana esculenta</i>).
Class Reptilia :	
Order Squamata :	
Sub-order Lacertilia	Zizards (<i>Uromastix</i>) or the Common Sanda of the Punjab is eaten by Sansis.
Sub-order Ophidia :	Snakes—eaten in China.
Order Chelonia :	... Land tortoises, Soft tortoises, River and Mud tortoises, turtles, etc.
Class Aves :	... Birds and Fowl (<i>Gallus</i>); Ostriches (<i>Struthio</i>); Pigeons (<i>Columba</i>); Doves (<i>Turtur</i>); Starlings (<i>Sturmidae</i>); Ducks (<i>Anas</i>); Geese (<i>Anser</i>); Swans (<i>Cygnus</i>); Pheasants (<i>Phasianus</i>); Grouse (<i>Tetrao</i>); Sand-

	grouse (<i>Pterocles</i>); and numerous other game birds.
Class Mammalia :	
Order Cetacea :	... Whales (<i>Balaena</i>).
Order Ungulata	
Sub-order Parissodactyla :	
	Horses (<i>Equus caballus</i>) eaten in China and by Tartars and Kirghis.
	Asses (<i>Equus asinus</i>).
	Zebra (<i>Hippotigris zebra</i>).
	Tapirs (<i>Tapirus</i>).
	Rhinoceros (<i>Rhinoceros</i>).
Sub-order Artiodactyla :	
Family Camelidae :	Camels (<i>Camelus dromedarius</i> and <i>C. Bacterianus</i>).
	Llamas (<i>Lama</i>).
	Alpacas (<i>Lama pacos</i>).
Family Cervidae :	Deer (<i>Cervus</i>).
	Wapiti (<i>Cervus canadensis</i>)—eaten in North America.
	Elks (<i>Alces</i>) eaten in North America.
	Musk Deer (<i>Moschus</i>).
	Fallow deer (<i>Cervus dama</i>).
	Red deer (<i>Cervus elephas</i>).
	Reindeer or Caribou (<i>Rangifer</i>) eaten in Norway, Sweden and other arctic regions.
Family Antelopidae :	Antelopes (<i>Hippotragus</i>).
	Eland (<i>Oreas</i>) eaten in Southern and Eastern Africa.
	Black Buck (<i>Antilope</i>).
	Springbok (<i>Antidorcas</i>) in Africa.
	Nilghai of India (<i>Boselaphus</i>).
	Kudu (<i>Strepsiceros</i>).
	Gnus (<i>Connochoetes</i>).
	Giraffes (<i>Giraffa</i>).
Family Giraffidae :	
Family Bovidae :	
Sub-family Bovinae :	Park and Domesticated cattle (<i>Bos taurus</i>) Humped Ox or Zebu of India, China, Malay



Double Headed Monstrosity.



A case of congenital Hydrocephalic Monstrosity.

Freaks of Nature.

DOUBLE HEADED MONSTROCITY.

By

M. V. SUBBARAYUDU, G.M.V.C.,

Veterinary Assistant Surgeon, Tanuku.

Subject :—An Indian bred cow, primipara.

History and Symptoms :—The cow was admitted for impaction of rumen on 11-7-33. The owner did not know that the cow was pregnant, but on examination, she was found to be in an advanced stage of pregnancy. Treatment for impaction was adopted by the administration of stimulating drenches with linseed oil.

On the 15th morning, one posterior leg was protruding out. As no progress in calving was evident, manual interference was resorted to. With some difficulty the foetus was delivered and it was found to be a double-headed monstrosity (Sysominum). The two heads were joined together at the neck.

A CASE OF CONGENITAL HYDROCEPHALIC MONSTROCITY.

By

A. R. VENKATACHALA AYYAR, G.M.V.C.,

Veterinary Assistant Surgeon, Hosur Cattle Farm.

Subject :—A Cross-bred cow, No. 306, born on 25-5-30.

History :—The animal was brought to my hospital at about 7-15 A.M. on 15-9-33 by the attendant saying that it was quite normal the previous evening till about 6 P.M., when he left her. Early next morning, he noticed a white string-like thing hanging out of the vulva. On examination, I found the white string-like thing to be a portion of the foetal membrane and it was a case of distokia, with all four limbs presenting. The animal was then given 4 drachms of Chloral Hydras, cast down and secured. Every possible attempt to deliver the calf was futile, and I was forced to have recourse to its removal piece-meal, even then, the head would not easily come out. I had to fix a sharp hook to the head superiorly and when its point punctured the head, about 6 lbs. of clear fluid came out. Finally the head was removed, not without much difficulty. The head was enormously increased in size, say about 4 to 5 times the normal size, forehead prominent and large, muzzle

portion very small and constricted superiorly and the skull bone separated superiorly. Fluid still continued to escape through the puncture. The calf was a fully developed one. Another peculiarity of the case was that the period of gestation was about 11½ months, the date of service being 24.9.32. This is its first calving.

Hotchpotch for Veterinarians.

The Treatment of Azoturia in the Horse. Ritzenthaler, Schweiz. Archiv.f. Tierhkl. 1933, Vol. 75, No. 5.

The Author claims successful treatment with calcium therapy of 22 cases of equine hæmoglobinæmia paralytica. His present method is to give 50 grams of calcium gluconate intravenously in a 10 per cent. solution, a suitable heart tonic, 100 grams of sodium bicarbonate by the mouth and a poultice to the loins. *Vety. Record*, Vol. XIII, No. 38.

The connection between Strangles, Staggers and Jinked Back, Ritzenthaler, *Ibid.*

The author quotes three case records to illustrate the clinical connection between strangles, staggers (temporary dropsy of the cerebral ventricles) and jinked back. In his opinion, the strangles toxin has a particular affinity for nervous tissue and attacks the brain and spinal cord, with the resultant staggers and dropped back condition. Strains of *Str. equi* vary considerably in their pathogenic affinities and this fact accounts for the wide variations in the syndrome following an attack of strangles.

Strangles, like streptococcal mastitis, is very refractory to vaccination treatment and the assumption of diversity of antigenic structure of the causal organism is well founded. *V. R. Vol. XIII, No. 38.*

Anti-Rabic Inoculation of Animals in Morocco in 1932. (Trans-title) Remlinger and Baily (1933) Bull. de l'Acad. Vet. de France. VI. 3, 115-121.

The preventive anti-rabic inoculation of dogs and even the vaccination of herbivora after being bitten, have given excellent results in Morocco, with no accidents following their use. Details are given of several cases inoculated with the ether-virus after being bitten. One observation concerned a herd of 50 sows and three

boars. These were attacked by dogs and the boars gave fight. One of the boars was bitten and twelve days later developed furious rabies and savaged five pregnant sows and a boar. These received inoculations of the ether-virus on the sixth, seventh and eighth days and the sows farrowed normally a few days later and all survived. *V. R. Vol. XIII, No. 38.*

Parasites, external and internal, damage their hosts by mechanical injury, by direct abstraction of nutrition, the sucking of blood, by elaborating and eliminating chemic substances that cause local irritation, hemolysis and other injuries to the tissues and by acting as carriers of microbial infection. Thus parasites are frequently responsible not only for unthriftiness and loss of flesh, but also for acute or chronic bacterial and virus diseases and for loss of life. *Vety. Medicine*, Vol. XXVIII, No. 10.

Grove reported the successful use of antimony and potassium tartarate in a case of trichinosis in the human, in the journal of the American Medical Association, (Vol. 85, No. 5.). In this case, a 2% solution of antimony and potassium sulphate in sterile water was injected intravenously. The dosage consisted of 1 c. c. followed in 24 hours by 2 c. c. and 46 hours later 3 c. c. was administered. This same therapeutic agent has been recommended by Rogers in cases of Kala-azar. This method may be of value in the treatment of pulmonary ascaridiasis, oesophagostomiasis and other forms of parasitism in which the parasites invade various tissues. Practitioners should try this method of treatment and report their results. A similar preparation is being used to some extent in the treatment of filariasis in dogs and excellent results have been reported.—*V. M. Vol. XXVIII No. 10.*

According to Hastings, anthrax spores may remain viable and virulent in naturally contaminated water for 18½ years. The test was made on a sample of water that had been polluted from a tannery. This sample of water was kept in a glass stoppered bottle and subjected to the varying temperatures in a laboratory. If spores of anthrax bacilli will remain viable and virulent for 18½ years under the conditions described in Hasting's experiments, it is probable that they will live indefinitely in soil and that anthrax will become more wide spread as new areas of infection are established.—

V. M. Vol. XXIII, No. 10.

R. E. Ferneyhough, Warrenton, Va., has a way of his own in taking cultures from the cervix and uterus of the mare. He uses a sterile swab in a sterile tube. When he is all ready, he uses a large uterine or cervical forceps to grasp the free end of the stick and passes the swab end just where he wants it. He puts the swab back in the sterile tube and sends it to the laboratory. We find his cultures most satisfactory to examine and believe it is the most practical way we have yet seen; so we recommend it to others.—*V. M. Vol. XXVIII, No. 10.*

Tularemia is transmissible to man by blood sucking flies and ticks that are infected with *B. tularensis*, the causative agent.

V. M. Vol. XXVIII, No. 10.

Dr. Seale Harris, Birmingham, Alabama, has reported a new disease in that locality. The condition is the opposite of that of diabetes, in which the pancreas supplies too little insulin for the body needs. In the new disease the pancreas produces too much insulin and excessive hunger is the chief symptom. The patient may suffer also from weakness, nervousness, tremors, sweating and mental lapses. The treatment advised by Dr. Harris is a diet low in carbohydrates and high in fats for mild cases, and surgical removal of a portion of the pancreas for the more severe attacks.

V. M. Vol. XXVIII, No. 10.

The function of the spleen has been a moot question for many years. The production of certain blood cells and purifying action upon the blood are known splenic functions. Recently it has been suggested that the spleen is an important source of anti-bodies and possibly also of products that antagonise the development of tumour cells.—*V. M. Vol. XXVIII, No. 10.*

Notes.

After all, the next All-India Veterinary Conference is to be held! United Provinces has come to the rescue. Just about a decade ago, it was at Lucknow, the birth of this *Journal* took place. The Bennett Hall of the Canning College rang with the echo of applause that greeted the decision taken to found a *Journal*. Well, the *Journal* was duly born and bred up, let us hope, on sound lines. It is that Province that has invited the whole of India once again in these days of depression. As the General Secretary says in his appeal, published

elsewhere, "it is a simple price of duty" for the rest of India to respond in large numbers and with professional papers. Will she be wanting even in that direction? We certainly do not think so. Arise, awake and put your shoulders to the wheel! Hats off to United Provinces.

