

82.
KZ m 211, n 19
n 23.23
196949

Madras Veterinary Journal.

V23. November 1923.

82.

KZ. m 211, n 19

n 23.23

196949

THE MADRAS VETERINARY JOURNAL

CONTENTS

	PAGE.
EDITORIAL	1
1. Spirochaetosis in fowls— By C. Suryanarayanamurthi, G.M.V.C.	...
2. Bloody Diarrhoea— By N. S. Pathak, G.B.V.C.	...
3. Subcutaneous Emphysema in a dog— By V. Janakirama Ayyar, G.M.V.C.	...
4. Impaction of rumen in cattle— By P. A. Vaidyanatha Ayyar, G.M.V.C.	...
5. Nasal granuloma— By V. Duraiswami Ayyah, G.M.V.C.	... 10
6. Intestinal obstruction in an elephant— By V. Venkataraman, G.M.V.C.	... 11
7. Tympanitis in a bullock— By P. K. Devanayakam, G.M.V.C.	... 13
8. Diphtheritic roup— By S. Ananthayya Sastri, G.M.V.C.	... 14
9. A case of lead poisoning in a dog— By P. Viswanatha Pillai, G.M.V.C.	... 15
10. Rupture of stomach of a pony— By C. V. Padmanabhan, G.M.V.C.	... 16
11. Trypanosomiasis in buffaloes— By H. R. Rangaswami Ayyangar, G.M.V.C.	... 17
12. Broken horn in a bullock— By C. V. Padmanabhan, G.M.V.C.	... 19
13. Otorrhoea— By P. A. Vaidyanatha Ayyar, G.M.V.C.	... 20
14. My experience of administration of acid Carbolie in contagious diseases— By R. Prasanna Rao, G.M.V.C.	... 21
15. Departmental Notes and News...	... 21
16. Extracts	... 22
17. Index to Volumes I and II	... 29



EDITOR

THE DEPUTY SUPERINTENDENT, CIVIL VETERINARY
DEPARTMENT, III CIRCLE, CHEPAUK, MADRAS.

*Published under the Supervision of the Chief Superintendent,
Civil Veterinary Department, Madras.*

Subscription Rs. 2 per annum or price per copy As. 6 only.



N. POWELL & CO.'s thirty-two years' development and experience in the Surgical line have made them the most successful service with the times; till to-day they are the recognised largest manufacturers of **Surgical Instruments, Veterinary Instruments, Aseptic Metal and Invalid Furniture, Artificial Limbs and Deformity Apparatus in India.**

N. POWELL & CO., are the recognised leaders in the Surgical and Veterinary lines because of their solid achievements which are due to the extreme care they exercise in manufacturing **Cutting Instruments.**

N. POWELL & CO.'s **Instruments** are hand-forged from best Sheffield steel, skilfully tempered and every instrument is fully warranted from bending or breaking at any time.

N. POWELL & CO., constantly devote their attention towards making improvements in the designs of their manufactured products. POWELL'S **Instruments** are the **BEST** because they are manufactured by skilled craftsmen having behind them the benefit of the experiments of past years.

THAT IS WHY

N. POWELL & CO., want your confidence, they want you to appreciate that it is their constant sincere desire to co-operate with their Customers to insure their getting the **Best Goods** at the **Best Prices** with the **Best Service.**

A copy of Price List will be sent free on application :—N. POWELL & CO., Surgical Instrument Makers, BOMBAY, 4.

EDITORIAL.

In this number we are publishing index to authors and articles for both Volumes I and II. Volume I comprises the seventeen issues printed from 1919 to 1922 and Volume II the six issues from numbers 18 to 23, that have appeared during the current calendar year, so that Volume III, No. 1 will appear in January, 1923, wherein will also be appended the Receipts and Charges statement for 1922, and further numbers will be paged consecutively. We feel sure that the index to authors and articles is an improvement to our Journal and in future years, this will be published as a routine in the November issues of each year, and the Receipts and Charges statement in the first number of each Volume.

Subscribers are requested to remit their subscriptions in advance before the end of January of each year, to avoid unnecessary correspondence and expenses over this, or the copies being sent per value payable post.

SPIROCHAETOSIS IN FOWLS.

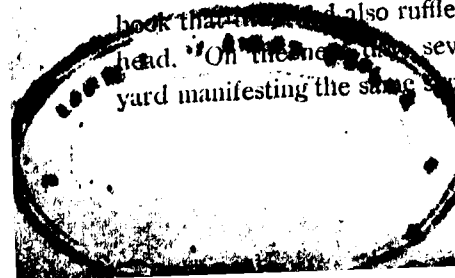
BY

*C. Suryanarayanamurthi, G.M.V.C., Veterinary Assistant,
in charge of the Veterinary Hospital, Rajahmundry.*

I record below an outbreak of a fatal disease among fowls which was observed by me in a poultry-yard and which I believe to be one of Spirochaetosis.

Definition :—Spirochaetosis of the fowl is an infective disease of the blood stream due to several varieties of Spirochaete gallinarum and transmitted from the affected to the healthy fowl by the agency of the diverse varieties of the fowl tick—viz. *Argas persicus*, *Argas miniatus* and probably other ectozoa not yet determined.

History :—During my predecessor's time, on the 7th February, 1923, two fowls belonging to Mr. N. R. Krishnamma, Principal, Government Arts College, Rajahmundry, were admitted as outpatients in this hospital for ticks and lice. It was noted in the patients' ticket book that they also had ruffled plumage, staggering gait and drooping head. On the next day seven more fowls from the same poultry-yard manifesting the same symptoms were admitted. It appears that



some of these fowls showed decided paralysis of limbs and were then treated for it with sodii salicylas. They attended the hospital for 3 days and discontinued. Out of these 9 birds, which the owner had in all, one died during the treatment, 5 died after some days, and 3 survived.

After I took charge of the hospital, two fowls (case Nos. 558 and 559) were sent to the hospital from the same poultry-yard on the 28th July for ticks and they showed the following symptoms :—

One fowl (C. No. 558) had diarrhoea; temperature 108.4°F; head drooping; ruffled plumage; eyelids were semi-closed; used to rest on the ground, being very weak, but no paralysis of limbs; anaemic. It was treated till the 17th August, 1923, when it was apparently quite all right and was discharged cured.

The other fowl (case No. 559) had diarrhoea, a temperature of 108.0°F., and paralysis of limbs. This died the next day.

Another fowl (C. No. 602) was sent to the hospital for ticks with the same symptoms excepting paralysis of limbs. It was treated till the 17th August, 1923, when it was apparently all right and was discharged.

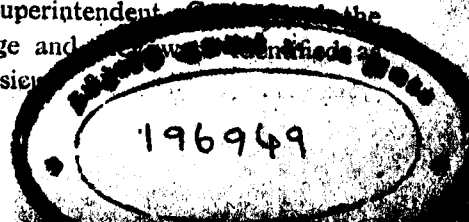
Again on the 29th August, 1923, both the birds (C. Nos. 558 and 602) were brought to the hospital—one just then dead and the other in a dying condition, and it lingered till the next day and died. With these two, the owner lost all the poultry he had. So the outbreak continued for about 7 months from February to August. I take this as a relapse. Wallis Hoare in his "System of Medicine" says that such relapses may occur. He writes :—"An apparent recovery from an acute case may be followed by a relapse ending in death in a few days or by a slowly progressing chronic type".

Microscopical examination of blood smears and identification of ticks.—

Blood smears were taken from the cases (C. Nos. 558, 559 and 602) and submitted to the Principal, Madras Veterinary College on five different occasions, but the result of examination was reported to be negative in all the cases.

Specimens of ticks observed on the body of these fowls were collected and sent to the Chief Superintendent, the Principal, Madras Veterinary College and were identified as belonging to the species of *Argas persicus*.

KZM 211, N19
N23-23



In the "System of Veterinary Medicine" by Wallis Hoare, it is written under Spirochaetosis of fowls thus :—

"In some cases there is a gradual emaciation and death takes place without any parasites being discovered. The elevation of temperature is not a marked feature. The chronic form may appear primarily, but no organisms can be detected in such cases". Probably this accounts for the absence of the organisms in the blood films submitted, though the clinical symptoms point definitely to the disease.

A short description of the tick *Argas persicus* may be of use here. It belongs to the genus *Argas*, subfamily *Argantinae*, family *Ixodidae*. It is found on most of the domesticated birds and sometimes on man. In size, it is a little bigger than a big mustard seed. The edge of the body is defined by a distinct suture. These ticks are one of the most pernicious of poultry pests. The bites are chiefly seen on the neck, under the wings and thighs and round the anus. These appear to be very long-lived. One author says that he has kept it unfed for 2 years and 3 months. From this it is clear that an infected poultry-yard will remain infective for a long time even after the birds are removed from it.

Post-Mortem appearances.

Opportunity was taken to hold post-mortem examinations on the two birds (C. Nos. 558 and 602) which died at the hospital. In both, the lesions were practically the same. The following appearances were observed in both :—

External appearances.

Extreme emaciation and anaemia. The whole body was infected with ticks.

Internal appearances.

The skin, muscles and internal organs were extremely pale.

The liver and spleen were enlarged. The intestines were very much thickened, mucus-coated and slightly congested in some parts.

The heart and lungs were pale, but otherwise normal.

A few round worms and tape worms were found in the intestines. These were submitted to the Chief Superintendent and were identified to belong to *Ascaridae* family and *Cotugnia* Sp. respectively.

As it is said that the parasites disappear soon after death, no blood smears were taken from the internal organs.

Treatment adopted by me.

As an external dressing for ticks, I used the following dressing with some what good results.—

Sulphur.—1 part.

Ol. Terebin.—1 part.

Ol. Anisi.—1 part.

• Camphor.—1 part.

Cocoanut oil.—30 parts.

Internally, I tried Sodii Salicylas, Sodii bicarb, Ferri Sulphas, pulv. zingiberis, pulv. gentian and Tr. Camphor Co.

Unfortunately, the drug "Soamin" which is said to be a specific for Spirochaetosis could not be tried. When the birds (C. Nos. 558 and 602) were first brought to me for treatment in the beginning on the 28th July, they improved rapidly under ordinary treatment and were apparently all right and in the end they were brought in a dying state. So, I had no occasion to indent for the drug and to try it on them.

BLOODY DIARRHOEA.

BY

N. S. Pathak, G.B.V.C. Offg. Veterinary Inspector, Akola District,
Akola. (C. P. & Berar).

While inspecting Patur Veterinary Dispensary one cultivator came one evening with the complaint that his bullock, aged, was all right till 12 noon grazing in the field, after which the animal passed only blood in liquid condition three times at an interval of an hour. and the animal looked to be ill as it was not feeding.

