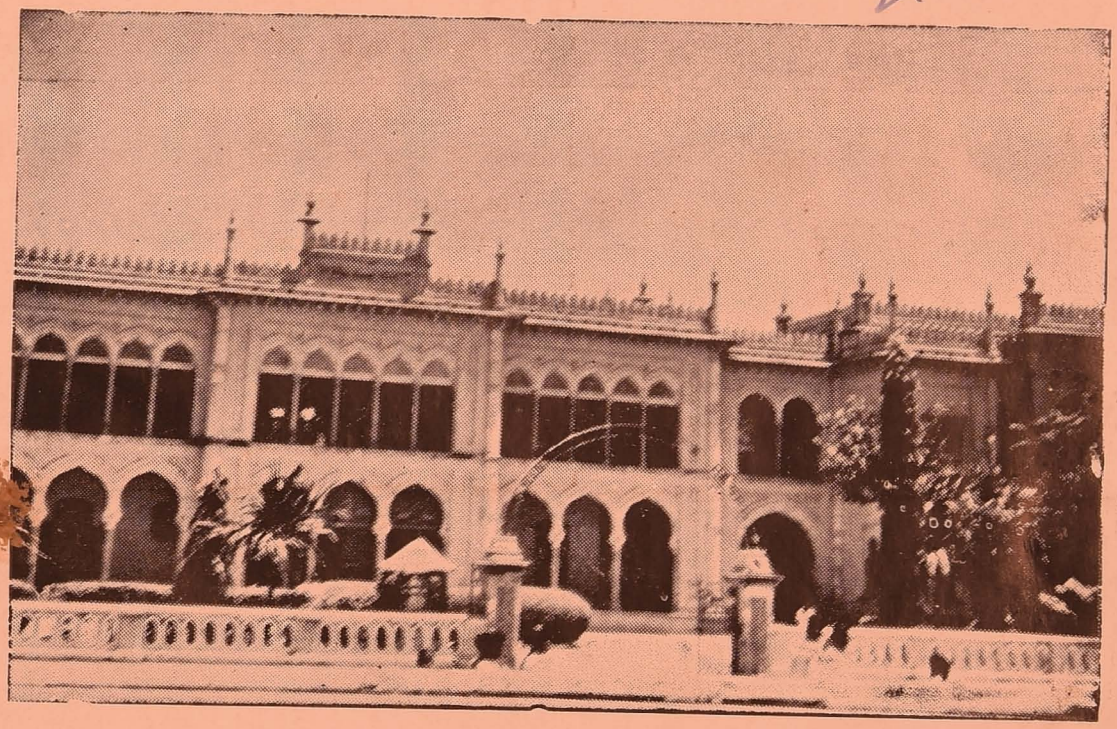
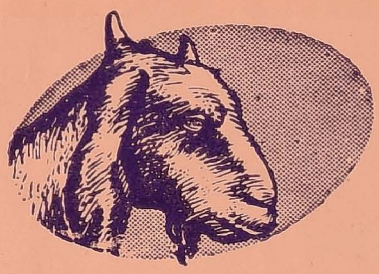
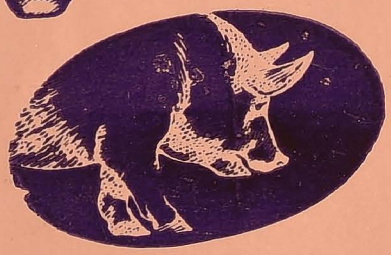
The MADRAS VETERINARY COLLEGE Annual

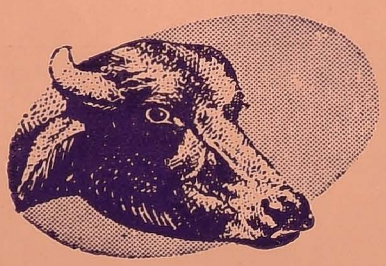


VOLUME XVI

MARCH 1958







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Editors

THE MADRAS VETERINARY COLLEGE ANNUAL VOL XVI

For Favour of Review and/or Exchange

This is the
Sixteenth Volume of
the Madras Veterinary
College Annual

Printed at the C. N. T. I. Press by Sri R. Sivaramakrishnan, B.E., A.M.I.E., Principal, C. N. T. Institute and Published by Sri Syed Hameed Hasan, Madras Veterinary College, Vepery, Madras-7.

Our Thanks

Our hearty thanks are due to the countless many who have helped us by means of their valuable suggessions and contributions.

We are particularly indebted to Krishna Reddy, K., of Final B. V. Sc. and Govindarajan, C. V., of Second B. V. Sc., for photographs.

We are thankful to Klien and Peyerl for nice blocks made and to the advertisers who responded promptly.

Last but not least to the Editorial Board who helped and guided us in every bit of our course.

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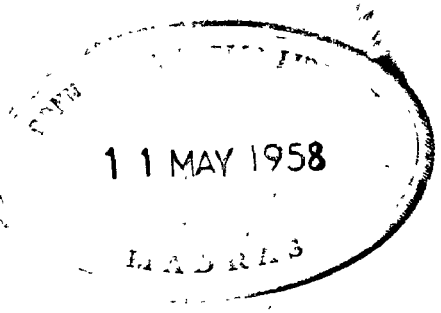


'tween ourselves

FEW months back I was at the news paper table of our hostel, its face as usual was hidden completely by the dailies and periodicals. My attention was suddenly drawn towards a column of one of the dailies which was particularly made prominent by a red pencil border. I thought it was a news pertaining to our profession. But to my surprise it was in the classified columns; then I was sure it was a "call for" for a few hundreds of vacancies in our department.