Mysore has managed with its usual tact to persuade the Imperial Council of Agricultural Research, to sanction a sum of Rs. 20,400 in her favour for investigation into Johne's disease. We publish elsewhere the details regarding this scheme. We most heartily congratulate Mysore and wish her all success.

Even the small State of Pudukottah is quite alive to her Veterinary needs. She has appointed a Committee to go into the question of cattle-breeding, sheep-farming, etc. The Committee were also asked to discuss the steps that should be taken to encourage cattle-breeding, sheep-farming and poultry-rearing; and in what ways the Veterinary Department can best help the ryots in combating cattle diseases and whether any alteration in the existing practice and system is called for. The views of the non-officials were sought on the following points:—(a) Protective inoculation against infectious diseases, (b) Diseases communicable from animals to man, (c) The care to be taken in nursing animals in health and disease, (d) The advantages of Burdizzo method of castration, (e) Cultivation of special fodder crops, (f) The causes and prevention of contagious diseases, and (g) Animal Hygiene and Husbandry.

If we write anything in the interest of Justice and Fairplay to the men in service, persons are not wanting who raise their eye-brows in horror at what they consider to be a severe criticism of the Departmental administration. We make a present of an extract from the Report of the Public Services Commission, Madras, for 1932-33 to our profession and leave it at that.

"In April 1931, the Commission drew up a list of Veterinary Assistant Surgeons, arranged in order of merit under each community, who were qualified and suitable for selection for admission to the Madras Veterinary Service, and that list was approved by the Government with slight modifications. In it under a certain community the Commission placed an officer third. In July 1931, the Government promoted him in supersession of the two officers above him in the approved list and his selection was out of the communal order prescribed in the Statutory Rule for his community.

Although according to the orders of the Government a copy of the order of appointment should have been communicated to the commission, as soon as the appointment was made, no such copy was received in the case in question until after six months and then only when it was called for by the Commission after it had noticed from the civil list that the officer had been promoted. The Commission immediately pointed out to Government that the selection was irregular as it contravened the communal order prescribed in the Statutory Rules and that it was in supersession of two officers of his community above him in the approved list. Nothing was heard from the Government until September 1932, when they proposed to revise the rules prescribing qualifications for selection for the Madras Veterinary Service. The Commission noticed that few officers in the Department possessed the proposed qualifications and it doubted whether those revised qualifications were not designed so as to suit the particular officer who was promoted out of his turn. Whatever may have been the reason for revising the qualifications at that stage, when its advice was sought on the proposal to revise the qualifications, the commission after a careful examination of the proposed qualifications, advised that they were not suitable. But the Government nevertheless amended the Statutory Rules prescribing those qualifications and gave retrospective effect to the rules amended. Thus a year after a selection had been made irregularly, the Government ratified their action by suitably amending the Statutory Rules with retrospective effect. The Commission cannot too strongly depreciate such framing or amendment of the Statutory Rules so as to suit particular individuals.

After the irregular appointment referred to above had been ratified in the manner described above, the Government promoted yet another officer of the same community and they proposed to promote a third. The second officer promoted was the only officer satisfying the revised qualifications and the communal rule was set aside on that ground."

"Having regard to the insistent demands of the representatives both in the Assembly and the Council, Government had decided to continue that policy and in accordance with that three dispensaries (Veterinary) were ordered to be opened" said Mr. S. P. Rajagopalachari, Second Member of Council, Mysore.

In spite of the financial stringency so much talked about, Mysore finds the urgent need for expansion of the Veterinary Department.

This is yet one more lesson from Mysore to other parts of India. Where there is a will there is a way.

A scheme to raise thorough-bred horses in India is published elsewhere in this issue. The country cannot be too grateful to Sir Victor Sasoon and that Secretary of remarkable resources, Sir Bernard James of the National Horse Breeding and Show Society of India.

Members of Landed Aristocracy and all lovers of horses, can either help the new scheme financially to make it a great success or inaugurate similar schemes independently. We are sure the Princes of the land will respond generously if approached

Appeal.

THE NEXT ALL-INDIA VETERINARY CONFERENCE.

The Eighth All-India Veterinary Conference is to be held at Lucknow on the 17th, 18th and 19th February 1934. The United Provinces have invited the Conference for the second time just as Madras had already done. It is no wonder she has done so. As a Province which contributed a good deal to found the All-India Veterinary Association, her heart has evidently been aching at the stasis of events and she has come out to shoulder the responsibility once again! Bravo U. P. God bless you! But what about the rest of India? Should it not at least respond to the invitation of U. P. in large numbers and thus demonstrate its sense of appreciation and gratitude to our brothers of U. P.? Yes; it is a simple price of duty and I hope the rest of India will realise it. The princely hospitality of U. P. is well known. I would ask them not to waste much money in these hard days and to confine only to essentials. Let the rest of India strengthen the hands of U. P. with professional papers and a good contingent of delegates. I thank U. P. on behalf of the rest of India for her invitation.

TRIVELLORE,

26th Dec. 1933.

M. S. SASTRY, G.B.V.C.,
General Secretary,

The All-India Veterinary Association.

Communications.

THE EDITOR.

Indian Veterinary Journal.

Dear Sir,

I am sending the attached Note *re*: "Eve Blood Stock Scheme" and should be obliged if you would kindly give notice in your esteemed Paper.

Yours faithfully,

SIR BERNARD JAMES, Major General,
Secretary, National Horse Breeding and Show Society of India

EVE BLOOD STOCK SCHEME.

Expansion of Blood Stock Breeding in India.

Sir Victor Sassoon Bart., who is a Patron of the Notional Horse Breeding and Show Society of India, has submitted a scheme to the Stewards of the Western India Turf Club Ltd., which aims at the increased production of thoroughbred stock in India.

The object of the scheme is to interest small horse breeders in India in the production of thoroughbred stock, as distinct from the established studs which are already engaged in the industry.

The initial difficulty is that these small breeders are not in a position nor have they the necessary funds to undertake the risk of purchasing and breeding blood stock, especially as they have no certainty of a market for this description of produce.

The main points of the scheme are as follows:—

1. That a number of thoroughbred mares shall be provided, and that they shall be lent to small breeders selected and approved by District Remount Officers in the horse-breeding areas under their control.
2. These mares shall be mated with thoroughbred stallions without fee.
3. Any produce of these mares which suffers from no defects of conformation or unsoundness liable to render it unsuitable for racing will, on attaining 2½ to 3 years of age, be sent to Bombay at the expense of the Western India Turf Club Ltd., and there be submitted for sale by auction without reserve, under arrangements to be made by that Club.

4. A minimum price will be guaranteed to the breeder. This price will be fixed at Rs. 1000 to Rs. 1250 according to age. Any excess over the minimum price realised to be divided equally between the breeder and the Fund pertaining to the scheme.
5. In order to ensure a fair start to the scheme, Sir Victor Sassoon is presenting the thoroughbred mares which he now has in India and will hand over fillies now in training in India so that they may be put to stud not later than 6 years of age. He will also make available for the scheme certain brood mares from his Stud in England.
6. In order to inaugurate a Fund for the working of the scheme, Sir Victor Sassoon has deposited a sum of Rs. 10,000 with the Western India Turf Club Ltd., who have consented to act as Secretaries and Treasurers of the scheme.
7. The Fund will be administered by a Committee to provide for transit expenses of mares to Headquarters of horse-breeding areas, and further to admit of advances in such cases as may be considered deserving of assistance. This assistance, in normal circumstances, will be restricted to a maximum recoverable advance of Rs. 150 per mare per annum, and will be devoted to cases where mares have proved barren for more than one year, or where young stock, through no fault of the breeder, have become unsuitable for the purpose for which they are produced. In some special cases the Committee may decide to make an *ex gratia* grant at their discretion.
8. The Committee administering the Scheme will be constituted as under:—

The Director of Remounts	Chairman
The National Horse Breeding and Show Society of India	one representative
The Western India Turf Club Ltd.	do
The Royal Calcutta Turf Club	do
Sir Victor Sassoon, Barts.	do
The Hon'ble Sir Henry Craik, Bart, K. C. S. I.	
Colonel A.H.H. Muir, Military Secretary to H.E. The Viceroy.	

The Scheme has been considered by the Stewards of the Western India Turf Club Ltd., who have accepted Sir Victor Sassoon's most generous offer. Details of the Scheme have been considered by the

National Horse Breeding and Show Society of India and by the Director of Remounts, and it will be put into operation at an early date.

The Scheme will undoubtedly do much to stimulate interest in the production of high class horses in India, and it is hoped that similar schemes will be inaugurated by others who have the welfare of the country at heart.

THE EDITOR,

Indian Veterinary Journal.

Sir,

We would deem it a great favour if you would kindly notify in the forthcoming issue of your Journal the impending change of our Head Office: Bayer-Meister Lucius, Havero Trading Co., Ltd., Pharmaceutical Department, from Calcutta to Bombay towards the end of this year, our future address being: Bayer-Meister Lucius, Havero Trading Co., Ltd., Pharmaceutical Department, P. O. Box, 642, Commerce House, Ballard Estate, Fort, Bombay.

Thanking you, we are,

CALCUTTA, }
7th Dec. 1933. }

Yours faithfully,

HAVERO TRADING CO., LTD.

Extracts.

SOME REFLECTIONS ON THE FEEDING AND CARE OF BUFFALO BULLS IN THE NILI TRACT OF FEROZEPORE DISTRICT (PUNJAB.)*

BY

M. MOHAMMAD ABDULLAH, P.V.S.,

*Deputy Superintendent, C.V.D., Punjab,
Ferozepore.*

A STUDY OF DIETETICS.

1. Introduction.

My reason for bringing this subject in the "Punjab Veterinary Journal" is that during my long experience in buffalo-rearing in Nili tract, the necessity of a fair knowledge of common methods of feeding and keeping of the bulls during certain seasons has been brought most forcibly home to me.

* Punjab Veterinary Journal March & April 1933.

2. Nili breed of buffaloes.

The indigenous breed of buffaloes (Bubaline, Order Ruminantia; Genus-Bovidae) in the Ferozepore district comes from one of the leading breeds of the Indian buffaloes and is known as, 'Nili' or 'Sutlej valley', breed of buffaloes. This breed is remarkable for its heavy milking capacity and well built body. It reaches a high state of perfection in the Ferozepore district. The bulls of this breed are exported every year for breeding purposes, not only to the other districts of this Province, but also to the other Provinces like, N. W. F., United Provinces, Sindh, Dutch Protectorates, etc.