Symptoms:—The animal passed before me black liquid (uncoagulated) blood about 8 ounces in quantity with no faeces. I examined the animal and found that the mouth was hot but no rise of temperature was seen; the animal was dull, ears drooping, no tendency to eat, mucous membranes not changed. On rectal examination it was found hot with wrinkled appearance and empty. I pushed my hand as far as my shoulder and examined very minutely and found no worms attached to the mucous membranes, as I suspected.

No injury in the rectal cavity was also noticed. On taking out my hand which was soiled with blood and very little of mucous discharge I minutely looked for any worms but to my naked eye nothing was detected.

Treatment:—Being not certain of any diagnosis I treated the case as follows:—Alum Lotion enema was administered. Pot. Permanganate grs. 30 in three pints of water was given at once orally. The enema was given with an idea to arrest the bleeding and Pot. Permanganate dose was given as a disinfectant and antiseptic as I thought the case might be one of Anthrax. Another dose was repeated after two hours, and the owner informed me the next morning that the animal looked better and passed a little quantity of blood in the night once only. I saw the case in the morning and found all the symptoms abated and the animal feeding all right.

I had a similar case of a country bred old horse two years back with the same symptoms which I treated with an enema of acid Tannic glycerine; Tincture Ferri Perchloride was given internally and an injection of Adrenalin hypodermically but to no effect and the animal died in 24 hours. The owner was unwilling to submit his animal for post-mortem examination and I remained in doubt as to its diagnosis.

While I had a mind to send this to the Journal I got another case while inspecting the Akola dispensary. It was a heifer calf, six months old, suffering from bloody diarrhoea over 24 hours. Temperature was 103°F. The animal was off fed. In the first case cited above it did not strike me to take smears though I suspected Anthrax; so I took smears from the ear vein and bloody faeces in this case and sent to the Veterinary Adviser to Government, Central Provinces, Nagpur for microscopical examination. The result declared was "Negative for Anthrax". This case was treated with Alum lotion enema and 10 grs of Pot. Permanganate doses at an interval of 4 hours. The next morning the symptom of bloody faeces disappeared but still diarrhoea was present. Pot. Permanganate treatment was continued and the animal was discharged cured on the third day.

Will any one of the profession enlighten me regarding the diagnosis of the disease in these cases and oblige me?

SUBCUTANEOUS EMPHYSEMA IN A DOG.

BY

V. Janakirama Ayyar, G.M.V.C., Veterinary Hospital, Saidapet.

On 21st August, 1923, a dog, aged 3½ years was brought to the hospital for treatment.

General appearances.—The whole body including the extremities and face was swollen. The eyes looked merely like two slits. The head and face were very much disfigured. It could only stand with the legs wide apart and walk quite stiff.

Percussion evinced sounds of a three-fourths inflated foot-ball or an air cushion. The dog when made to lie down, will lie only on the side with the legs straight. Crepitation was observed when pressed well.

History obtainable.—Some two days previously i.e., about the 18th or 19th August, this dog was seen play-fighting with another one when it received a bite in the neck. The wound in the neck was covered with a crust and appeared healthy enough and did not communicate with the subcutis before it was opened again.

The temperature was only 102.° F. The bowels were slightly constipated. It was said to be passing urine normally. The appetite was fairly normal. It appeared to be in no pain at all for the swelling, only it could not bend downward, the plate had to be lifted.

Treatment.—The dog was given a copious enema of warm water and soap. A dose of castor oil was also given. The body was well massaged and fomented. The wound in the neck was dilated and dressed antiseptically. The dog was left to itself till the evening. In the evening no improvement was seen and as the case was not worse, it was left over for the next morning.

On 22nd August, 1923, the dog was seen more inflated. As no other course suggested itself to me, I punctured the skin just over the back for an inch in length and massaged the body—two persons one for the hind and the other for the forelegs—brought the air as much as possible to the abdomen and chest, and thence to the opening in the back. The dog evinced no pain and felt rather relieved—a great relief to the operator too. This treatment was given both morning and evening and every time the opening had to be made patent as the clot closed the opening. Though relieved in the morning, the body got inflated again in the evening. The only opening on the

back could not relieve the distension in the neck and face and so another opening was made on the forehead. and the neck opening was dilated. Bandaging the legs, body, neck and head as much as possible after relieving the distension was tried for a day but the animal began to show symptoms of suffocation and loose bandaging was no good.

On 30th August, 1923, the dog was given subcutaneously four ounces of normal saline solution and it was on this day, the distension was the highest and ever since then it has been on the decline. Internally nothing but the opening dose of castor oil was given. A solution of Hydrogen peroxide was syringed for two or three days into the openings. From the 8th September to 14th September, it was given daily 5 grains of Iodide of Potash. The dog was discharged cured on the 14th September, 1923.

The peculiarity of this case is that there has not been the slightest general disturbance.

Conclusion.—The bite in the neck has probably punctured the trachea and the skin opening must have closed when the tracheal opening was patent and every time the animal respired, some quantity of air must have got in underneath the skin and thus caused emphysema.

There was another case of emphysema in a bullock. The swelling was found in the shoulder-joint extending from the hump above to the knee below, from the chest to about half the length of the thoracic cavity. It was only on one side. The swelling was punctured at the top, the part massaged, as much of the air as could possibly be brought was let out and equal parts of Liq. Hydrogen peroxide and water was syringed into the cavity. The second day the emphysema behind the shoulder appeared a bit less. It was given an injection of normal saline on the second day after letting out the air.

The result could not be observed as the owner was a poor man living by the bullock. The bullock was sold away.

In this case as far as possible no history of a puncture could be traced or seen.

IMPACTION OF RUMEN IN CATTLE.

BY

P. A. Vaidyanatha Ayyar, G.M.V.C., Veterinary Assistant,
Mangalore.

Subject—An aged country-bred white bullock was admitted in the dispensary for treatment with the history that there were suspended rumination, defecation and micturition for the past two days. The abdomen was much distended. There was slight tympany also. The respiration was a little laboured with great reluctance on the part of the animal to move about. The rectum when explored was found to be almost empty. The bladder was normal.

Treatment.—The laboured respiration and the tension of the abdominal wall due to tympany were relieved to some extent by puncturing the rumen under anti-septic precautions. The probang was passed gently into the rumen with the object of washing it and no sooner it reached the contents of the rumen which was overbrim then, than there were attempts at vomition, rather regurgitation, mechanically produced and thus a small quantity of the ingesta in a semi-solid state was ejected. The same process was repeated several times and to facilitate this, half a bucket of normal saline solution was introduced into the rumen through the probang to which a funnel was attached, and it served the double purposes of :—

- i. diluting the gastric contents sufficiently to cause easy emesis.
- ii. washing out the stomach as is generally done in human patients.

However, the services of a stomach tube would have proved better, in the place of a probang which was the only instrument available then. A warm soap water enema was also given. The following medicines were administered.

Re-

Mag. sulph.—12 ounces.
Sodium chloride.—6 ounces.
Pulvis Zingiberis.— $\frac{1}{2}$ an ounce.
Pulvis nux vomica.—2 drachms.
Ol. Terebinthinae.— $\frac{1}{2}$ an ounce.
Syrupus Simplex.—half a pint.
Aqua ad.—2 pints.
Mft. Haust. Sig. now.

The next day a slight improvement was noticed. However defecation and micturition were not quite satisfactory and hence the repetition of the enema and the mixture without turpentine but with 8 ounces of Mag. sulph. only, were resorted to.

On the day following, as the symptoms were far better than the previous day, a dose of gastric tonic was administered.

The symptoms on the morning of the 4th day seemed to be rather peculiar and very discouraging, as the animal was observed to have severe colic. The cause of this was attributed to the exposure of the animal to the inclemency of the weather, the previous night. The temperature was 97° F. The animal was restless. Since the temperature was subnormal and the extremities cold, an injection of half a grain of Strychnine Sulphas was given hypodermically. Embrocation, following dry heat was applied to the extremities and the following mixture was administered.

Re-

Ol. Lini—10 ounces
Chloral hydras— $\frac{1}{2}$ an ounce
Tr. Zingiberis— $\frac{1}{2}$ an ounce
Spts. aetheris nitrosi—1 ounce
Spts. ammon. aromat.— $\frac{1}{2}$ an ounce
Tr. Nux vomica—2 drachms.
Mft. Haust. Sig. now.

To be repeated in the evening.

On the morrow, to my great astonishment, the patient was found to nibble straw. This day a laxative dose of medicine with some stimulants was administered. A medicated steam inhalation also had to be given as there was a slight running from the nostrils. The subsequent treatment consisted of gastric and general tonics with nutritious liquid diet.

The object of bringing this to the Journal is to inform my professional brethren, that the disease, though a grave one, is amenable to treatment and that the stomach tube plays a miracle in this disease.

Regarding the prognosis, a guarded opinion only should be given to the owners, as the majority of cases are being brought very late and to effect a cure is rather very difficult.

NASAL GRANULOMA

BY

V. Doraiswami Ayyah, G.M.V.C., Veterinary Assistant, Hindupur.

I wish to place on record, in brief, my experience regarding Nasal granuloma and the efficiency of the injection of Antimonium Tartaratum, in this disease. Cases of Nasal granuloma in large numbers are met with in this and surrounding taluks, animals affected so far as I have seen, being only bulls, bullocks and cows, of Mysore breeds in fairly good condition.

The disease produces certain characteristic lesions on the Schneiderian membrane of which two types have clearly been distinguished in these parts :—

(1) Sharply circumscribed and isolated hard growths which are few in number, easy of removal and situated generally lower down the nostrils vary in size up to that of an arecanut.

(2) Sessile and diffuse growths studded throughout the membrane and varying in size from a pea to a bean. Both the forms sometimes coexist, bleed readily on manipulation and present suppurating foci on the surface. Both nostrils are generally affected but the lesions often appear more in one than in the other nostril and a profuse and thick nasal discharge gets clogged up inside the nose and out. The disease is perhaps not noticed by owners until the snoring sound gives the warning for prompt treatment. In well-advanced cases, marked respiratory difficulty and loss of condition are apparent. Microscopical examination of sections of nasal growths submitted to the Principal, Madras Veterinary College, revealed granulation tissue due to a form of strepto-thrix.