3. Feed and keep of bulls in the Nili-tract.

For buffalo-breeding improvements in this Province, Ferozepore district has so far been the only source of supply of buffalo bulls to the indenting District Boards. In the interests of buffalo-breeding in the Punjab, Mr. Handa, Superintendent, Civil Veterinary department, desired me to prescribe for the guidance of District Boards and the professional breeders, the method of feed and keep of these bulls after that followed by the Nili-breeders whose practical knowledge in this respect is very sound. They allow, customarily, during the breeding season for about two months in a year, beside the usual daily allowance of their food, an extra rich food consisting of Onions, Ghee, Gur, etc. With a view to enliven the bulls for the following covering season, they also give them in the winter months Gur, Ghee, Gram, flour, etc. Moreover, these animals are always kept aloof in this tract and thus enjoy the full liberty of grazing in the standing crops which are, as a rule, extra rich in vitamins (Hector Munro). In order to make the best possible use of the bulls outside their real home, I recommended officially to the various District Boards to look after them, as far as possible, in the same way as is practised by the Nili breeders, giving the bulls, the above rich foods in the covering season and to possibly let them loose. As a matter of fact, the above method of feed and keep of bulls might be described as a general formulae which could be necessarily modified according to the varying conditions prevalent in the different districts.

I have begun to pin so much faith in the therapeutic values of these articles of food that in my estimation, withholding of this food would prove unwise economy and would be as unwise as to invest money in buying a car, but not using it for the sake of avoiding expenses of petrol, etc.

There is a hoary proverb of this country that a physician without the knowledge of herbs, an accountant without the knowledge of arithmetic, and a married man without the knowledge of producing the sexual power, all are worthless. The last sentence of this proverb must equally apply to the breeding bulls and so far on their behalf, Veterinarians could rightly be held responsible to understand the means of improving the sexual health of these 'sires.' Therefore they should reasonably be fully conversant with the knowledge of it.

4. This food, as recommended by me, should, in no case, be regarded as a luxury but rather a necessity, because without a continuous equilibrium of elimination and assimilation, animal life could never be maintained. The food proposed for the bulls must, therefore, be regarded in accordance with the physiological requirements of the aggravated state of the genital organs.

5. I also note here for the information of the readers of this article, that the way of feeding cow and buffalo-bulls, as suggested by me is not only applicable to Nili tract but applies equally to the Hariana, Montgomery,

Malwa, and Dhani tracts. These bulls (Cow and buffalo) are, as a rule, treated in the same way all over India. Even in the foreign countries, like Arabia, Afghanistan, Persia and European countries, "sires" of different species of animals used for breeding work are nourished in a similar manner, though the varieties of food may differ in different countries according to the staple articles of foods, viz., Lentils, Spiked millets, Maize, Oats, Lucerne, Shaftal, Barseem, nseed, Gram, Wheat, Methera, Guara, Vegetable oils, Oil cakes, Cotton seeds, Milk, Curd, Sugar, Eggs, and Cordial of different sorts. But the principle of rich feeding remains the same everywhere. As a rule during the covering seasons the stallions and bulls, in case they are not overlooked, are allowed concentrated food at double the rate. But if they have to meet heavy demands of their services, as it is usual with private and public bulls, the quantity of concentrates is increased up to triple or even more.

6. After discussing the practical way of feeding the stallions by the breeders abroad, I now turn to the theoretical side and for this I give below the therapeutical properties of the food recommended for the bulls.

(1) **Onions** :—(*Allium Cepa*) :—The value of the Onions could hardly be overestimated and it is merely on account of their low price in the market that they have lost their inestimable value. They are the finest blood purifiers in nature's kingdom, and possess many health-giving properties. Onions and Garlic, of all plants, have the greatest strength, afford more nourishing and supply more spirits to those who eat little flesh.

There is an ample evidence to show that the use of Onions, either as a food or as a medicine is known from very early times. The following passages from ancient writings would bear witness to this fact :—

According to the teachings of the Holy Quran, Part 1, Ch. 11, S. 7, Verse 61, the great food value of Onions was recognised by the Israelites (followers of Moses) about three thousand years past, while exchanging Onion and Garlic (*Allium Sativa*) belonging to the same natural order "*Liliaceae*" for Manna and Quails, as their food.

An Onion taken from the hands of an Egyptian Mumm, perhaps two thousand years ago, has been made to grow. (Muller's Physiology.)

Egyptians, used to swear by Onions and Garlic (calling them to witness in taking their oaths) as if these were 'Gods' (Pliny.)

Sixteen hundred talents (one talent equal to L 340-0) were spent in Onion and Garlic for the workmen who were employed in building the pyramids of Egypt (Herodotus).

Onions are used both as a favourite food and as a useful medicine by the people of every part of the past and the present world, young or old, rich or poor. They have always been considered as tonic food and an essential factor in the dietary of labourers and all those whose vocation calls for hard muscular exertion. This belief was held by Romans and so Onions were regularly served to their labourers and soldiers to bestow strength to the farmer and to infuse courage in the latter. Even in these days Onions are the chief source of nourishment to the working classes everywhere. It is supplied to the British Armies as a compulsory dry ration, particularly during the war and manoeuvre days.

Napoleon (who was martyr to indigestion) was very partial to the fragrant bulb of Onion. By chance he mised his favourite meal of Onions and mutton on the day of his fighting the battle of Leipzig, the subsequent attack of dyspepsia, he believed to have resulted in his defeat in that battle.

The high nourishing value of the Onions is well described by Sir John Sinclair in his code of Health and Longevity as below :—

"Onions are like an April day,
Good for the sad, good for the gay.
Excellent food and drug are they,
and oft I have used them either way."

Similarly a renowned Vedic authority Pt. Kukkoka (Author of *Kokshastra*) has wisely remarked that in order to attain good health and to acquire long age, always keep Onion in one hand and knife in the other, as it possesses more nourishment than perhaps any other vegetable.

It is a well-known fact that a Highlander with a few raw Onions in his pocket and a crust of bread or bit of cake, could work or travel to an almost incredible extent for two or three days, altogether without any sort of food whatever (Sinclair). The same remark applies equally well to the Indian peasants and Afghans, who customarily use it, while travelling long distances, or during laborious days of harvesting season. In India its particular use during rainy months speaks highly well for its digestive power.

The French are also aware of its usefulness. Its soup is now universally in use after all late meetings and dances, etc., as the best of all restoratives. So much value is attached to these bulbs there for keeping up health and vigour that they are specifically eaten with butter every morning in Spring to ensure their health for the next twelve months (Bradley).

After discussing the dietary value of Onion, I should now mention its medicinal uses.

Onions are a kind of all-round good medicine and have been employed in medicine both for human and Veterinary purposes, from the earliest times in all lands and uses to which they have been put and could be put are many. There is no medicine book in Indian, Chinese, Arabian, Egyptian, Greek and English literature which does not contain a long chapter on the manifold uses of Onion and Garlic. It is claimed that Hippocrates (Buqrat) "Father of modern Medicine" was the first man who made use of Onion as a medicine in consumption, later Pliny was loud in their praises in such cases. (Dr. Valentine-Knaggs).

From vedic stand point Onion is called as 'Nectar' and its juice was used by Varuna (Indara "God of water" to attain eternal life (Gharard Puran).

Among the Greek and English writers Drs. Prazagorous, Celcus Bargious, Diocles, Valentine Knaggs, Bradley, Pliny, Sydenham, Bartholian, Temple, Turner, Lind and Cullen are worth mention who have done clinical research about Onion and Garlic. They have found it a sovereign remedy in nervous respiratory, digestive, Urino-genital and contagious diseases. In view of the particular subject under discussion at present, I think I should restrict myself here only to its effects on the generative organs, and before doing so, it would be proper to give below its chemical constituents.

The major portion of the Onions consists of water which can be excreted from it in the form of juice; but this juice contains many valuable substances dissolved in it. The peculiar smell of the juice is due to the presence of a Volatile oil which is a combination of sulphur, phosphorous in the form of sulphates, phosphates and tartarates of Lime and other salts. It contains also Albumen, Starch, Sugar and Mucilage. The Onions are also rich in Vitamin, A, B, & C. Therefore Onions being a rich food and nervine tonic medicine are both direct and indirect Aphrodisiacs. (White). Beside producing Aphrodisia, it is procreant as well.

The most up-to-date patent American Medicine, under the name of "Yadil (both for Veterinary and human use), the chief constituent of which is Garlic is a great testimony to it from the Scientists of the present day. I think according to the Hindu religion strict exclusion of Onion and Garlic from the food of followers in Asceticism in their hermitical life is a further convincing proof for the sexual increasing power of Onion and Garlic.

(2) **Ghee or Clarified butter**:—It is regarded as Elixir by Vedas (Rasaih). It is composed of 85 per cent Fat, 2.5 per cent casein, 1 percent minerals, and 8 to 12 per cent of water. It also contains Vitamins A, B, and C. It is a food both for men and animals of sterling value. Its Caloric standard per lb. is about 4206, being the top most one among the list of all diets. In Punjab it is a staple food of men, as well as common food for valuable, hard-working, sick and breeding animals. It is invigorating, nutrient, rejuvenating, Analeptic, and Vulnerary. It is a producer of health, wealth, spiritualism, longevity, Bravity, Athleticism, Stamina, and Elegance. It is excitive of digestive fire and generative of sexual appetite (Nagahantu).

It is Ghee which has made nearly every nation in India, a virile nation, resulting almost every man a soldier. It is ghee which forms very common vehicle in almost all the Vedic prescriptions. It is through a line of treatment with Ghee only that in Bikaner the camels are trained for the endurance of hunger, thirst, horses and makes bullocks hardy. Moreover, owing to its emollient property, it increases virility of the seminal fluid and ensures the fertility in females. It acts like an animal's body like mobile oil in a machinery without which machinery is liable to get out of order. It is on account of this property that Indian Breeders are from time immemorial using Ghee in the treatment of Sterility. This empirical idea of the Indians is now fully supported by the modern Scientists since the most recent addition of vitamin E (Antisterility) to the family of Vitamins. This vitamin is supposed to be responsible for animal fecundity by Professors Herbert Evans, and George Burr. It is found indirectly in the Ghee and directly in certain commercial oils, cotton seeds, grain seeds and beans, so that when these constitute high proportion of these diets fertility results. It is experimentally proved by the above authorities that animal male or female from whose dietary it is lacking appear to be absolutely sterile. An animal rendered sterile for an indefinite period by a special diet from Vitamin E, may have fertility restored when fed with this vitamin either in regular food stuff that contain it or as an extract. Fortunately for the perpetuation of the Animal Kingdom the anti-sterility vitamin (E) is abundant in nature, (Popular science siftings.)

3. **Gur or Crude Country Sugar**:—It is one of the most generally used articles of diet and is taken for the purpose of maintaining the animal heat and energy. It is the most easily digested of all the substances which maintain the animal heat and energy, so necessarily required for repairing the waste and for building up the new tissues in an animal body. It acts as food and nutrient of adipose tissue, hence necessary for health and its absence leads to an emaciation. It contains Saccharine, Albumen, Mucilage, Resins, Fat and water. It is supposed to be rich in Vitamin B, (the absence of which in food is responsible for wasting diseases than either sugar of Beet and Sorghum), is the opinion of three American Scientists Messrs. V. F. Nelson, V. C. Heller and F. F. Fulmer, who as the result of exhaustive Biological experiments have determined these Vitamin contents. Its Calorie standard for lb. is about 2900, being third in merit among the various articles of food. It is called innocent liquor useful to soldiers, labourers,

cyclists and motorists. It is regularly supplied as pellets to the German Army, also it is an essential part of dry ration of the British Indian Armies, particularly during the war and manoeuvre times. It is commonly used by the Indian peasants and labourers for themselves and for their animals during the hard-working days of winter months, also in harvesting seasons they use it along with onions, gram-bread and Ghee. It is given to animals in the form of Niharies. Late Col. J. A. Nunn, D.S.O., C.I.E., C.B., late Principal of the Punjab Veterinary College, Lahore, also Principal Veterinary Officer in India subscribed once an interesting article in the Civil and Military Gazette Lahore, on the uses of Gur for hard-working animals as a restoring and invigorating diet. All the cordials and fermented liquids used for animals contain Gur as one of their chief contents. It also forms a part of Yeast Waste product (Lahan) which is under experiment, at present, at the Civil Veterinary Hospital, Amritsar for its nourishing value among the animals. The high feeding value of (Lahan) is a known fact to the stock breeders of every country. Gur is regarded by Vedas as Elixir (Rasain) and Aphrodisiac (Nagahantu).

According to the Hakims and as mentioned in Aksir-Azam, an Aphrodisiac recipe of reputed worth consists of Onion, Ghee, Ginger, and Mel (for animals Gur is substituted for Mel). The virtue of this prescription is well imagined from the fact that all of its components viz. Basis (Onion), Adjuvant (Ghee), Corrigent (Ginger) and Vehicle (Gur), are powerful direct or indirect Aphrodisiacs. Besides this all the articles under discussion are from Vedic stand point of view either Nectars or Elixirs about which the Hindu Mythology runs as follows:—"Since the creation of the world and when the universe was populated by the Devas and Asuras who combined to churn the Ocean in search of Nectar, which could make a mortal being immortal, they began churning by making Mandir Hill, the churning rod and Vasuki, the King of Snakes as the rope. As a result of churning, various useful and valuable drugs were discovered when, at last Dhanwantri (founder of Vedic medicine) appeared with a Kermadol full of Elixirs and Nectars in his hand. Then began a quarrel among the Devas and Asuras for these Elixirs, but through the manoeuvre of Naraina (the creator of the universe) the Devas only got it, and thus became immortal."

There is a similar Mythology among the Mohammedans about the Nectars and Elixirs, which states:—

"One of the Mohammedan Prophets, namely Luqman (Aesop) 'the great founder of medicine' who was bestowed by the Almighty the complete science of medicine, ordered one of his pupils to go into the jungle and address the medicinal herbs that Luqman had died. On hearing the sad news the vegetation wept bitterly for losing their supporter and helper of the human race. The Nectars and Elixirs came forward then and said, "It does not matter, if Lukman has died, he has left us behind in the world, we will keep benefitting the human being with our unfailing medicinal properties."

From the foregoing remarks it will also be observed that all the stuff suggested by me for the bulls are richly vitaminised foods and Aphrodisiac drugs, (direct or indirect) of the first class order, and as such their value to secrete an albuminous fluid (Semen) which is a direct stimulus of vital power upon which animal magnetism entirely depends could never be ignored. The above assertion is sufficiently supported by the practical experience in the field that the District Board or public bulls who are not getting any proper nourishing food become, as a rule, slow coverers, not good stock getters and they work for lesser times than the bulls treated otherwise.

7. EXERCISE.

The reasons for the necessity of possibly letting the bulls loose, are obvious and require no explanation for a professional man, and it is indispensable for health of all sorts of animals, save cows in milk. Exercise is also indirectly an aphrodisiac (Calvert). On the other hand lack of exercise proves certainly as an anti-aphrodisiac. Practically this fact is well observed among the business class of people with sedentary habits in their city life, who are, as a rule, weak in comparison with the rural people accustomed to manual labour. Moreover, another reason in support of the exercise for bulls is given that the true genital centre being situated in the lumbar region of the spinal cord, could normally be excited by various afferent impressions brought from various senses, such as eyes, nose, ears, Cerebrum, Nabs, and general surface of the body. This fact is well described by a poet in the following poem:—

"So long as lips shall kiss and eyes shall see ;
So long lives this and this gives life to thee."

In brute creation the sexual impulse is not preceded by thoughts (Cerebrum) of any sort, and depends entirely on nose, eyes and Nabs. This phenomenon fully establishes the prime necessity of letting the bulls in the cattle herds, so that by frequently coming in association with the cow in season, their sexual passion is excited through the sense of smell, sight and nabbing. Otherwise the bulls in their tied up state are, as a rule, liable to get slow coverers. Practically this point is fully salient in those farms where male calves are not allowed to come in contact with female stock. The bulls in such farms remain unfamiliar with the breeding work for longer time than those who are kept mixed with the cows.

Last but not the least that in view of the Physiological fact that the period of Oestrus in cows is extremely limited, it is a matter of prime necessity to keep bulls always loose among the cow herds. This is a natural way of breeding the animal and in absence of it, best results are never possible. This practice of keeping the bulls in the cattle herds accounts for the high percentage of conception in loose covering as is also seen in all the other species of animals in comparison with that when the sires are kept tied up in the stables.

8. CONCLUSION.

This brings me to the end of my article ; no one realises more than I its incompleteness, but I shall be amply rewarded if some of those familiar with these dietetics will treat us with their views.

I must in duty bound thank Mr. Handa, B.Sc., M.R.C.V.S., Assistant Superintendent, Civil Veterinary Department, Ferozepore, and also Mr. Nanda, Superintendent, Civil Veterinary Department, Lahore and Jullunder Divisions, for their kind and valuable help and advice in the preparation of this article.

In the end I wish to show my indebtedness to the breeders of Dhani, Sahiwal, Haryana, Malwa and Nili tracts, in whose practical observations in the art of cattle breeding, I have great faith and among whom I have always gone as a research scholar, and consequently I have gained lot of practical knowledge from them.

MR. WARE'S PORTRAIT UNVEILED.*

Former Director of Veterinary Service.

Mr. R. D. Richmond, Member, Madras Public Services Commission, performed last evening the pleasant function of unveiling a portrait of Mr. F. Ware, formerly Director of Veterinary Service in the Presidency, at the Madras Veterinary College in the presence of a large gathering. Mr. P. T. Saunders presided.

The guests, on arrival, were received by Mr. V. Krishnamurthi Aiyar, Principal of the College, and Mr. Kylasam Aiyar, Secretary of the Portrait Memorial Committee. Light refreshments were served to the guests present.

In requesting Mr. Richmond to unveil the portrait, the Chairman said that Mr. Ware entered the service in 1911 and the Civil Veterinary Department, as it stood to-day, was the creation of Mr. Ware. Mr. Ware started from practically nothing and had worked the department up to be one of the most efficient departments in the Presidency. The number of veterinary assistants had increased enormously and the whole groundwork for the development of the department was laid by him. They had now several activities in the department for which Mr. Ware was solely responsible.

The Chairman, continuing, said that the time was rapidly approaching when the senior officers, at least the Europeans, in the department, would be leaving the country and now that fresh recruitment to the I.V.S., had ceased, how were they going to replace those officers. These questions must be answered and in his mind he had evolved a scheme by which this could be done. When he approached the University to institute a degree of B. Sc. (Veterinary), he had only this scheme in his mind. The B. Sc., should be an added qualification. Only students who had undergone a training in the college and got its diploma should be eligible for the course. After taking the degree, these selected students might be sent to the mofussil for a year or two to get some practical experience and then the Public Services Commission might select a few from them to be sent to England and foreign countries for further training and when they came back they would be fully qualified to become members of the Service. The speaker hoped that his scheme would receive their earnest consideration.

In conclusion, Mr. Saunders said that Mr. Richmond was an old and personal friend of Mr. Ware and it was quite appropriate that Mr. Richmond should unveil the portrait.

Mr. Richmond's Tribute

In unveiling the portrait, Mr. Richmond said that it was not for him to speak of the professional and administrative ability of Mr. Ware, for it had enlisted the admiration of all people, both inside and outside the department to which he belonged. Mr. Ware was not only responsible for the development of the Veterinary Department but also helped the other departments by his sound advice. For Mr. Ware his work was his hobby and he spared no trouble to make the department efficient and useful. His contribution to Veterinary Science was well known. The Ootacamund and the Madras Hunt would ever remember his services to them. Sickness in the Madras kennels was a rare thing owing to the great care which Mr. Ware and Mr. Simmons took in the matter. Now the sphere of his activities had been changed. What was Madras' loss was India's gain. His work at the Research Institute at Muktesar would be found useful

* The Hindu, 26th November 1933.

for all India. Mr. Richmond thanked the members of the Portrait Committee for giving him an opportunity to participate in a function held to honour an old friend of his.

The portrait was unveiled amid applause.

Mr. Kylasam Aiyar, the Secretary of the Portrait Committee, then read a letter which he recently received from Mr. Ware in the course of which he had stated:

My dear Kylasamier,

It was a great surprise to me to learn that it has been decided to hang my portrait in the distinguished officers' gallery at the Madras Veterinary College, but I need hardly say that this decision has given me the very greatest pleasure, more particularly because I understand that the initial movement to do me this great honour originated amongst the rank and file of the department.

When I look back on my 18 years service in Madras, I sometimes feel that those same officers, who now propose to pay this tribute to my stay with them, must have found in me a hard task-master, but perhaps they now realise, as certainly was the case, that in all I did, my only desire was to improve the efficiency of the Madras Veterinary Department, until it could be described as the best in India, and, moreover, compare favourably with other Government departments in the Madras Presidency, with which it has to work alongside.

From remarks that are occasionally let fall, I believe that both those ideals have been attained, and I should like to take this opportunity of offering my very grateful thanks to all my old officers, both gazetted and non-gazetted, for the help which they so generously gave me while I was in Madras.

And to the younger generation, I would appeal to them to carry on the high traditions of the Madras Veterinary Department, the future destiny of which will soon be in their hands.