Seven cases of the disease—6 bullocks and 1 cow—were treated by me with Antimonium Tartaratum by injection. In six cases the injection was intravenous and in one it happened to be subcutaneous. According to size and condition, five bullocks were each injected with 25 grs. of the drug in 20 C. C. of sterilized distilled water under strict asepsis and the other two animals 20 grs. doses each. The result was that four animals showed marked reactions by the evening, by a rise of temperature up to 103° or 104° F., restoration to almost natural breathing and subsidence of nasal discharge and got round in time completely. The remaining 3 cases of which one had received 25 grain dose showed only little or no reactions and were subsequently lost sight of. These animals evidently required

further reacting doses, but unfortunately the owners probably disposed them of as they never came back. It may not be out of place to mention that the case in which the injection happened to be subcutaneous, proved a thorough success, although an inflammatory swelling of the size of a cocoanut resulted which got cured in 20 days with surgical intervention. I consider therefore that the drug is indeed, as the author of this treatment puts it, a 'specific' for the disease and that a very rapid stride has been made to the efficient therapeutics of a drug in a disease which hitherto baffled all best attempts at cure.

One important thing I have to make mention of here is that contrary to the recommended dosage, I have had to inject on the onset alone, a sufficiently large dose, chiefly owing to the futility of inducing the poor ryots of these parts to keep their animals for long in the hospital and the result happened to be productive of avoiding the subsequent injections with reacting doses in the cases cured of the disease. It appears to me that anything short of 20 grain dose may fail to be the reacting dose for animals of moderate Mysore-breed type, and that even in the South, provided all circumstances about the animal are good and careful watch is kept up, after injection, for signs of toxicity, somewhat bigger doses at the onset than what have hitherto been used, might probably save the oft-repeated injections and yield better results.

INTESTINAL OBSTRUCTION IN AN ELEPHANT.

BY

V. Venkataraman, G.M.V.C., Veterinary Assistant, Khond Agency.

Subject.—A cow elephant named Champakalli working under the Assistant Commissioner, Khond agency.

History.—On April 4th, 1923 in the early morning the mahout reported that the animal was sick. She had no sleep the previous night, did not pass dung after 3 A.M. (April 4th, 1923), and she was restless.

Symptoms.—The abdomen was distended, she was swaying from side to side, restless, throwing mud over the flanks, the temperature was 100° F. a little above normal.

Examination.—She being a new, very shy young restive animal, was secured firmly to a big tree, and a rectal examination was made, the whole arm was introduced but no dung was found.

Diagnosis.—Obstruction.

Treatment.—A broad enema of warm water with one ounce of ol. Terebenthinae was given. She walked a little afterwards but nothing was retained.

9 A.M. she did not pass dung. The pain in the abdomen seemed to be increasing. She was beating the sides with the trunk, yawning very often, inserting the trunk in the mouth and grinding the teeth.

Another enema with $1\frac{1}{2}$ ounces of Chloral Hydras was given. As the animal was very restive, shy and suspicious, administration of medicines through the mouth was found to be impossible.

12 Noon. Marked tympany, pain seemed to be increasing, groaning heavily. Respiration accelerated. Animal lying down and getting up. Another enema with $1\frac{1}{2}$ ounces of oleum. Terebenthinae was given. Hot water was poured over the flanks.

2 P.M. Showed signs of increasing pain. Very restless. A thick paste of mustard was applied to flanks. Enema was repeated every 3 hours.

Till 10 o'clock in the night no improvement for the better was observed. Pain increased. She was very restless, throwing mud over the flanks and grinding the teeth. Refused water throughout. Passed urine at intervals.

At about 10 o'clock in the night she passed a huge mass of dung (the size of a big Jack fruit) $1\frac{1}{2}$ feet in circumference and $2\frac{1}{2}$ feet in length. She got relieved and in another hour she passed a few more balls followed by a quick passing of dung at short intervals.

On April 5th 1923 her condition was better. She passed dung freely. She had a good supply of fresh water to drink. She was given

Mag. Sulphas—4 ounces.

Amon. Chloride— $\frac{1}{2}$ an ounce.

Calomel—1 drachm.

That day she was given no rice, but some tender green fodder and plenty of water to drink.

The after treatment consisted in withholding rice diet for 3 days, giving tender green fodder and mag. sulphas 4 ounces and ammon. chloride 4 drachms daily for 4 days.

There was no trouble with her afterwards. What surprised me most was to find the animal, which was quite all right in the evening when I examined her, showing no symptoms of constipation or any ill-health, within such a short period under such a pitiable condition with the obstruction. Further she was having only *solofo* fodder which has no astringent properties. Will any of the elephant experts kindly enlighten me on this, through the medium of this Journal.

TYMPANITIS IN A BULLOCK

BY

P. K. Devanayagam, G.M.V.C., Veterinary Assistant in charge
Veterinary Hospital, Cuddalore.

A bullock, aged, which is worked in oil mill fell suddenly ill after the evening feed (cotton seed, rice-bran and straw). By mid-night the owner observed the animal tympanitic and administered some country medicine. There was no improvement and it was growing worse.

The next morning when the owner was taking the animal to the hospital the latter fell down on the street.

I saw the bullock almost insensible and abdomen bloated, temperature 100° F. pulse imperceptible, mucous membrane cyanotic with increased salivation.

Massage of the left flank did not give any relief at that stage. Rumen was punctured with a trocar and canula at the left flank at a spot equidistant from the last rib, transverse processes of the lumbar-vertebrae and point of the hip. This brought out all the gas. An enema was given but to no avail. A drench containing ol. Lini—1 pint, ol. Turpentine—1 ounce, Spt. Ammonia Aromat.—2 ounces was given. A few hours after, the following drench was given. Ammonia Carb.— $\frac{1}{2}$ an ounce. Pulv. Nux Vomica—2 drachms, Treacle—4 ounces Aqua—2 pints.

The next day the bullock drank some *conjee* and was able to walk to the hospital. Drench with Ammon. Carb. 2 drachms, Pulv. Nux Vomica—1 drachm and aqua—1 pint was continued for 3 days and the bullock was gradually returning to his normal feeding and was all right. The same treatment was adopted in another bullock and he also got all right.

DIPHTHERITIC ROUP.

BY

S. Ananthayya Sastri, G.M.V.C., Veterinary Assistant, Coimbatore.

During my service in the hills of Coorg and Nilgiris, I had splendid opportunity of studying various diseases affecting fowls. In fact many of the common affections among them are passed over unnoticed or uncared for by the owners, due either to the preconceived notion in them that they must have eaten something wrong or been stoned by somebody or the owners feeling reluctant to bring small creatures for treatment especially on account of the insignificant cost. But, it is otherwise with the valuable fowls. Europeans in hills stations own a good number of various species of valuable birds.

Avian roup, is the worst of all the diseases, which the bird fancier has to combat. It is specially noticed in winter months and is very highly contagious as the whole pen may be washed off in 10 to 15 days, if no care is taken early to treat the sick.

Symptoms.—The affected birds appear dull, off feed, can swallow only with difficulty, their wings and feathers droop, there is discharge from the eyes, and frothy mucus and saliva from the mouth will be seen invariably in every case.

When the mouth is opened, the typical symptoms are seen. On the mucus membranes will be noticed several firm greyish-yellow patches. On closer examination each patch will be seen composed of innumerable pin-head-like elevations on the mucus membrane. These will be found scattered throughout and the patches, small and big, coalesce with each other, the worst site being the pharynx and trachea where sometimes false membranes are seen, which almost completely obstruct the passages of either food or air through them. Nostrils are also badly affected, as patches are seen in them in almost every case. In worst cases, the patches appear on the conjunctiva simultaneously with those in the pharynx and completely obstruct the vision and sometimes the whole eye gets rotten. The young and those in good condition usually succumb to the disease.

Treatment.—The false membranes have to be carefully removed and the raw surfaces touched with some antiseptic and astringent agents. Those found efficacious by me are—Ferri et glycerine (Tr. Ferri Perchloride 1 part, and glycerine 8 parts), Silvernitrate solution 2 per cent, Corrosive sublimate solution (1 in 1000). If carefully treated and membranes removed, the birds usually recover.

Prevention.—The healthy birds ought to be immediately removed to healthy localities and their mucus membranes examined every day to detect and to isolate at once any bird, showing symptoms. The infected place ought not to be again occupied for at least 1½–2 months.

A CASE OF LEAD POISONING IN A DOG.

BY

P. Viswanatha Pillai, G.M.V.C., Veterinary Assistant, Erode.

While I was temporarily in charge of the Veterinary hospital, Erode, during the absence of the permanent Veterinary officer on casual leave, a two-year old country-bred dog, in good condition, belonging to the proprietor of a local Motor Transit Company, was brought to the hospital on the evening of 4th March, 1923 for treatment with the following symptoms.

Animal was in a state of great excitement, respiration hurried, mouth open, tongue protruded, and it had profuse salivation. On closer examination, I found the whole of the mucous membrane of the mouth in a badly blistered condition. Temperature was 102.2°F.

History.—On questioning the man who brought the dog to the hospital for treatment, I learnt that the animal was found loitering about the motor shed in the morning, and some one also observed the dog licking up the fresh paint applied to a motor bus.

Diagnosis.—Lead poisoning.

Prognosis.—A guarded one. Wait and see.

Treatment.—Seven grains of Potassi iodide in half an ounce of water was first administered to the dog and after two hours, the following mixture was given.

Re

Mag. Sulph.—one ounce.

Tr. Zingiberis—m. X.

Aquae ad.—Q.S.

Mft. mist.—sig. now.

Unguentum boric was applied to the mouth. The attendant was instructed to starve the animal that night and give him only milk the following two days.

5th March, 1923.—The dog appeared much better. The attendant informed me that the animal had two or three watery motions. The case was left to the care of the permanent officer who joined duty by this time. No treatment was adopted this day. Diet-milk only. The man was instructed to bring the dog next day for observation.

6th March, 1923.—The animal seemed much improved in every respect. No treatment. Diet-milk only.

Subsequently I found from the hospital records that the same dog had been treated for Eczema and discharged cured.

The rationale of the treatment adopted in this case.

Lead is eliminated from the tissues into the blood by Potassi iodide and then brought into the intestinal canal. Magnesium sulphate renders the lead insoluble and by its purgative action removes the latter from the system.

Remarks.—Supposing the dog was not brought to the hospital for treatment in time, acute gastro-enteritis might have set in, giving rise to colicky pains etc., then, as time goes on, probably cramped condition of the muscles, then paralysis of the limbs and finally death. As I have not met with any case of lead poisoning in a dog prior to this case, I referred to some of the Text books to know something about the symptoms of lead poisoning in the canine species. To my surprise, I found the authors describing the symptoms of lead poisoning in cattle, horses and human beings but nothing has been said about the toxical symptoms of lead in dogs. So I think lead poisoning in dogs is of rare occurrence.

RUPTURE OF STOMACH OF A PONY.

BY

C. V. Padmanabhan, G.M.V.C., Veterinary Assistant,
Veterinary Hospital, Calicut.

Subject.—A country-bred, small sized, spirited, young pony.

History.—The pony was fed well in the morning and driven fast in a jutka to a distance of 18 miles. The animal when let loose showed symptoms of colicky pain. The usual native treatment for colic was adopted without any effect. 4 hours later it was brought to me when the following symptoms were noticed :—

Profuse sweating, mucous membrane of the eye was highly injected, discharge of watery fluid from the nostrils, anxious look,

spasmodic twitching of the abdominal muscles, animal lay down, rolled, and got up again but did not shake its body as in the case of colic. Sometimes it sat on its haunches with its both forelegs well extended forwards and tried to be in that position for some time. It was suspected to be a case of intestinal twist or rupture of the stomach. The vomiting of the food materials described in rupture of the stomach was not present.

An enema was given followed by a carminative mixture. Soon after the mixture was given the animal seemed to suffer more, had all the above mentioned symptoms in an aggravated form especially the twitching of the abdominal muscles and sweating. Seeing this, I concluded it to be a case of rupture of stomach. The irritation of the peritoneum caused by the mixture getting out of the stomach through the rupture must have been the cause of the sweat and twitching of the abdominal muscles. Explained to the owner the condition of the case and its prognosis. The animal died after I gave the mixture and I conducted *Post-Mortem* and found the stomach ruptured.

Remarks.—There is nothing new in what I have described but I have to remark that the twitching of the abdominal muscles and profuse sweating may be taken as a diagnostic symptom in cases of ruptures. I have seen one more such case with almost the same symptoms and there was no vomiting in this case also.

TRYPANOSOMIASIS IN BUFFALOES.

BY

H. R. Rangaswami Ayyangar, G.M.V.C., Touring
Veterinary Assistant, Ootacamund.

In a village named Reti, 6 miles off Ootacamund the disease 'Trypanosomiasis' was prevalent among buffaloes during the months of March, April, and May of 1922. During this period more than 20 head of buffaloes were lost by the people. As the disease did not simulate the symptoms of any of the common contagious diseases of cattle, it did not strike the owners to refer the matter to me, at the commencement of the disease. About the middle of May of the same year one of them happened to communicate the matter to me. I proceeded to the locality and observed the symptoms presented by the

animals. I have enumerated the symptoms below but I was unable to diagnose the disease. Hence I requested M.R.Ry. K. Kylasam Ayyar, Avl., Deputy Superintendent, C.V.D. Coimbatore to have a look at one of the buffalo calves which was then ailing from the disease. With the object of arriving at a definite diagnosis, on his suggestion I conducted a post-mortem on the same buffalo calf after its natural death and sent blood smears taken from (1) liver (2) spleen (3) lungs and (4) heart and (5) also from the peripheral vein of the ear when the calf was alive, to the Principal Madras Veterinary College for microscopical examination.

The result of microscopical examination was that "dead disintegrating trypanosomes were present in the peripheral blood smears".

Symptoms while alive. The buffalo went on losing appetite and rumination slowly in the course of two weeks from the beginning of the disease and in the third week started rubbing its body throughout against some rough object, with the result that extensive patches of skin got their hairs removed and there were many bleeding centres on them. The animal presented an awful look and was nothing but a bag of bones. The dung remained normal in colour and consistency but diminished in quantity gradually. Generally the animal's end drew near during the course of the 4th week.

Post-mortem appearances. When the carcass was opened about the 12th hour after the animal's death there emanated from its abdominal cavity a very foul smelling odour. In fact all the other organs except those noted below presented normal appearance. No parasites of any description were found in any of the organs.

Reticulum. Contained flakes of very hard ingesta almost dry.

Liver was $1\frac{1}{2}$ times as big as normal.

Spleen was very flabby, thin and pale.

Heart cavities contained liquid blood.

Lungs. The anterior third of both lungs were highly inflamed and presented marbled appearance.

Brain was a bit congested.

Treatment. Nothing was tried by way of treatment in this particular case as it happened to be the last in the outbreak and the disease was not diagnosed while alive.

In July, 1923 another outbreak of Trypanosomiasis among buffaloes started in a village one mile off Ketu, the centre of infection during the previous year. About 12 animals contracted the disease of which two only recovered by the oral administration of antiseptics. Of the other 10 animals that succumbed to the disease two were non-buffalo calves and the rest buffaloes.

Symptoms presented by the animals in this outbreak differed from those of the other already reported; but the duration of the course of the disease almost coincided. The dung of the animal always remained very loose and the temperature never rose above 101.0°F .

There was slight oedema in the sternal region between the fore-limbs.

Microscopical examination of a blood smear taken from the peripheral vein of an animal while alive revealed "Trypanosoma theileri". Hence the disease was confirmed for Trypanosomiasis.

Symptomatic treatment was undertaken and no special treatment was given as the disease was confirmed only in the last case.

BROKEN HORN IN A BULLOCK.

BY

C. I. Padmanabhan, G.M.V.C., in charge of the Veterinary Hospital, Calicut.

A middle aged, valuable, healthy bullock with upright horns was brought to me with one of its horns broken at the root and bent outwards. There was oozing of blood from the nostrils. On examining, the horn core was completely broken, but the sheath of the horn was not completely severed. As the injury was fresh I thought of trying to effect a union of the broken core.

Treatment.—Cast the animal on the side opposite to the horn broken. Clipped the hair well at the root of the horn, cleaned the broken ends with a cotton swab dipped in mercury lotion, removed clots, applied Bipp inside the wound, fixed the two broken ends to its proper position seeing at the same time that no soft tissues protrude outside the horn and held it firm when the compounder tied a strong cross bar (a piece of bamboo split did well to fix the broken horn firm along with the other).

The cross bar was tied tight about the middle of the horn with a strong string so that the knots may not slip upwards or downwards. Thus after fixing the horns well I applied Bipp around the broken edges, covered with sterilized gauze and put on a thin bandage.

Over this bandage I again applied Plaster of Paris. The animal was kept tied up under the supervision of the owner himself. The animal was carefully looked after by him and the broken horn had completely united and it is now six months—quite all right. There was the oozing of bloody discharge from the nostrils only for 3 or 4 days.

• *Precaution to be observed.*—Clipped hairs should not get into the wound. There should not be any clot left inside. The animal should not be worked or walked fast till it gets all right.

I have had another opportunity of treating a similar case with the same result.

OTORRHOEA.

BY

*P. A. Vaidyanatha Ayyar, G.M.V.C., Veterinary Assistant,
Mangalore.*

Subject.—A country bred she-buffalo of middle age.

Symptoms.—Discharge from both ears, yellowish-white in colour, with an offensive odour.

Treatment.—Consisted in gently syringing the ears with antiseptic astringent lotions, and after drying the parts, preparations like Tano-glycerine; Boro-Glycerine; a mixture of "Glycerine, Tr. Iodine and Tr. Opii". "Glycerine and Tr. Benzoin Co". "Glycerine and Formalin" etc., etc., were all tried on different occasions, but all these seemed to be a palliative measure only, since relapse was noticed in a pretty short time.

Finally, the ears were dressed with Spts. rectificatus, which proved to be very efficacious and no further relapse was noticed.

MY EXPERIENCE OF ADMINISTRATION OF ACID CARBOLIC IN CONTAGIOUS DISEASES OF CATTLE.

BY

R. Prasanna Rao, G.M.V.C., Veterinary Assistant, Aska.

Acid Carbolic in a pint of warm conjee with castor oil and common salt each four ounces added to it acts well in contagious diseases of cattle provided such a treatment is given when the disease is in its early stage. But what I wish to bring to the notice of my professional brethren is my experience of cattle behaving in a peculiar manner as soon as the above mentioned mixture is administered to them. As soon as the above mixture is given those cattle that are to recover get up instantly and behave as if they have gone mad. They usually gallop round the village till they are worn out and exhausted. Such an action I think, is useful to a certain extent. It disturbs the contents of the bowels and soon defecation results. The mixture becomes well mixed up with the bowel contents and antiseptic effects of the acid Carbolic are better exerted. Those cattle that are to succumb to the disease behave differently. They let their heads drop to the ground, close their eyes and stretch their legs well out.

Such has been my observation and I wish to know if anybody else has observed this particular phenomenon.

A lady took a pet dog to a Veterinary Surgeon and requested him to examine its eyes and give a suitable medicine. The Vet. after examining carefully said "Madam, it has severe conjunctivitis.

Lady.—"Is it severe, doctor"? Will it go blind?

Vet.—"Yes, possible".

Lady getting alarmed "what do you mean doing with it, doctor"?

Vet.—"I will have to apply Silver nitrate to its eyes".

Lady.—"Oh; Doctor, apply gold nitrate, I do not mind the cost. I'll pay for it.

DEPARTMENTAL NOTES AND NEWS.

1. The Office of the Superintendent I division, Vizagapatam has been converted into a circle office and the Presidency has been divided into 5 circles with effect from 1st November, 1923.

2. A Veterinary Dispensary at Chittoor was opened on 23rd September, 1923.

3. Mr. F. Ware F. R. C. V. S. Chief Superintendent Civil Veterinary Department is on leave for one year from 12th October, 1923 and Mr. D. A. D. Aitchison M. R. C. V. S., M. P. S., is holding full charge of the office of the Chief Superintendent, Civil Veterinary Department in addition to his own as Principal, Madras Veterinary College.

EXTRACTS.

ON A TRYPANOSOME OCCURRING IN BRITISH SHEEP, AND ITS TRANSMISSION BY THE SHEEP-KED.

BY

Cecil A. Hoare, B. Sc., Research worker for the Medical Research Council at the Wellcome Bureau of Scientific Research, London.

Attention was first drawn to trypanosomiasis of European domestic sheep by Dr. Woodcock's discovery of a simple trypanosome in the blood of a sheep examined by him in 1910. Woodcock suggested that the trypanosome represented a developmental stage of *Crithidia melophagia*, a flagellate, which is commonly found in the gut of the sheep-ked, *Melophagus ovinus*. The proof that there existed such a connection between the ked-flagellate and the sheep trypanosome was, however, lacking. Several other observers (Flu, 1908; Swingle, 1909, 1911; Porter 1910) who have studied the ked-flagellate realised this possibility, and attempted to discover the trypanosome in the blood of sheep and to establish a relationship between it and the ked-flagellate, but with negative results. They concluded, therefore, that they were dealing with a specific insect-flagellate which has no vertebrate host. This question was again revived in 1919, when Noller, working in Germany, succeeded in demonstrating the presence of trypanosomes in the sheep's blood by using cultural methods. He did not, however, prove that this trypanosome was transmitted by the sheep-ked.