Finally, I should like to say how delighted I am to hear that my old friend, Mr. Richmond, has consented to take such a prominent part in the ceremony. To those of you who do not know, I may say that Mr. Richmond, during the whole of his long service in Madras, has been a very great friend of our department, and even he may not know that several of the improvements, which I was able to effect in the department, were the outcome of his sound counsels.

Muktesar—Kumaon, U. P.
16th October 1933.

Yours sincerely,
F. WARE.

The Chairman, in winding up the proceedings, said that the response to the appeal made by the Portrait Committee was very good and there was still a balance in the hands of the Committee and it was the wish of the Committee to institute a prize to be named "Ware Prize," to be awarded to the best student in the College.

Mr. V. Krishnamurthi Aiyar, Principal, accepted the portrait and hoped that the portrait would serve as an example to the many students undergoing training in the College. He also thanked Mr. Richmond and Mr. Saunders for their presence that evening.

JOHNE'S DISEASE AMONG ANIMALS.

Funds Sanctioned for Research.

Mr. S. P. Rajagopalachari, Second Member of Council, who had been to New Delhi to attend the annual general meeting of the Imperial Council of Agricultural Research, returned to Bangalore yesterday.

The Council has sanctioned a sum of Rs. 20,400 spread over a period of 3 years, for investigation into John's disease among animals, to be carried on by the Civil Veterinary Department in Mysore. The programme of work in this connection will include (1) Epidemiological survey of disease in Mysore State commencing with Bangalore and Mysore cities; (2) preparation and investigation of avian Tuberculin and Johnin for testing and comparing the results with complement fixation and other serological tests; and (3) extension of work on the chemotherapy of John's disease using Ol. Chaulmoogra and its derivatives.

Investigations in these directions have already been undertaken by the Mysore Government and an intensive treatment with Ol. Chaulmoogra was undertaken in 1928 on 6 animals. The treatment extended over a period of over 18 months and four of these showed decided improvement (and calved normally). Three of these have been sold and one is still in the Dairy milking about 25 lbs. of milk a day having calved twice. Encouraged by this success, further investigations were undertaken.

Since 1928 there have been about 30 animals found to be suffering from John's disease at the Palace Dairy Farm, Mysore and they were all duly segregated and treated mostly with Ol. Chaulmoogra and some with all sorts of antiseptics, etc. About 70 per cent. of these have since died, about 15 per cent. have been sold when they showed some improvement in their condition with Ol. Chaulmoogra treatment, and 10 per cent. are under observation.

It has been observed that the incidence of disease is greater in Scindias and Hol Scindias than in others and that it affects animals of 3 and 4 years of age more than those of other ages. It is reported that some of the cattle affected with John's disease, mostly the heavy milkers, are suffering from granulomatous polypoid growth of the upper respiratory passages. Whether this is a sequel to John's disease, requires further investigation.

With the success already achieved by Mysore in combating animal diseases like Rinderpest, Mysore has got men and material ready for undertaking this work.

"Hindu" 2-12-33.

PROCEEDINGS OF THE LEGISLATIVE COUNCIL OF
THE GOVERNOR OF MADRAS, HELD ON MONDAY,
THE 13TH DAY OF NOVEMBER 1933.

Veterinary

Conference of Senior District Veterinary Officers.

Mr. A. B. Shetty:—Will the Hon. the Minister for Public Works be pleased to state:—

- (a) whether a Conference of Senior District Veterinary Officers was held recently in Madras and, if so, for what purpose; and
- (b) whether the Conference has made any recommendations to the Government regarding the development of the Veterinary Department and, if so, what action Government propose to take in the matter?

A. (a) Yes. To discuss several subjects connected with the work and future expansion of the Veterinary Department.

(b) The Conference has passed certain resolutions. Those which require further action are being examined by the Director of Veterinary Services who will submit necessary proposals in due course for the consideration of Government.

Appointment of Disease Investigation Officer, Civil Veterinary Department.

Mr. A. B. Shetty:—Will the Hon. the Minister for Public Works be pleased to state:—

(a) whether the Government have considered the protest made in the Council during the last Budget discussion against the proposed appointment of a junior occupying the 135th place in the establishment list as the Disease Investigation Officer; and

(b) whether the post has been filled up and, if so, to whom it has been given?

A. (a) Yes.

(b) The post has been filled by the assistant referred to in clause (a) of the question, who was found specially qualified and suitable for the investigation work.

Proposals, if any, for the development of the Veterinary Department.

Mr. A. B. Shetty:—Will the Hon. the Minister for Public Works be pleased to state:—

(a) whether any proposals for the development of the Veterinary Department are under the consideration of Government; and

(b) if so, what they are?

A. (a) & (b) The Government have under consideration proposals to augment the staff of touring assistants by nine and increase the number of veterinary dispensaries by three in 1934-35.

Reviews.

Manual of Veterinary Bacteriology. By R. A. Kelsner, D.V.M., A.M., Ph. D., Major, Veterinary Corps, United States Army, etc., 2nd edition. 6 x 9. Lp. ix 524. Published by Messrs. Bailliere, Tindal & Cox, London, 1933. Price 27s. 6d.

We are in receipt of a copy of the above and we note with very great pleasure that a Second Edition of the book has been issued. A work on Bacteriology and allied subjects written in such a lucid manner interspersed with the author's own researches and observations makes it a very useful book.

The subject matter of the book is divided into XII parts including Protozoa of some importance to the Veterinarian. One feature of the present edition is the inclusion of the outstanding phases of bacterial variation as known at present. In addition to the main subject, the sections dealing with Seriology, Haematology and Preparation of Veterinary Biological Products should be very useful to the student and the Practitioner alike. We strongly recommend this second edition to the profession and we feel sure that it will be found useful, with the additional information, it contains, both as a Text book and as a book of reference.

Annual Report of C. V. D., Madras for 1932-33. The report records two events of importance during the year, viz., the opening of the Serum Institute and the full introduction of the new Curriculum in the College. The number of deaths from contagious cases was a little over 40,000, the lowest on record for many years past. The high level of work at Institutions and by the Touring staff is maintained. The heavy work recorded at the dispensary at Rayapuram warrants the posting of a whole time servant and we hope the authorities will realise the necessity of augmenting the increasing popularity of such Institutions. We are sure such a procedure will not in the least affect the attendance at the main hospital at Vepery.

Under future programme of work, many items of pious wish are recorded year after year, with no attempt at realisation of such objects later on. For instance, from an answer given by the Government to a question in the Legislative Council recently, we find that no proposal of any kind towards the realisation of objects so generously recorded in the report, has been submitted by the Director of Veterinary Services! Is it not queer; if not, mysterious! Expansion of the department is at a standstill. Oh! the pity of it.

Annual Report of C. V. D., Bengal and Bengal Veterinary College for 1931-32. "Shortage of funds is our main hindrance to progress," is the burden of song of the entire report. It has been the bane of Bengal to suffer from this handicap for years past now. A propaganda officer is employed but there is no money for his travelling allowance! The Director of Veterinary Services cannot move about freely because of want of money! The S. S. inoculation against Rinderpest, which claimed the heaviest toll during the year cannot be undertaken because of the cost of serum involved! The 'Goat-virus' campaign against Rinderpest is making satisfactory progress in Bengal as in other parts of the country. The report makes a distressing reading. The department is neither supported by the Government heartily nor by the Local bodies honestly. It is virtually like a man on two stools—to put it in naked language. Let us hope that better times are in store for Bengal.

Annual Report of C. V. D., United Provinces, for 1932-33. Capt. S. G. M. Hickey is no more with us, but his report is before us. With a sense of poignant grief, we review his report.

Rinderpest was as severe as in the previous year. Both S. S. inoculations and Serum-alone inoculations were carried out during the year. Class II serum of Muktesar laboratory was used on cross-bred animals in S. S. inoculations with no untoward event, though Class I serum is advocated for these animals. Continued improvement in the progress of Government institutions is maintained. Experimental investigation into a few of the common diseases of cattle and sheep was also undertaken and general results are recorded.

Annual Report of Veterinary Department, Burma, for 1931-32. Here again there is a marked fall in the total mortality of cattle. Protection of Elephants against Anthrax with the spore vaccine seems to be giving good results. Veterinary Institutions which are so popular in India turning out so much of good work, appear to be not so successful in Burma judging from the amount of work turned out. We fail to understand the reason, not knowing the conditions in Burma.

Annual Reports of Veterinary Departments, Strait Settlements and Federated Malay States, for 1932. Work mostly in the nature of prevention of infectious diseases is being done here. The measures adopted for eradication of to be more precise for control of Rabies are really praiseworthy and may well be adopted in India as well. As many as 20275 unlicensed dogs were destroyed during the year. Foot and Mouth disease, Swine Fever, Ovine Coccidiosis, Rabies and Fowl-pest are a few of the diseases recorded in the report.

"Dog World," December 1933:—Capt. Will Judy, Editor, Published by Messrs. Judy Publishing Co., 3323, Michigan Boulevard, Chicago, U. S. A. Price 50 cents.

The December 1933 issue of Dog World is the greatly enlarged 1933 Christmas Annual and Directory, all in one issue. The issuance of Christmas Annuals in the dog publication field has become a tradition and worthy one. We feel annuals with pleasant anticipation. Special Christmas number tends to impress upon all, the importance of the dog field and its worthiness. These annuals give constructive leadership, and preserve permanently all that is worthwhile and important in the way of history, happenings, developments, and leading personages in the dog field. This book can be got through the Editor, Indian Veterinary Journal.

The Bloodless Phlebotomist, Vol. VIII, No. 1.—We have just received an advance copy of "The Bloodless Phlebotomist" Vol. VIII, No. 1, which is being mailed to every physician in India.

This little journal published by the Denver Chemical Manufacturing Company of New York is replete with interesting articles written by physicians who are located in many different countries and while the purpose of the publication is to acquaint its medical readers with Antiphlogistine, the physicians will find a number of items and illustrations which will excite their curiosity and interest—altogether, the little journal is well worth reading and we note that 1,260,000 copies are printed in nine languages and distributed to every doctor in the world with a known address, excepting in the countries of Russia, Lithuania and Bulgaria.

If you do not receive a copy write to the Denver Chemical Manufacturing Company, New York, who will place your name on their list. The journal will be supplied to you free of all charges.

The New Year Honours.

It is some consolation to see that the services of Veterinary Officers in India are attracting the attention of the Government and their claims are being slowly recognised in the matter of conferment of titles. The New Year Honours List has the following:—

- (1) *Rai Bahadur* on Rao Sahib R. V. Pillai, Deputy Director of Veterinary Services, Central Provinces.
- (2) *Rao Sahib* on Mr. H. C. Sampath Iyengar, District Veterinary Officer, Madras.
- (3) *Khan Sahib* on Pensioned Risaldar Haji Mahomed Suleman Bahadur, I. A. V. C., Army Veterinary School, Poona.