My own investigations were started in 1920. By using the cultural method (blood-bouillon medium) I was able to demonstrate the presence of trypanosomes in 80 per cent. of sheep examined by me in a flock in Hertfordshire. I also succeeded in proving conclusively that the trypanosome was transmitted by the sheep-ked. The experiments were conducted on "clean" lambs bred under observation.

One lamb, which had never harboured keds, and which had been repeatedly proved to be free from trypanosomes, had about 300 keds placed on it, with the result that trypanosomes appeared in cultures taken from its blood a week later. The natural mode of transmission is "contaminative," the sheep either licking up the ked faeces which are deposited on the wool, or biting off the keds from its body and liberating the flagellates in its mouth. This was demonstrated by an experiment in which a "clean" lamb contracted an infection after having been fed on the abdomens of about 60 keds. With the same result the experiment has been repeated on several occasions. That the sheep cannot be infected through the bite of keds was proved by the observation that a lamb which was allowed to be bitten by keds on several days never became infected, as was also the case with a sheep which had the flagellates of the keds applied directly to scarification on the skin.

The sheep-trypanosome, which now bears the name *Trypanosoma melophagium*, after the name *Crithidia melophagia* given by Flu to the flagellate form in the ked, is a large species (47 m. long,) with the kinetoplast at a considerable distance (9.6m.) from the posterior end. Morphologically it is referable to the *T. theileri* group.

The trypanosomes in the blood of sheep are very scanty. Dozens of blood films from known infected sheep may be examined without a single trypanosome being found. The only reliable and certain method of detecting their presence is the cultural method, as is the case with cattle trypanosomes. I have kept the trypanosomes growing in cultures for 11 months. They assume a crithidial form in cultures, similar to that in the gut of the ked.

In the intermediate host, *Melphagus ovinus*, the trypanosome undergoes a cycle of development, passing from a crithidial stage in the mid-gut to a trypanosome stage in the hind gut. The small trypanosomes lining the walls of the hind-gut represent the forms which give rise to infection when ingested by the sheep. The presence of these forms was overlooked by all previous authors, who studied the flagellates in the ked.

It must be recognised that, as practically 100 per cent of the keds are infected with the flagellate, it would be expected that all sheep harbouring keds would be infected with the trypanosome, and the results I have so far obtained are in support of this view. No infection could be produced in laboratory animals.

The trypanosome does not seem to have any pathogenic effect upon the sheep, which shows no signs of discomfort, its temperature remaining within the normal limits and the general condition being unchanged.

It is, however, known to veterinary surgeons and breeders that sheep may suffer considerably when infested with keds. Lambs are said to emaciate and even die as the result of heavy infestations. It is not improbable that to a certain extent this may be due to the presence of trypanosomes in their blood or organs. Although apparently harmless under normal conditions, it is possible that the trypanosomes may sometimes become pathogenic; as for instance, in debilitated animals. If this conjecture prove correct, trypanosomiasis will have to be recognised as a new disease of domestic sheep, and more radical methods will have to be employed for the eradication of the keds, or more stringent regulations enforced, since the dipping methods as employed at present, at any rate by the majority of sheep owners, are inadequate for the purpose.

(From The Veterinary Journal for August 1923.)

AN OUTBREAK OF DEMODECTIC MANGE IN CATTLE.

BY

D. S. Rabagliati, O.B.E., B.Sc., M.R.C.V.S., Major, late R.A.V.C.,
Director, Serum Institute, Ministry of Agriculture, Egypt; Lecturer
on Veterinary Medicine and Contagious Diseases, School of Veterinary
Medicine, Cairo.

The published records of actual outbreaks of demodectic mange in the ox being few, the writer hopes that the following description of one which occurred amongst bulls kept for the production of anti-cattle plague serum may be of interest. The affected herd, which consisted of Egyptian bulls, together with a few Cyprus steers, is kept at Abbassieh, near Cairo, on a desert hill. All the cattle are kept tied up in wooden mat-covered sheds on the sand, no bedding being used. They are groomed regularly, kept under the best sanitary and hygienic conditions, and are all in first class condition.

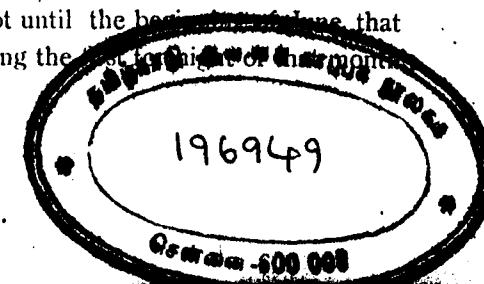
History of the Outbreak.—The ground at the Serum Institute had been used for cattle for many years before the Great War, and to the writer's personal knowledge no case of the disease had been diagnosed there previously. During the war it was used first as a horse

remount depot, and later as a quarantine camp for native personnel. In June 1919 the Institute was reopened for serum work and a number of new bulls were brought. One of the first purchased animals, No. 6, was admitted on June 22nd, and about the middle of August was found to be suffering from a nodular skin eruption. Apparently no microscopic examination was made, but the bull was isolated, clipped and dressed with a sulphur and oil dressing. The animal recovered to some extent so that it was returned to its usual stable about a month later. In October of the same year the eruption was again noticed, and a pustular condition found to be present all over the back and sides. A caseous pus was obtained from some of the nodules, and on examination by Mohamed Bey-Asker, then Pathologist of the Institute, the case was diagnosed as one of demodectic mange, large numbers of the parasite, *Demodex folliculorum*, var. *bovis*, being found in every pustule examined. This appears to be the first case of the disease in cattle ever reported in Egypt, but Asker-Bey did not publish the fact. The bull was again isolated, re-clipped and dressed with sulphur and oil on several occasions. Considerable improvement took place, but the animal was not completely cured, as further pustules occurred from time to time.

As many authorities have cast doubt on the contagious nature of this disease in the ox, the bull was finally returned to its usual stable early in December 1919. Here it remained with numerous pustules on the skin until November 6, 1921, a period of twenty-three months. It was bled for serum and treated like any of the other cattle in the Institute. On this date it was bled to death for serum as the number of cattle was being reduced, being chosen more from the fact that it had reacted to the tuberculin test than because it was the subject of this mange. Although there were a varying number of between 110 and 170 serum-producing cattle at the Institute during this period, and all were examined at frequent intervals, no further case was diagnosed up to this date.

However, on April 22, 1922, four and a half months after this bull, No. 6, had been killed, another bull in a stable far removed from where the original case had been was detected with the disease, and a day later a further case, still in another shed, was found. These were isolated and treated, and weekly inspections of all cattle carried out. This was done by running the hand over the surface of the body in every case. It was not until the beginning of June that further cases occurred, though during the next four months six more were diagnosed.

4 JL
KZ m211, N15
N22.23



A month later three more affected bulls were isolated, and it was feared that the disease might become general. Some of the cases already found had only a few pustules which were often difficult to detect, and it was thought that many more cattle might have pustules which were still unobserved. For this reason every bull was cast and examined by one of the Veterinary staff of the Institute, who carefully ran his hand over the neck, back and upper part of the legs to ascertain if any pustules were present. Greater accuracy in diagnosis could be obtained with the animal in the cast position than while standing. As a result of this minute inspection it was found that out of 110 bulls then on the strength, not less than 53, or 48 per cent. were affected, but many so slightly as only to have two or three pustules present, which were sometimes found only with the greatest difficulty.

Symptoms.—The following is the general description of the symptoms seen. At the outset it may be stated that there was no loss of condition whatever, and the affected cattle seemed in no way inconvenienced. There was no pruritis noticed, and except in the case of one bull there was no general thickening of the skin over the affected areas. In this case a patch about the size of a man's hand was somewhat denuded of hair and the skin became thickened and scaly, but even then there was no evidence of itching. In most cases the only sign of the disease was the presence of the nodules. These varied in size from a millet seed to that of a good-sized pea at most. Van Saceghem (1) states that nodules may occur as large as a hen's egg, but in this outbreak such was not the case. When of medium size the nodules could be seen in a good light, the conical nodule with its covering hair showing up well, but when small they could only be felt, and even then in some instances with difficulty. The larger ones were sometimes open at the top, and a caseous pus, yellowish in colour, could be squeezed out; but in the case of the smaller nodules it was necessary to open them with a scalpel before the pus could be expelled. This pus was rich in the causal parasites; in fact, no case was accepted as being mange without finding the parasites on microscopic examination. From only two or three nodules to as many as a hundred or more might be found on one animal. This agrees with the description given by Bugge (2). Mitter (3) states that the formation of nodules was preceded by a rise of temperature of the affected ox for two, or three days, and that each nodule was surrounded by an inflamed area of skin and a haemorrhagic ring in the first instance. Neither of these conditions was ever noticed. The commonest sites of infection were on the base of the

neck, shoulders, axillae, forearms, sides of the body and flank, but pustules were occasionally found in other situations. None were ever noticed on the head and only in one case below the knees or hocks. The condition was very chronic, and frequently new crops of pustules appeared from time to time. If left alone, they usually remained for long periods, with but little alteration, and showed but slight tendency to burst. It has been stated that the disease is rare in both very young and very old animals. As all the serum bulls were between about four and eight years of age, this point could not be determined. It is worthy of note that no case was detected in a Cyprus animal, but this is probably more due to the fact that all these cattle were housed in a separate stable which may have escaped infection rather than to any special immunity of such animals.

Treatment.—The first diagnosed cases were all isolated, but later on only those most seriously affected, amounting to fifteen in all. When it was seen that the disease had become general, further isolation was considered unnecessary. There was no danger of spreading the disease outside the Institute, as this itself was well isolated, and no cattle ever left it.

The treatment carried out for those cattle severely affected was as follows: They were all clipped by shears so shortly that it really amounted to shaving them. Next they were cast and all pustules were opened with a scalpel, the pus squeezed out, and petrol injected into the nodule, and in some cases the seat was painted with tincture of iodine. This was repeated once a fortnight, for it was found that although the old pustules rarely reappeared, new crops were apt to occur. The sulphur and oil dressing was found to be worse than useless, and so was given up—at least this was the experience in the case of those cattle which were severely affected. In three cases the subcutaneous injection of arrhenal (Disodium Methyl-arsenate) was tried, 2 grammes in 50 cubic centimetres of water being given daily for a fortnight. In one case improvement occurred, but in the others it did not seem to have the desired effect. Finally the cattle were sprayed weekly and then fortnightly with Cooper's Cattle Dip (1-150). This was continued until the case showed improvement.

In the case of those more slightly affected, the following was adopted:—

1. All iron curry-combs were withdrawn from the sites, as it was feared that they might spread the disease from one part of the body to another, if not from bull to bull.

2. Disinfection of dandy-brushes. Rugs were not in use at the time of the outbreak, as it was summer.
3. All cattle, clean and infected, were clipped as in the case of the severely affected ones.
4. Weekly sprayings with Cooper's Dip (1-150) of all cattle, clean and infected, for four weeks, and then fortnightly for six weeks.
5. At the end of this time the cattle appeared to be improving, and the spraying was done twice more, but at longer intervals.

Results.—One of the badly affected bulls was slaughtered after three months' treatment as it showed no improvement at all, in fact the disease continued to spread. By the spring of 1923 the disease could no longer be found, and it was thought that all the remaining infected cattle had recovered. Of the other badly affected animals, six more were disposed of in the interval between the outbreak and the time of writing, for reasons not connected with the trouble in question, but eight are thought to have recovered.

Remarks.—Whether there were really no cases except the first one described before April 1922 one cannot be absolutely certain, for the minute examination carried out later on to detect the cases was not done in the first instance. It can be safely said, however, that there were no bad ones. With further experience it was seen how great are the difficulties in finding slight cases unless the very greatest care is taken. This brings up the question as to whether or not this type of mange is not more common than is generally supposed. Hurst (4) quotes a statement that the demodex in man is practically universal, which is certainly not the popular belief; so it may be asked, Is this also true in the case of the ox?

The disease has been recorded in the Belgium Congo by Van Saceghem, in India by Mitter and others, in Nyasaland by Griffiths (5) in Rhodesia by Armfield (6), and a case has recently been mentioned as occurring in a buffalo in Madras by Parameswaran (7).

No attempt has been made to describe the morphology of the parasite in this note, but it appears to be identical to that of the ox already frequently described, *Demodex folliculorum*, var. *bovis* (Stiles).

One is forced to the conclusion that the condition is more common than generally believed to be, and that this contagious nature varies in different circumstances. Ample evidence, however, exists to prove that it is contagious in many cases.

NOTE.—Since writing the above description, several of the cattle of the Institute have again been minutely examined, and unfortunately some further cases have now been detected (July 1923). In many of the previously affected bulls no signs of the disease can be found, but one or two of the former cases are again showing pustules containing living parasites. The disease has also been diagnosed in some bulls only admitted to the Institute in February of this year, when it was thought that the disease had been stamped out. Though the infection in these animals is very slight, one must conclude that they have become infected since purchase, thus showing the great difficulty of eliminating such a condition from infected premises.

(From The Veterinary Journal for August, 1923).

INDEX TO AUTHORS—VOLUME I.

	ISSUE NO.	PAGE.
Allen. H. ...	11.	24.
Ananthanarayana Rao. M....	3, 4, 8, 3, 17, 4, 8, 11, 15, 16.	5, 3, 2, 5, 3, 2, 2, 7, 1, 5,
Ananthayya Sastri. S. ...	6, 6, 7, 10, 12, 13.	12, 15, 28, 18, 6, 14.
Audimula Mudaliyar. M. ...	10.	11, 19.
Ali Hyder. G. ...	1, 2.	11, 16.
Archibald. Edgar ...	7.	35.
Allen. H. Major. ...	11.	24.
Bopayya. A. B. ...	8.	24.
Bhuvarahachari. K. S. ...	3.	19.
Beandette. F. R. ...	13.	20.
Chakko. P. I. ...	9, 12.	17, 9.
Chelva Ayyangar. H. N. ...	2.	17.
Castelino. A. ...	7.	21.
Devadoss. S. D. ...	3.	7.
D'Costa. W. J. ...	7.	14.
David. J. D. ...	12, 13, 13.	12, 13, 14, 16.
David. J. C. ...	17, 14, 15, 16, 17.	3, 17, 21, 18, 7, 13.
Devanayakam Pillai. P. K....	15.	20.

	ISSUE NO.	PAGE.
Davis. W. R. ...	... 5.	27, 31.
Fey. W. ...	... 1.	20.
Frederick Hobday. ...	... 4.	24.
Ferguson. T. H. ...	... 4.	25.
Faure. ...	... 4.	26.
Govindan Nair. K. ...	... 13.	9.
Henry. B. Eve. ...	... 1, 1, 9.	22, 27, 27.
Hudson. R. ...	... 1, 1.	28, 29.
Harvey. F. T. ...	... 9.	28.
Hussain. S. M. ...	... 13.	6.
Inglis. T. ...	... 8.	24.
Janakirama Ayyar. V. ...	... 1, 2.	18, 21.
Kailasam Ayyar. K. ...	... 1, 5.	10, 2.
Kumaraswami Pantulu. L. ...	1, 2, 2, 3, 4, 4, 5, 5, 6, 7, 8, 9, 10.	16, 10, 23, 9, 12, 23, 22, 25, 4, 22, 20, 8, 10.
Krishnamurthi Ayyar. V. ...	2, 3, 4, 12, 15.	2, 2, 2, 2, 2.
Krishnamurthi. S. ...	... 5.	16.
Krishnaswami. A. ...	... 9.	23.
Kuppuswami. P. S. ...	... 10, 14.	13, 9.
Kadambavanasundaram. P. ...	17.	9.
King. C. P. ...	... 10.	20.
Kinsley. A. T. ...	... 16.	21.
Kalyan Srinivasan. C. ...	... 17.	25.
Lampert. H. ...	... 3.	29.
Louis. Levinson ...	... 11.	25.
Menon. V. P. ...	... 9, 10, 13, 15, 16, 16, 17.	10, 13, 18, 19, 8, 16, 20.
Mascarenhas. F. X. ...	... 17.	8, 18.
Muniappa Pillai. N. ...	1, 2, 3, 4, 5, 13, 14, 15, 15, 15.	12, 8, 18, 6, 11, 7, 8, 10, 19, 22.
Mukerji. C. K. ...	... 10, 11, 14, 14.	7, 19, 7, 18.
Margabhandu. P. ...	... 15.	11.
Mahadeva Ayyar. A. S. ...	... 14, 17.	17, 21.
Morgan. E. ...	... 1.	23.

	ISSUE NO.	PAGE.
Meadows. D. ...	... 3.	24.
Mason. F. E. ...	... 15.	25.
Maurice. C. Hall ...	... 14.	21.
Naryanan. A. ...	... 14, 15.	10, 14.
Narasinga Rao. R. ...	... 2.	7.
Pathak. N. S. ...	... 2, 16.	24, 5.
Padmanabhan. C. V. ...	... 4, 4.	13, 17.
Parthasarathy Naidu. P. A. ...	4, 9, 10.	18, 12.
Paramaswara Ayyar. L. S. ...	5, 5, 13, 16.	9, 12, 14.
Prakasa Rao. K. S. ...	... 14.	20.
Peatt. E. S. W. ...	... 2.	26.
Payne. A. ...	... 4.	27.
Poenaru. I. ...	... 8.	27.
Prime. T. G. ...	... 11.	23.
Quentin. ...	... 1.	20.
Raghavendra Rao. K. ...	... 1, 9.	13, 22.
Ramaswami Ayyar. P. V. ...	2, 9, 15, 15.	12, 20, 16, 18.
Ramaswami. S. ...	3, 5, 6, 6, 11, 13, 14.	22, 22, 6, 9, 21, 12, 19.
Raghavan. T. ...	... 4.	20.
Rangaswami Ayyar. M. A. ...	5, 6, 7.	6, 3, 22.
Ramaswami Ayyar. K. S. ...	6.	8.
Ranga Rao. K. ...	... 5.	24.
Raghavan. K. V. ...	... 6, 9, 10.	12, 18, 17.
Ramiah. B. ...	... 8.	23.
Ramachandra Ayyar. M. ...	9, 13.	16, 18.
Ramachandra Ayyar. M. S. ...	12.	10.
Rajaratnam. K. ...	... 13, 14.	17, 8.
Rangaswami. H. R. ...	... 14.	1.
Ratnaswami Ayyar. T. A. ...	16.	19.
Rozario. P. G. ...	... 16.	20.
Reigler. P. ...	... 8.	27.
Sampath Ayyangar. H. C. ...	1, 12.	2, 1.
Subbaroyadu. M. V. ...	1, 6, 6.	17, 13, 15.
Swaminatha Ayyar. R. ...	2, 3, 4, 5, 5, 7, 7, 8, 9, 10.	13, 17, 11, 8, 14, 2, 24, 17, 7, 8.

	ISSUE NO.	PAGE.
Swaminatha Ayyar. T. P. ...	3, 4, 6, 11, 12.	3, 4, 2, 18, 3.
Subrahmanyam. C. ...	3.	12.
Srinivasa Rao. P. ...	2, 3, 11.	15, 20, 22.
Subba Rao. A. V. ...	3.	21.
Seshadri Ayyangar. S. ...	5, 9, 17.	26, 25, 28.
Seetharaman. K. S. ...	4.	15.
Shiddangowder. C. ...	4.	22.
Sahany. D. S. ...	5.	17.
Seshadri Ayyangar. S. ...	4, 12, 12, 16, 16,	14, 14, 16, 12, 15,
	17.	13.
Sundaranathan. M. ...	8.	19.
Subrahmanyam. P. ...	10, 15.	11, 20.
Subbaraman. A. S. (late) ...	12.	7.
Subbaraman. C. N. ...	12.	20.
Samirasimha Rao. K. ...	13.	8.
Subrahmanya Sastri. M. R. ...	14.	5.
Subrahmanya Ayyar. L. ...	17.	24.
Savage. A. ...	2.	29.
Slawson, A. ...	3.	30.
Sachelaire. V. ...	8.	27.
Shepley. L. U. ...	10.	23.
Saunders. C. G. ...	11.	23.
Pheagaraj. P. ...	3, 9, 12.	10, 19, 17.
Topping Hewetson. W. ...	5.	29.
Venkatachala Ayyar. V. V. ...	3, 14, 6.	13, 7, 9.
Vaidyanatha Ayyar. P. A. ...	4.	19.
Venkataratnam Chetti. C. ...	5, 14, 15, 17, 17,	5, 13, 9, 2, 12, 19,
	17.	
Venkatesa Ayyar. T. S. ...	6, 7.	11, 27.
Vinayakam. T. ...	8, 7, 8.	22, 19, 22.
Viswanath. H. ...	5, 9.	18, 14.
Velu Pillai. M. ...	14, 16.	14, 13.

	ISSUE NO.	PAGE.
Viswanathan, G. R. ...	14.	15.
Vaidyanatha Mudaliyar. S. ...	17.	18.
Venkatachala Ayyar. A. R. ...	5, 10, 12, 13, 16.	19, 16, 5, 11, 14.
Wariyar. K. G. ...	16, 16.	6, 10.