We most heartily congratulate the recipients of the honour.

Mr. R. V. Pillai is too well-known to need any introduction to our readers. We are sure greater honours are in store for him.

It was only in our issue of July 1933, commenting on the last 'Birthday Honours' we wrote as follows:—"It is noteworthy that such recognition of good work is practically not in vogue in Bombay and Madras. Can anybody hazard an explanation? Well, we shall be thankful for enlightenment".

We are glad to note one name at least from each of the above two presidencies in this New Year list. Mr. H. C. Sampath Iyengar, G.B.V.C., is the Senior most District Veterinary Officer in Madras who is due to retire soon. He is well known in that presidency as an Officer of high rectitude, strict and honest and with very high sense of duty. We are glad that his honest labours have been recognised at least at the fag end of his service.

As for the new Khan Sahib, we extract below the following from a recent issue of the Journal of R. A. V. C.:—"Risaldar Haji Mahomed Suleman Bahadur, O. B. I., joined the Indian Army as a driver in the Commissariat Transport Department in 1890.

He first began his training in veterinary work at Nagpur in 1895, under Lieutenant E. E. Martin, who was at that time attached to the Civil Veterinary Department. This training was carried out during his spare time, as he was then employed as veterinary dresser in the sick lines of the transport unit at Kamptee close to Nagpur.

and it was purely a private arrangement which permitted him to help in the dressing of cases at the local Civil Veterinary Hospital.

On proceeding on field service to the Tirah in August 1897, he continued to act as veterinary dresser in the transport unit with which he went on service.

In 1898, he was sent to the Army Veterinary School, Poona on a three month's course. The School at that time was commanded by Captain E. Taylor. He was successful in passing the examination at the end of the course.

In May, 1899, a vacancy occurred for a veterinary assistant with the transport unit in Mhow and on the recommendation of his Commanding Officer he was appointed to this vacancy. A year after this he proceeded on field service and spent three years in South Africa. On return from South Africa, he was made Warrant Officer, Grade II, in 1913.

The year 1914 saw him proceeding to France where he served with the Indian Veterinary Hospital in Marseilles. He was promoted to Indian commissioned rank on August 1st, 1915.

Leaving France in October, 1916, he returned to India, where he continued service as a veterinary jamedar with the Supply and Transport Corps. In 1919, he was attached to the Remount Depot, Campbellpore, and subsequently to the 25th Field Veterinary Section under the command of Captain J. Southall, under whom he served till 1921. In that year he was one of the representatives of the Indian Army Veterinary Service at the Duke of Connaught's Delhi Durbar. At the end of 1921, he was transferred to the Army Veterinary School, Poona, as instructor. He retired in 1923, having served as a Regular soldier for 33 years."

The 'Civil' side of the profession in Bombay is yet to get the necessary stimulus in this direction. We hope Bombay will soon follow the footsteps of other presidencies.

We wish the recipients of the honour long life, happiness and prosperity.

ERRATA.

In page 107, No. 2, Vol. X, under the description of Fig 4, read the last 2 lines as follows:—and B. 4, Cervix; 5, Vagina; 6, Clitoris; 7, Vulvar tuft. C. 3, Vagina; 4, Vulva; 5, Phallus; 6, Urinary tuft.

Obituary.

Lt. Col. W. D. GUNN, M.R.C.V.S.

We are pained to learn from the Veterinary Record of the sad demise of Lt. Col. William Donald Gunn at Bourne mouth on 8th November 1933. We are sure his many friends and admirers in India will receive the news with great grief. True it is he lived up to a ripe old age, (he was 78 years of age at the time of his death) but that cannot completely console his grief-stricken friends and relations.

Madras was the chief centre of his services in India. Coming over to that presidency in the last decade of the Nineteenth century he was mainly instrumental in laying the foundation for a Veterinary College in Madras. Succeeding Col. Holmes as the head of the Civil Veterinary Department, Madras, it was left to Lt. Col. Gunn to start the Madras Veterinary College in October 1903, and serve as its first Principal as well till February 1909. He retired from the Civil Veterinary Department, Madras, on 7th December 1909.

His monumental work "The cattle of Southern India" so widely read and appreciated will continue to serve as ample testimony of this great Officer's perseverance, capacity and love of service. In trying to compile that book he had to tour widely in rural areas staying with the ryots, gaining their confidence and collecting information. Even to this day he is remembered in several districts as "Gun Durai" and very kind enquiries are made of him by the ryots! Rightly enough his portrait was the first to be put up in the Portrait Gallery of the Madras Veterinary College. It was he who is reported to have replied to the Madras Government "I cannot ask my boys to accept anything less than Rs. 100 to start with". Well, he is gone but his memory lives. We offer our heart-felt condolences to the members of the bereaved family.

The Madras Veterinary College was closed one day as a mark of respect to the memory of its first Principal.

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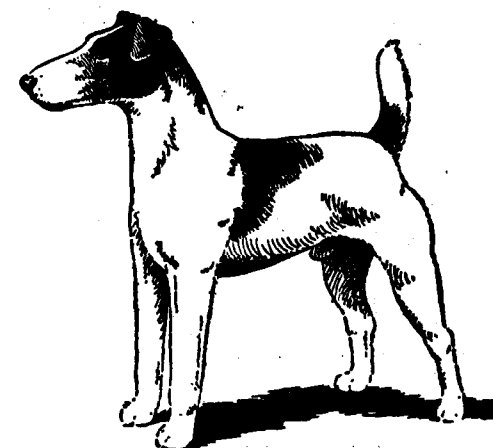
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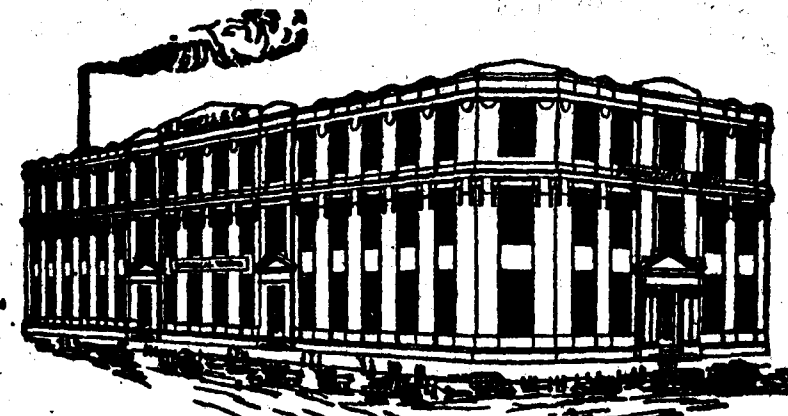
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branch already described above as descending from the supra-carpal arch. The sub-carpal arch is formed in this way.

This sub-carpal arch gives off two pairs of branches Anterior Interosseous Metacarpal and Posterior Interosseous Metacarpal arteries. These two pairs in their turn descend and branch which anastomose with the branches of the second unnamed branch of the large metacarpal artery.

In the left fore limb of the subject dissected in February 1930, the posterior radial artery and its terminal branches showed the following :—

1. The supra-carpal arch was found formed by a branch from the posterior radial artery joining the termination of the ulnar artery.
2. The largest and the most regular of the branches arising from the convexity of this supra-carpal arch was there and behaved as usual.
3. The small metacarpal artery instead of turning to the outside about the level of the head of the inner small metacarpal bone, to join the branch from the supra-carpal arch, merely detached a *branch* which joined the branch coming from the supra-carpal arch and formed the sub-carpal arch.
4. The small metacarpal artery detaching the branch towards the formation of the sub-carpal arch, continued downwards and took the place of the inner posterior interosseous metacarpal artery.
5. The outer anterior and posterior interosseous metacarpal arteries sprang from the sub-carpal arch as usual.
6. Inner anterior interosseous metacarpal artery was found to be a branch detached from the small metacarpal artery—detached at the same level as no. 3.
7. The small metacarpal artery as it descended below the level of the sub-carpal arch after detaching nos. 3 and 6, showed about the level of the upper third of the metacarpal region, a communicating branch from the large metacarpal artery joining it.
8. The small metacarpal artery, instead of as usual terminating in the upper third of the metacarpus by forming the sub-carpal arch, is continued down to the lower third of the metacarpal region, taking the place of the Inner posterior interosseous metacarpal artery.

Note :—The formation of the supra and sub-carpal arches, disposition and the course of the large and small metacarpal arteries in the right fore limb of this subject were normal and did not show the foregone deviation noted in the left fore.

Clinical Articles.

A FATAL CASE OF THEILERIA MUTANS IN A BULL

BY

G. A. AJWANI, M.Sc., D.V.M., D.V.H.,
District Veterinary Officer, Rajahmundry,

AND

M. V. SUBBARAYUDU, G.M.V.C.,
Veterinary Assistant Surgeon i/c Veterinary Dispensary,
Draksharamam.

Subject.—A grey country-bred bull, aged 4 years.

History.—The animal was admitted as an in-patient at the Veterinary Dispensary, Draksharamam on 8—10—32, with the complaint that the animal was suffering from diarrhoea for the past 10 days and did not eat anything.

Symptoms.—On 8—10—32, morning temperature was 101.6°F.; evening temperature was not taken. Completely off its feed and rumination suspended, passed two watery foul smelling motions with mucus in it, anæmic and eyes were sunken.

On 9—10—32, morning temperature was 101.4°F.; evening temperature was not taken. Cresol 1 dram was given in one pint of water internally. The animal did not eat anything but drank couple of buckets of water. Ammonium carbonate and pulvis nuxvomica were also given mixed with ragi gruel.

On 10—10—32, morning temperature was 102.4°F., and 103.4°F., in the evening. The urine was blood stained and deep red in colour. Piroplasmosis was suspected and the blood smears examined under microscope revealed numerous *Theileria mutans*. It was heavily infected with this parasite. The number of parasites present in each red blood corpuscle varied from 1 to 12 and more. They were either rod-shaped or ring-form. It was given pulvis chiratta one ounce and sodium bicarbonate half-an-ounce in a pint of water and two ounces of magnesium sulphate was given in drinking water.

On 11—10—32, the morning temperature was 101°F., and 104°F., in the evening. Repeated chiratta and sodium bicarbonate.

The diet consisted of eggs and gruel as the animal ate nothing. Again it was given magnesium sulphate and tincture aconite in drinking water.

On 12-10-32, temperature in the morning was 100.6°F., and 102.4°F., in the evening. The urine was blood stained. Repeated pulvis chiratta and sodium bicarbonate.

On 13-10-32, temperature in the morning was 101.0°F., and 102.8°F., in the evening. As there was no improvement in the condition of the animal, injected 15 grs. of tartar emetic in 20 cc. of distilled water intravenously. Gave internally acid hydrochloric dilute, acid gallic, two drams each, acacia indica and oleum lini four drams each in a pint of water. Gave *ragi kanjee*.

On 14-10-32, temperature in the morning was 100.6°F., and 103.4°F., in the evening. The animal appeared to be brighter and began to ruminate but was still having haematuria. Repeated the mixture given on the previous day. The animal ate something.

On 15-10-32, temperature in the morning was 101.4°F., and 105°F., in the evening. The animal had diarrhoea, clear urine and was ruminating. Gave tartar emetic 8 grs. intravenously in the evening.

On 16-10-32, temperature in the morning was 100°F., and 102°F., in the evening. There was no diarrhoea, urine was clear and the animal ate a little and ruminated.

On 17-10-32, temperature in the morning was 101.6°F., and 104.6°F., in the evening. The animal attempted to eat and ruminate, but the general condition of the animal was far from satisfactory. It had lachrymation and watery discharge from the nostrils and a dry muzzle. It was hide-bound, very weak, dull and depressed. The blood smears revealed *Theileria mutans* in large numbers in almost every red blood corpuscle. The Koch's "Blue Bodies" identical with those seen in East Coast fever of Africa were also present in the blood smears free in the blood plasma in large numbers.

On 18-10-32, temperature in the morning was 102.4°F., and 105°F., in the evening. The urine was clear. The general condition of the animal remained unchanged.

On 19-10-32, temperature in the morning was 104°F., and 106.4°F., in the evening. The animal passed dark brown coloured urine. The animal was off its feed, rumination suspended and appeared miserable. Injected 10 grs. of tartar emetic intravenously in 20 c.c. of distilled water.

On 20-10-32, temperature in the morning was 101°F., and 102.4°F., in the evening. The animal did not eat or drink water. His condition grew worse and dropped dead at about 7 P. M.

SUMMARY.

A case of theileriasis in a bull was diagnosed and confirmed by microscopical examination. The number of *Theileria mutans* in each red blood corpuscle was from one to 12 and more. The blood smears showed numerous Koch's "Blue bodies" free in blood circulation during life of the animal. The chief symptoms were: dark brown blood stained urine, drooping ears, off its feed, intermittent fever and the course of the disease extended to about three weeks. Treatment with pulvis chiratta and sodium bicarbonate was of no use. The three intravenous injections of tartar emetic in doses of 15, 10 and 8 grs. in 20 c.c. distilled water had no effect on *Theileria mutans*. The bull under reference died of the effects of *Theileria mutans* on 20-10-32.

KUMRI ? FROM CLINICAL POINT OF VIEW

BY

H. NAG CHOUDHURY,

Veterinary Assistant Surgeon, Badlipar, Assam.

The article on Kumri written by Dr. Malkani of Bihar Veterinary College and Published in the July issue of the *Indian Veterinary Journal*, perhaps contains all the information available on this particular disease, besides his own theory of Schistosomiasis as its cause. The finding of Schistosoma in post-mortem examination and the encouraging results from Antimony treatment obtained by the author are all sure proofs as to the cause of the disease. Yet, what we find in the practical field is not just what Dr. Malkani concludes in his article. Dr. Malkani says that "Kumri may be nothing else but a form of Equine Schistosomiasis". This theory to some extent satisfied the riddles that remained so long unsolved.

But if clinically, Kumri means "Weakness of the loins"—may be in varying degree—then we cannot reasonably refuse to recognise such weakness as Kumri when it is due (1) to Rheumatism, (2) to injuries to the spinal cord on account of Filaria, etc. (3) to deposits of urea or such other salts in the lumbar muscles, (4) to parenchymatous neuritis or neurosis of the local nerves, or (5) when it is due to some sprain of the muscles while playing Polo &c. There have been cases simulating Kumri in ponies which played Polo excellently well the previous evening or the day before.

These different aetiological factors may have some other symptoms, characteristic to them besides Kumri symptoms, or they may not have any other than mere weakness in the loins. Often they do not have any.

The writer had opportunities to come across a few cases of Kumri during last four or five years in Planting Districts. One of those cases developed "loin weakness" after playing excellent Polo a day before the onset of the disease. The pony was brought to me after 3 or 4 days when there was no heat over the loins nor any other symptom except inability to stand pressure over the region. A blister with two intramuscular Iodine injections (4 grs. Iodine 8 grs. Pot. Iodide in 20 cc. water) made him quite sound and he again played Polo for years.

Another case with the only symptom of weakness in loins was treated in the same line. This case was of about a year's standing. Two blisters of Bin Iodide of mercury 1 in 16 and 4 Iodine injections were given. There was marked improvement, but was not completely cured immediately but after a period of rest for 4 months, the pony recovered, played Polo and even won prizes.

A third case which was also of over a year's standing was treated in the same line and that also made an uneventful recovery.

The 4th case had a history of kidney trouble which led to weakness of the loins. Treatment with blister and Iodine injections with diuretics made only a partial improvement. It was given rest after the treatment. But after about 2 months it was found that the pony got worse and this time even slight pressure with a finger along the course of Longissimus Dorsi was enough to make him almost sit down. Again an Iodine injection with a mild blister was repeated and Camphor-in-oil (20 grs. camphor in 20 cc. olive oil) every alternate evening was injected for a fortnight. Kidney was also treated and the pony was alright. It played Polo for over a year and then again it relapsed. This time, it was shot by the owner. In this case, there was Oxyuria first and it developed "Kumri". This case in my opinion was a case of neurosis due to disease of the kidneys.

As regards the 2nd and 3rd cases described above, my opinion is that they were cases of Rheumatism of the muscles of the loins. The reason why country bred ponies do not get Kumri while imported ponies often get it perhaps lies there. Imported ponies being foreigners to this damp climate are easy subjects to Rheumatism, while country ponies being born here and accustomed to this climate offer a great degree of resistance to Rheumatism. It may be that Kumri is due to neurosis or injuries to the spine, etc., or it may be due to a Schistosoma according to Dr. Malkani.

So it comes to this that the causes of Kumri are many. I would go a bit further and say that the nomenclature of this disease as Kumri is just like that of "Fever" which is not a disease *per se*.

Fever may be due to Malaria, to Typhoid Bacilli &c., but they are ætiologically quite different from each other. Kumri therefore includes many conditions, which bring about weakness in the loins.

The object of this note is not to question Dr. Malkani's claim of Schistosomiasis as the only cause of Kumri.

[Note.—Unfortunately, the writer has not given a good description of the symptoms noted by him in the above cases. "Weak in the loins", "Stiff in the loins" and similar expressions are very often loosely used and should not be confused with Paraplegia or Kumri, whose symptoms are very characteristic. *Ed. I. V. J.*]

BROKEN WIND (?) IN BOVINES.

BY

S. SESHADHRI IYENGAR, G.M.V.C.,

Veterinary Assistant Surgeon, Chidambaram.

Cases of this nature are brought for treatment to the Veterinary Institutions and in greater numbers while on tour. This condition is called Nakkarogamu in Telugu and Karina in Tamil. I have seen many cases of this nature. Mostly very valuable working bullocks and good milch cows are affected. This sort of effection seems to occur after an attack of Rinderpest and especially after a very severe attack of Foot and Mouth Disease. This condition develops slowly, in 4 to 6 months; consequently the loss to the ryot is considerable because the working power and the yield of milk in cows is reduced to a very great extent.

The following symptoms were observed in such cases. General unthriftiness and gradual loss of condition in spite of good feeding. The animal unwilling to move about in the hot part of the day. The hair on the body begins to grow longer and colour of the coat also changes to a kind of grey. Hard breathing when on work in the day. Salivation and subsequent frothing at the mouth. The animals always seek a shady spot to rest. In advanced cases tympanites occurs while on work and this condition disappears in about half an hour after unyoking the animal. Cows and heifers become sterile and even if they drop a calf, it dies within 6 months.

Treatment:—Calcium Chloride with Liq. Arsenicalis were given in half an ounce doses to start with for 400 lbs. body weight, combined with bitters. The cases showed some improvement after 10 or 12 days. The dose of the drugs was increased progressively in some cases with good results.

The following are the four cases treated:—

(I) Nellore cross cow, aged 7 years, second calving. It was yielding one and a half to two Madras measures during the first

calving. The true history of the case could not be known. The calf was a puny and rickety one and the yield of milk was below one Madras measure. The calf did not thrive well and it died within four months.

The original colour of the animal was said to be a light red and it changed to greyish colour. The hairs on the hump and back measured from 2 to 2½" and on the body from 1 to 2".

The animal had always hard breathing and frothing at the mouth throughout the day even when tied in a cool shed, during hot months.

The treatment was commenced from 29-7-32 to 21-9-32. The cow did not allow the bull previous to the treatment and it allowed the bull in December 1932.

II. Bullock, Mysore bred, aged 8 years. This animal had a very severe attack of Foot and Mouth Disease in February 1932, with severe mouth lesions and suffered for about a month. The coat began to grow long from May 1932, and the animal showed disinclination for work in the day. The case was treated from 27-10-32 to 17-11-32 after which it is working well.

IIIrd and IVth Bullocks, Alambadi breed, aged 6 and 7 years. These two animals suffered from Foot and Mouth Disease in the month of April 1932. They began to show symptoms of unwillingness to work in the hot sun, breathed hard with frothing at the mouth. They were unthrifty in spite of good feeding. Their coat was long. One of the two got tympanites every time it was worked. These two animals were treated from 7-3-33 to 30-4-33. They are working well now even during the hottest part of the day.

TREATMENT OF CANINE PIROPLASMOSIS BY "SOLU-SALVARSAN."

BY

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Veterinary Practitioner, Bangalore.

Early in August 1933, Messrs Haverro Trading Co., Ltd, Calcutta very kindly placed at my disposal their new synthetic preparation of "Solu-Salvarsan" a modified form of Neosalvarsan in a liquid form to try on dogs affected with intra-corporal organisms.

Subject:—An Irish Terrier dog, aged 4 years.

On Wednesday the 16th August last, I was called upon to attend on that animal with the history that the animal was off feed for over 2 days and was very dull. The temperature was 105° F, the visible mucous membranes were anæmic. The pulse and respiration were accelerated. The urine was high coloured. The faeces was stained with mucus and blood.

Diagnosis:—Blood smear proved positive for Piroplasma Canis.

Treatment:—3 c. c. Solu-Salvarsan was given intramuscularly when the temperature was 105° F. The next day the temperature fell to 103° F. On the third day, a second injection of 3 c. c. Solu-Salvarsan was administered intramuscularly and the temperature came down to normal on the following day. It was noticed that the animal had no piroplasma in its blood and the dog made an uneventful recovery.