INDEX TO ARTICLES—VOLUME I.

	ISSUE NO.	PAGE NO.
Abscess in a bullock-an interesting case of...	2.	12.
Abscess and sore backs in animals ...	2.	24.
Abscess-chronic in an elephant ...	14.	20.
Abscess in the liver of a bitch...	13.	12.
Abscess-obscure in an elephant ...	8.	23.
Accessory food factors (Vitamines) ...	6, 7.	18, 29.
Anchylostomiasis in dogs ...	2, 11.	2, 2.
Anaesthesia in bovines ...	7, 7.	35, 37.
An interesting case in a cow ...	5.	8.
" " heifer ...	8.	20.
" " pony ...	10.	7.
Anthrax in a bullock-an unusual Case of ...	17.	19.
Anti-Rabic treatment in a pony ...	17.	7.
An undiagnosed disease in buffaloes ...	12.	1.
" " cattle ...	14.	10.
Ascites in dogs ...	4, 12, 17, 17.	13, 14, 13, 20.
Bacillus pyocyaneus in suppurating wounds and treatment with autogenous vaccine ...	12.	2
Betal juice on leeches-the effect of ...	14.	17.
Bilharziosis-Bovine... ...	14, 16.	1, 4.
'Bipp' treatment of wounds ...	2, 5, 5, 6, 9, 12.	26, 25, 26, 15, 22, 12.
Bots as the cause of death in an elephant ...	6.	8.
Bovine lymphangitis ...	3.	13.
Bronchitis in an elephant ...	9.	25.
Cancerous penis in a bullock ...	15.	20.
Canker-treatment of ...	7.	22.
Carbolic acid in Black-Quarter... ...	1, 4, 4.	18, 15, 17.
Carcinoma in a cat ...	17.	24.
Castration-equine- a change in its modus operandi ...	3, 14.	26, 19.
Castration of an imperfectly muled bull ...	10.	11.
Castration in a stag-the after effects of-a contradiction ...	14.	8.

	ISSUE No.	PAGE No.
Castration of the bovine male ...	8.	4.
Castration in goats and sheep ...	13, 14.	16, 18.
Cellulitis in a bullock ...	4.	12.
Choking in a mule-a curious case of ...	3.	29.
Choke-Thoracic-relieved by stomach tube...	10.	23.
Clinical notes ...	7, 10.	22, 8.
Clinical aids in the differential diagnosis of the common poultry diseases ...	13.	20.
Coccidiosis in calves ...	3.	3.
Colic-obstructive in an elephant ...	16.	6.
Colic due to verminous obstruction ...	4.	26.
Common salt-virtues of ...	6.	16.
Congestion of the brain in a heifer ...	7.	21.
Cresol in Rinderpest ...	15.	22.
Crude oil in mange ...	12.	.
Distemper-a case of ...	5.	19.
Distemper-Canine ...	8.	2.
Distemper-Catarrhal form-simulating Rabies ...	5.	22.
Distemper Canine-treatment with serum ...	3.	30.
Dracunculus medinensis in a dog ...	13.	11.
Dropsy in an elephant ...	3.	7.
Dysentery amoebic in a pup ...	16.	1.
Dysentery in a dog... ..	8.	19.
" " tiger ...	15.	9.
Dystokia in a she Buffalo ...	10.	18.
" " cow ...	13.	8.
" an elephant ...	1.	8.
" goat ...	13.	9.
" Breech presentation ...	9.	8.
" transverse presentation ...	9.	10.
" and post partum paraplegia in a cow... ..	9.	14.
Encephalitis-a suspected case of ...	6.	9.
Enucleating the eye-a method of ...	2.	29.
Ephemeral fever of Indian cattle resembling South African "three days" fever" ...	3. 4. 5. 6. 7.	24. 23. 12, 14. 15. 27.
Epsom salt-the danger of its free use ...	5. 8.	29. 24.
False horn to cattle or the after treat- ment of broken horn ...	10.	11.
Fever-persistent in a Dashund pup ...	5.	11.
Fleshy growth inside the nostrils of cattle...	3.	12.
Filariasis in a dog ...	17.	5.
Filaria Haemorrhagica in a heifer ...	14.	15.

	ISSUE No.	PAGE No.
Foot and mouth disease in man ...	10.	21.
Foreign body in the teat of a she-Bufferoe.	10.	13.
Foreign body through the stomach-migra- tion of ...	1.	16.
Fowl-Cholera ...	1.	22.
Fracture (Greenstick) of Radius in an elephant ...	5.	16.
Freaks of nature ...	8, 16.	22, 8.
Gastro-discus Aegypticus (Indiacus), in Equines ...	3.	2.
Gastro-Hysterotomy in a heifer ...	11.	25.
Glossitis in a cow ...	1.	13.
Glossitis-Traumatic with gangrene in a dog	3.	5.
" " in a pony ...	6.	3.
Haemoplegia in a horse ...	1, 3.	14, 22.
Haemogregarine canis ...	15.	7.
Haemonchus contortus in sheep ...	14, 15.	3, 17.
Haemorrhage cutaneous in a calf ...	16.	14.
Haemorrhagic enteritis in cattle ...	5.	9.
Heart diseases ...	7.	14.
Hemlock poisoning-a case of ...	5.	22.
Hernia Ventral in a bull ...	14.	19.
Hoven in a pregnant cow ...	6.	13.
Hygroma of the knee ...	7.	29.
Impaction of the Rumen in bovines ...	5, 5, 6.	27, 31, 6.
Imperforate anus ...	3, 14.	19, 20.
do with congenital recto vaginal fistula ...	14.	5.
Indian cattle-increase and improvement of.	17.	25.
Increased lactation ...	15.	21.
Inoculations against Anthrax and Rinder- pest ...	7.	28.
Intestinal obstruction in a dog ...	4, 15.	3, 18.
Intussusception in a bullock ...	12.	10.
do in lambs-symptoms of ...	12.	13.
" in the dog ...	4.	27.
" Kurma " in cattle... ..	17.	18.
Lameness-obscure-covered with cocaine Injection ...	4.	6.
Laryngitis in a horse ...	10.	16.
Legal notes ...	8.	17.
Lice-a simple treatment against ...	3.	28.
Lygosoma-its bite-the symptoms and treat- ment of ...	3.	18.
Madar poisoning in a dog ...	10.	19.
Malignant sore throat-a suspected outbreak of ...	9.	23.

	ISSUE No.	PAGE No.
Mange-Sarcoptic in Buffaloes ...	16.	19.
Meat inspection-General observations on ...	16.	24.
Mercurial poisoning in a cat ...	4.	24.
Metritis-chronic in a bitch ...	9.	17.
Milk fever ...	2, 5.	10, 5.
Milk problem in India with practical suggestions for its solution on the lines adopted in other countries ...	7.	2.
Monstrosity-foetal-(Cephalodidymus) ...	9.	16.
Mulling-evils of ...	13.	17.
Multiple abscesses treated with Bin-Iodide of mercury ...	12, 14.	16, 14.
Multiple abscess and phyllogen ...	9, 16.	1, 18.
Nasal gleet-surgical treatment of ...	2.	15.
Nasal granuloma ...	3, 10.	10, 2.
Neem tree-Therapeutics of its products ...	12.	5.
Nematodes in pups under 6 weeks old ...	15.	10.
Nephritis chronic in a horse ...	4.	4.
Nerve regeneration after impregnation with alcohol ...	10.	21.
Nyctalopia ...	9, 9.	18, 9.
Oesophageotomy in a cow ...	3.	20.
Oesophageal dilation in a cow ...	1.	20.
Ol. Chenopodium-fatal poisoning by small doses ...	11.	23.
Ol. picis crude-as a dressing in the operation of Tumour neck ...	15.	20.
Opacity of cornea in a horse ...	3.	9.
Ophthalmia-granular in cattle ...	17.	8.
Paralysis in dogs ...	9.	20.
" Brachial in cattle ...	16.	16.
" radial in a bullock ...	2.	13.
" of the external popliteal nerve in a cow ...	4.	18.
Paraphymosis in a bullock ...	16.	13.
Parasites in elephants ...	16.	10.
Parasitic dermatitis in cattle ...	1, 4.	17, 22.
Parasitic worms and Bacterial invasion ...	14.	21.
Parotiditis-chronic in cattle ...	15.	19.
Peroxide of Hydrogen in Blackquarter ...	9.	28.
Prolapse of a lung in a heifer ...	3.	17.
Prolapsus uteri in cows ...	2, 10, 14.	17, 13, 9.
Prolapsus uteri (congenital) in a calf ...	5.	18.
Pseudo Rabies infectious in the pig ...	8.	27.
Purpura Haemorrhagia a case of ...	5.	6.
Rabies in a dog ...	3, 4.	21, 20.
" an elephant dumb form ...	7.	18.
" a heifer ...	12.	3.

	ISSUE No.	PAGE No.
Ranula in a bullock ...	2, 6.	7, 11.
Retention of urine in cattle ...	5.	24.
Rhinitis in a heifer ...	4.	11.
Rinderpest a recipe for ...	1, 4, 13.	12, 14, 14.
Rinderpest and its treatment ...	7.	24.
" its treatment with sodium chloride ...	6.	2.
" epidemic care and management of ...	15.	11.
Rupture of the aorta ...	1.	28.
" bladder in cattle ...	11.	22.
" uterus in a cow a warning ...	9.	27.
" of the womb with foetus in the abdominal cavity ...	1.	29.
Serum Simultaneous inoculations against Rinderpest ...	5.	2.
Snoring disease in cattle ...	15.	2.
Spavin lameness in a pony ...	13.	7.
Spewing the cud ...	13.	18.
Spirocerca Sanguinolenta case of ...	12.	9.
Strangles in a yearling filly ...	6.	12.
Stronglosis of abomasum in calves ...	10.	17.
Strychnine poisoning in dogs followed by recovery ...	10.	20.
" " successful treatment in a dog ...	13.	6.
Sub-conjunctival injections in Veterinary Practice ...	16.	12.
Sugar in the treatment of wounds ...	2.	23.
Suppression of urination defaecation and death among cattle living on certain fodder plants ...	10.	10.
Tar in the treatment of wounds ...	14.	8.
Tartar emetic in Nasal granuloma ...	16.	20.
Teat operations ...	17.	9.
Tetanus in a dog ...	4.	21.
Tetanus-Recovery from by Hypodermic injections of Magnesium sulphate ...	11, 15.	25.
Tetanus in a cow following retention of the placenta ...	1.	23.
Thelazia Rhodesi in cattle ...	15.	16.
Thrombosis of the Aorta in a mare ...	1.	20.
Tincture of Iodine in Rinderpest ...	17.	13.
Torticollis in a cow ...	9.	7.
Traumatic Pericarditis ...	5, 11, 12, 14, 16, 17.	17, 21, 6, 7, 5, 12.
Trypanosomiasis in cattle ...	1, 2, 4, 6, 17.	2, 21, 7, 4, 2.
Tumour of the neck in cattle ...	1, 2.	10, 16.

	ISSUE NO.	PAGE No.
Tympanitis in cattle ...	13.	18.
Do. a bullock an interesting case of.	15.	14.
Tyrototoxican poisoning in a litter of pups ...	11.	24.
Twins in a country cow ...	15.	19.
Twist of uterus in a cow ...	16.	9.
Ulcers in the nostrils of cattle ...	6.	12.
Ulcerative keratitis in cattle ...	13, 16	1, 15.
Do. do. bovines caused by		
Thelezia Rhodesi ...	14.	13.
Urethral stricture in a horse ...	2.	8.
Urticaria in a bullock ...	11, 12.	18, 17.
Do. a cow ...	11.	23.
Veterinary Conference Lahore ...	1.	5.
Veterinarians' future ...	16.	21.
Veterinarian and Public Health ...	15.	23.
Yohimbine in the treatment of incontinence		
of urine in the dog ...	1.	27.
Zinc chloride—use of ...	13.	14.

INDEX TO AUTHORS.—VOLUME II.

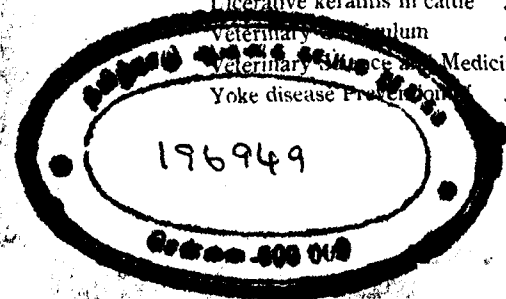
NAME OF AUTHORS.	ISSUE NO.	PAGE No.
Ananthanarayana Rao, M. ...	22.	7.
Ananthayya Sastri, S. ...	20, 23.	7.
Banaji N. R. ...	19.	15.
Chakko P. I. ...	18.	8.
Daubney R. ...	21, 22.	19, 23.
Devadoss S. D. ...	19.	8.
Devanayakam P. K. ...	20, 22, 23.	16, 17.
Duraiswami Ayyar V. ...	23.	10.
Hoare Cecil A. ...	23.	22.
Joshi C. M. ...	18.	5.
Janakirama Ayyar V. ...	23.	6.
Krishnaswami Ayyangar M. T. ...	20.	17.
Kuppuswami Ayyar P. S. ...	20, 21, 22.	13, 3, 19.
Kailasam Ayyar K....	22.	2.
Lakshmanaraju M. ...	18.	16.
Mallikarjuna Rao K. ...	20.	10.
Margabhandu P. ...	22.	18.
Moore V. A. ...	19.	17.
Muhammad Rahimuddin. ...	21.	2.
Muniyappa M. ...	20.	20.
Padmanabhan C. V. ...	23.	19.
Parameswara Ayyar L. S. ...	18.	19.
Parthasarathi P. A....	19.	2.

	ISSUE NO.	PAGE No.
Pathak N. S. ...	23.	4.
Prakasa Rao K. S. ...	18.	18.
Prasanna Rao R. ...	22, 23.	21, 22.
Ponnayya M. ...	20.	1.
Rabagliati D. S. ...	23.	24.
Raghavachari K. V. ...	19.	7, 13.
Ramachandran M. S. ...	19, 20, 21.	16, 15, 18, 5, 8.
Ramachandra Ayyar K. S. ...	19.	14.
Ramanathan N. ...	21.	12, 13.
Ramaswami Ayyar P. V. ...	18.	14.
Rangaswami H. R....	23.	17.
Ratnaswami T. ...	21.	5.
Sathe R. G. ...	21.	1.
Samirasimha Rao K. ...	22.	11, 13.
Share Jones J. Professor ...	21.	14.
Sheather A. L. ...	20.	24.
Srinivasan K. C. ...	18.	22.
Stirling R. F. Major. ...	22.	27.
Suryanarayanamurthi. ...	23.	1.
Swaminathan R. B.A., ...	18, 20, 22.	9, 14, 16.
Thillanayakam P. M. ...	19.	9.
Vaidyanatha Ayyar P. A. ...	23.	8.
Viswanatha Pillai P. ...	23.	15.
Venkatachala Ayyar V. ...	19.	12.
Venkataraman V. ...	18, 23.	15.
Venkatesa Ayyar T. S. ...	21.	9.
Venkataratnam Chetti C. ...	18.	2.
Wariyar K. G. ...	18.	6.

INDEX TO ARTICLES.—VOLUME II.

NAME OF ARTICLES.	ISSUE NO.	PAGE No.
A case of doubtful etiology ...	20.	18.
Adrenalin Chloride in Veterinary Practice...	20.	7.
Animal nutrition—Researches on—at the		
Rowett Institute ...	20.	21.
Ascites in dogs ...	19.	13.
Bilharzia parasite in cattle ...	21.	2.
Black Quarter—a case of ...	22.	21.
Bovine emasculation ...	18, 21.	18, 8.
Bovine Lithiasis ...	20.	10.
Bovine Lymphangitis ...	20.	24.
Camphorated oil and its uses ...	21.	3.
Canker in a horse ...	20.	13.

	Issue No.	Page No.
Cautery in old cases of Broken horn	... 20.	16.
Clinical cases	... 20.	17.
Cobboldia Elephantis	... 18, 19.	5, 8.
Colic in a mare	... 18.	8.
Cresol saponified-Tharapeutics of	... 19.	12.
Dystokia	... 20.	1.
Ephemeral fever	... 21.	12.
Epistaxis	... 19.	9.
Everson of the uterus and its treatment	... 18.	15.
Foreign body in the chest	... 19.	2.
Fracture of Humerus in a bullock	... 19.	14.
Gangrene of the testicle in a horse	... 22.	17.
Gastritis-acute-in a horse	... 22.	19.
Helminths common to man and animals-		
note on	... 21, 22.	19, 23.
Indian cattle-increase and improvement of.	18.	22.
Intestinal lavage in dogs	... 20.	14.
Kumri and ocular filariasis in the same		
horse	... 22.	18.
Luxation patella-chronic in cattle	... 18.	16.
Mange-Demodectic in cattle-an outbreak of.	23.	24.
Mange-Follicular in Dogs	... 20.	15.
My experiences	... 21.	9.
Nasal granuloma	... 18, 19, 22.	9, 2, 11.
Paraphymosis in a bullock	... 21.	13.
Saline injections-the physiology of	... 18.	9.
Scrotal abscess as a sequel to mulling	... 21.	5.
Seasonal or non-contagious diarrhoea in		
cattle in the Central Provinces	... 22.	27.
Serum Simultaneous method of inoculation		
against Rinderpest	... 22.	2.
Splints in Horses and their treatment	... 19.	15.
Spirochaetosis in Fowls	... 23.	1.
Sunstroke in calves	... 22.	22.
Three days' fever or Black Quarter	... 19.	16.
Traumatic Pericarditis with puncture of		
heart and haemorrhage	... 21.	1.
Traumatic pericarditis a case of	... 22.	13.
Trypanosomiasis in cattle	... 22.	7.
Trypanosome occurring in British sheep		
and its transmission by the sheep-ked	... 23.	22.
Tuberculosis Bovine	... 18.	2, 5.
Ulcerative keratitis in cattle	... 18, 22.	16, 19.
Veterinary ...	... 19.	17.
Veterinary ... Medicine	... 21.	14.
Yoke disease Prevention	... 20.	20.

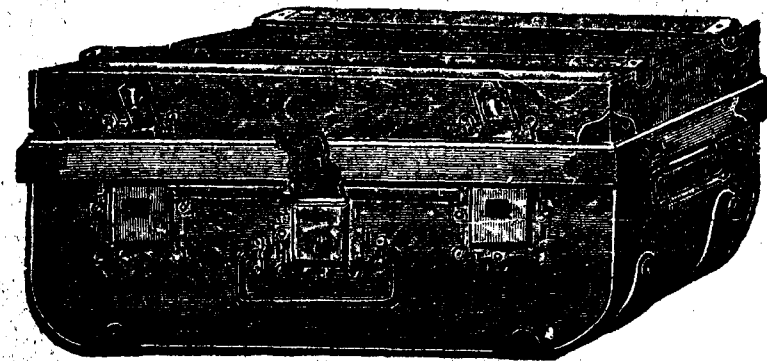


82
KZ m 24 N 18

FAMOUS STEEL TRUNKS OF NEGAPATAM

GOLD AND SILVER MEDALISTS

O
F
F
I
C
E



R
E
Q
U
I
S
I
T
E
S

STEEL Trunks, Steel Brief Bags, Steel Tapal and Record Boxes, Steel Paper Trays, Steel Portmanteaus, Despatch Boxes, Jewel Cases, Brass Padlocks and other articles manufactured by this Firm are the **best** and the **most reliable** with all up-to-date improvements fitted with hand-made brass secure 4 to 6 lever locks in various patterns. To avoid spurious imitations please note our **Trade Mark** while purchasing and address all communications to us correctly.

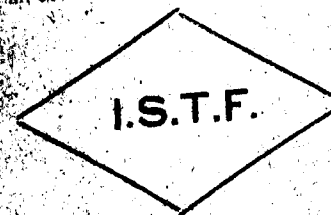
Patronised by Government offices

Full particulars on application to

THE NEGAPATAM INDIAN STEEL TRUNK FACTORY

Opposite to Railway Station, NEGAPATAM

Or to Messrs. N. A. & SONS, Upstairs, opposite to High Court, Madras.



TO LET

Advertisement Rates

The Journal has a wide circulation among veterinarians and the general public interested in live-stock in the Madras Presidency and elsewhere. Such articles as are useful to touring officers as camp equipment, books, etc., also veterinary instruments, appliances and drugs, and other articles of trade, can be advertised with advantage through this medium.

The following is the schedule of rates:—

	Single insertion.	Per annum
For full page	Rs. 8	Rs. 25
Half page	Rs. 5	Rs. 15
Quarter Page	Rs. 3	Rs. 10

Short trade-advertisements of 6 lines and under are charged Re 1 each.

Preparation of blocks unless supplied by the advertiser charged extra and all charges are payable in advance.

All business and literary communications should be addressed to:—

THE EDITOR,

Madras Veterinary Journal,
CHEPAUK, MADRAS.

PRINTED AT THE N. M. S. PRESS VEPEERY, MADRAS.