Conclusion:—This new preparation of "Bayer-Meister Lucius" could be safely used intramuscularly and in subjects where intravenous injection is risky or not practicable.

GRASS POISONING AMONG CATTLE AND GOATS IN ASSAM

BY

U. NOBINDRO, G.B.V.C.,

Staff Veterinary Assistant Surgeon, Gauhati.

Some times in the months of July and August in the year 1932, number of animals were brought in for treatment showing the following symptoms:—First, suspension of rumination, swelling of the muzzle, nose, eyelids, ears, vulva, rectum and udder, which later on disappeared and dry gangrene set in, followed with tympanites, impaction of the Omasum which on pressure on the right side of the abdomen left a clear impression. All the visible mucous membranes were found highly icterous. The temperature and respiration were found slightly altered and the former rarely exceeded 104° F, the pulse was smaller and quicker than normal. On examination per rectum an amount of hard faeces was found, and some hard pellets stuck to the walls.

Causes:—As the symptoms observed were indistinguishable from that of Ergot poisoning, a thorough search was made of some of the grazing fields and it was found that during this part of the year lovethorns grass was found in abundance, and that their flowering tops were found badly infested with the fungoid growth which resembled that of ergot of rye and it is presumed that this is the root cause of all the trouble. The sample is herewith sent.

Treatment:—If the animals were brought in for treatment in their early stages when the swelling only appeared, enema of soap and warm water followed by oleaginous laxative and when the bowels moved, Liquor trinitrini well diluted was found very effective. But in advance cases this treatment practically failed. In some cases I tried Mag. Sulph, Sodi-sulph well diluted and gave through the

Nasal tube followed by Nux. Vomica, Ammon Carb and Ginger but this also failed to act and the Omasum remained obstinate. Arecoline Hydrochloride was also tried but it only hastened the death of the animals.

During this current year also a number of cases were treated and different drugs available were tried but met with complete failure.

On post-mortem examination of the carcase it was found that the Rumen was distended with foul smelling gas, the Omasum impacted with abnormally dried mass which sticks to the walls and on removal of its contents, the membrane comes off with the impacted mass. The Liver and Spleen were much enlarged and soft to the knife and the appearance was of yellowish colour. The Gall Bladder was full with dark greenish inspissated bile. The small and the large intestines contained some liquid food and the mucous membrane congested here and there, the rectum highly congested and the contents were of a hard lump and some small pieces stuck to the walls.

As actual feeding with this fungoid growth has not been undertaken so as to enable to find out the actual cause of the disease, it will be to the interest of the Live-stock owners if research workers will take this up in earnest and an experiment made to ascertain its action. I understand from many of my colleagues that a good number of cattle and goats die of this disease every year in their jurisdiction.

[The grass specimens received were sent to the Government Mycologist, Agricultural College, Coimbatore, who has kindly reported that the specimens show a fungus *Balansia* sp. It is closely allied to *Claviceps* which produces 'Ergot.' *Ed. I. V. J.*]

A CASE OF AMAROSIS IN A BULL

BY

S. K. SUNDARAM,

Veterinary Inspector, Bangalore.

Subject:—A well bred bull, aged 3½ years. Condition good.

History:—During the last week of August, the animal exhibited the following symptoms:—Off-feed, fever, salivation, very dull, tendency to lie down, but only for a very few minutes at a time. Faeces was passed in small quantities. It was hard and in pellets. Urine was suppressed for the first four days.

The animal did not improve with the treatment of the local quacks for a week. During this period symptoms as of paralysis of

both hind limbs were noticed and the bull was unable to get up. He could support his weight for a few minutes only when made to stand on his legs. In the course of three weeks, the legs were very unsteady. Refusal of food was a marked symptom. Later the animal lost much of its condition and also lost its eye sight completely.

On 27th of September the animal was admitted as an in-patient in the Infirmary with the symptoms noted below. Temperature 101°F. Digestion very poor. Forced feeding was given. Faeces was hard and in pellets. Eyes normal. Pupils dilated. Cannot get inside the stall from outside. Would dash against any wall or any object in front. Pain on pinching on the loin.

Diagnosis:—Amarosis due to nervous debility caused by vegetable poison, as the animal was turned out to the pasture after rains.

Prognosis:—Not without hope.

27-9-31 Temperature 101°F

R
Mag. sulph ʒ xii
Ammon chloride ʒ ii
Ammon Carbonate ʒ ii
Pul. Zinger ʒ iv
Tr. Nux Vomica ʒ i
Aqua ad o i
Mft. Haust. sig now

Eye drops containing silver nitrate 5 grs. to an ounce was used.

28th Sept. Temperature 101° 2 F. Dung slightly loose.

R
Ammon Chloride ʒ ii
Pot. Nitre ʒ ii
Ammon Carbonate ʒ ii
Tr. Nux Vomica. ʒ ss
Aqua. ad o i
Mft. Haust. sig now

Eye Drops continued

Would drink little water and eat small quantities of green grass. The steadiness of the hind limbs were as before.

29th Sept. Temperature 101° F.

Hypodermic injection of Liq. Strychnine 5 c.c. and sub-conjunctival injection of Normal Saline 1 c.c. for each eye, were given.

30th Sept. Sub-conjunctival injection of N. Saline solution 1 c.c. to each eye. Repeat mixture of 28th with Mag. Sulph ʒ vi.

1st Oct. Hypodermic injection of Liq. Strychnine 3 c.c.
 2nd Oct. Sub-conjunctival injection of Normal Saline 2 c.c.
 Repeat mixture of 28th.
 3rd Oct. Repeat treatment of 1st Oct. Vision slightly improved.
 4th Oct. Repeat treatment of 2nd Oct. „ better.
 5th Oct. Repeat treatment of 1st Oct. „ good.
 Discharged at the request of the owner.

The bull was observed on 15th October grazing quite usual, walking about with fairly good eye sight and steady limbs.

N.B. The animal has stood remarkably a big dose of Nux Vomica

INTUSSUSCEPTION OF THE INTESTINES IN A PUP.

BY

D. B. KHOLE, G.B.V.C.,

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Description:—A brown Cocker Spaniel pup, aged about three months brought up on Lactol, the property of a Hindu gentleman.

History of the case:—The animal was brought to the Hospital with a history that it ate plenty of food stuff kept in the kitchen on 25th July without anybody's knowledge. Subsequently it refused food and grew restless which made the owner to consult a local Veterinary Surgeon. The pup, having shown no signs of improvement, was brought to this Hospital on 27th July at about 3 P.M. for admission and treatment. After thorough examination, the owner was informed that the chances of recovery were remote.

Symptoms on admission:—Temperature 100°F., pulse feeble, respiration deep, m. m. pale and icterus. The animal looked dull and the skin of the abdomen and groins was yellow.

Diagnosis:—Jaundice was suspected and the treatment was as follows:—

R

Hydrageri cum creta gr. 1½

Sodii bi-carb gr. x

M. ft. Pulvis.

Sig. One powder T. D.

And R

Sodium Sulphate gr. x

Sodium Benzoate „ x

Success in a Case of Lymphangitis

239

Sodium Salicylate grs x

Sodium Bicarb „ x

Pot. Citras „ v

Tr. Gentian. m xv

Syrup ʒi

Aqua. ad oz. 1

M. ft. mixture.

Sig. ½ T. D.

One powder and one dose mixture was given, but after an hour the animal was reported to be dead.

Post-mortem examination:—On opening there was subcutaneous hæmorrhage, flesh fevered and tissues icteric. Heart and lungs were normal, stomach full, but to my surprise I found intussusception of the large intestine at two places at a distance of one foot and the whole length of the affected organ was 1½ foot.

My thanks are due to Messrs. Aiyar and Khan, Assistant Professors, for helping me in the post-mortem examination.

SUCCESS IN A CASE OF LYMPHANGITIS IN A HORSE BY ADMINISTRATION OF LIQ. H. P. AND POT. IODIDE.

BY

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Veterinary Surgeon, Kadi, Baroda State

AND

S. L. Pathan, Veterinary Surgeon, Vijapur, Baroda State.

On 18th November 1933, I was called upon to attend on a case in consultation with the Veterinary Surgeon, Vijapur, Mr. S. L. Pathan.

Subject:—A Bay thorough bred entire, aged 8 years, belonging to Mansa Darbar.

History and Symptoms of the case:—The case was admitted in Vijapur Veterinary Dispensary on 13—11—33. The animal was off feed, unable to move, having an oedematous swelling of the near hind. The swelling extended up to the sheath on the abdomen. The animal was dull and had 103°F. temperature. The animal had its usual food on the previous night, and the history showed that it had suffered from a similar attack few months back.

There was a suppurating wound present on the inside of the upper third of the meta-tarsus and when the limb was palpated, cord like thickening could be felt in places under the skin.

Diagnosis:—Lymphangitis.

Treatment:—This was carried on usual lines on 13—11—33. An opening dose of Aloes and Calomel and also Pot. Nitras in

drinking water. The affected limb was dressed with Glycerine and Belladonna paste. On 14—11—33, the animal had a few motions but the swelling and temperature continued the same as before. It was then given,

R

Mag sulph.	℥ viii
Pot. Nitras.	℥ iii
Pul. Chiratta.	℥ iv
Treacle.	℥ iv
Aqua.	ad o ii

Mft. haust sig.—half B. D.

The above mixture was continued on 17—11—33, with Ammon. Chloride added. The temperature recorded on that day was 102°F in the morning, but there was no appreciable change in the condition. On 18—11—33, I was called in for consultation. After consultation it was decided to treat it with some internal antiseptics and absorbents.

So the following mixture was advised.

R

Liquor Hydragyri Perchlor	℥ iii
Pot Iodide	℥ iii
Aqua Quassis	o i

Mft. haust, sig.—half B. D.

External application of Glycerine and Belladonna was continued after hot water fomentation and massage.

On 19—11—33, the temperature was 101°F. The animal began to eat a little, the swelling was reduced to some extent. The same treatment was continued.

On 20—11—33, the swelling was found to be half of its original size, the temperature was normal and the treatment was continued.

On 21—11—33, the swelling was the same as on the previous day. No temperature; fed better; treatment was continued.

On 22—11—33, the swelling almost subsided. Repeated the treatment.

On 23—11—33, the swelling completely disappeared.

On 24—11—33, the animal could walk well. The treatment was continued.

On 25—11—33, the animal was discharged as cured.

Conclusion:—From the remarkable way in which this case responded to treatment with Liq. Hydragyri Perchlor and Pot. Iodide, we are inclined to think that the cause of the disease in this case was sepsis arising from a wound.