As I went through the advertisement I could not but wonder how "……few more seats in Veterinary preprofessional……" could be left vacant long after seats had been completely filled up in other courses.

Why should there be an over-whelming majority of applicants in other courses and how only forty-seven could only be selected for eighty-three seats in our course?

The authorities reply to this by saying that there is a downward trend in the number of applications in all courses due to the newly introduced system of education. They add that the number will increase in course of few years, when the people get accustomed to the newly adopted systems.

But it is felt that this fall in the number of applicants specially to our course is quite unproportionate as compared to the ignorable decrease in other courses. This is not necessarily due to the new system of education; but is the unattractive nature of our profession which has shown itself out in this form.

The public cannot be attracted by mere advertisements in papers; increasing the pay scales and making the post of Veterinary Assistant Surgeon Gazetted are two of the many essential factors which should seriously be considered.

We are well aware of the fact that India is not as much advanced in the field of Veterinary and Animal Husbandry Sciences as her Western counterparts, because Research here is not as intense as it is there.

Our Research is mainly confined to handful of laboratories and institutions. To put our country on the map of prominence we need every man of our profession to be a sincere research worker. And only for this reason we need men of *real interest* in our profession. This at no cost can be instilled in a student who "comes to this profession because he could not get seat anywhere else".

Many young men and women would be interested in our field and carrier some of whom may become Collosus, *if they enter* but the absence of *attraction* drifts them to a shore other than that of ours.

The formation of All-India Veterinary Council has fullfilled the long asked for demand.

The senate of the Madras University has approved the regulations and sylabi for the degree of Master of Veterinary Science in Animal Husbandry and Veterinary subjects

to be started in our college from next academic year. It is our earnest wish to see our *almamater* soon become the Southern Regional Centre for post graduate education in Animal Husbandry and Veterinary Subjects.

The number of post graduate students who have registered for the degrees of M.Sc. and Ph. D. has reached a maximum this year about fifteen. We hope and wish that each year should break the record of previous one, in this aspect also.

Though the bustle of the workers busily engaged in building construction made us uneasy during some class hours; but it is a pleasure to watch the noisy concrete mixers helping our buildings to rise up fast. Our Hostel buildings which are nearing completion would be ready for occupation before the end of 1958.

The proposal of some more buildings for our college, which are expected to come up in a short time will in no doubt shift our play grounds to first floors.

Our College magazine which commands a greater amount of respect has been substantially improved this time by way of its form and material it is made up of, we hope that it will be liked by all.

As regards the articles contained in it we made a greater effort to make the students contribute more. The first year students do not feel that they are also eligible for contribution to the magazine It is with regret we note that there was no first year to contribute to the Annual. When other students are able to write about the subjects they read, the junior mosts should also try to write something interesting from the subjects they study. We expect a better response next year.

The ban on foreign imports affected us also. Most of the firms who advertise in our magazine being importers we could not have as good a response as was expected.

* * *

It is a matter of pride to have amongst our staff the first Indian, F.R.C.V.S.—the highest diploma awarded by the Royal College of Veterinary Surgeons of England. Professor M. N Menon as he is commonly known is already B.V.Sc., M.R.C.V.S., A.I.D.I. It was his thesis on "ennucleation of spirocerca nodules from oesophagus of dogs" a thoracic surgery research work, which gained him the diploma. The distinction is to the college as it is to the department and Professor of Surgery.

We are very glad to have Dr. Stark the T.C.M. adviser—Professor attached to this college and Dairy Production Adviser, Madras, in our midst. He is Professor of Bacteriology, Cornell University and now on leave from the Tennessee State College.

Dr. Umamaheswaran, V., has joined us once more after qualifying for the degree of Dr. Medicine Veterinary from (Hannovar) Germany.

Dr. Govindan Nayar, K. N., our professor of Physiology is now in U.S.A. seeking advanced training in his subject. We are glad to invite Dr. Rathnasabapathy as Nutrition Research officer in place of Dr.Venkatachalam G., who has been transferred as Professor of Animal Husbandry, Agricultural College, Coimbatore.

Congratulations must go to Dr. Satchidanandan, V., for having been appointed as lecturer in Physiology Department and to Dr. Balaprakasam of Bacteriology department for having been appointed as Mastitis Research officer.

Felicitations are to Dr. Raghava Reddi and Dr. Prabhakaran, T., for the Panikkar medal the former has secured and surgery and genetics medals the latter has made himself

eligible for.

We invite with pleasure Dr. Mustafa Farahangfar, D.V.M. (Iran) an India Govt. Cultural Students Fellowship holder doing Research in Nutrition.

Mr. Sreedharan, V.P., who has represented the 'Varsity Foot-ball team for the last three years has been rightly selected as its Vice-captain.

Mr. Md. Ghousullah is representing the 'Varsity boxing team also for the third time.

Mr. Solomon, R., has been selected to the 'Varsity hockey team.

Our congratulations are to them.

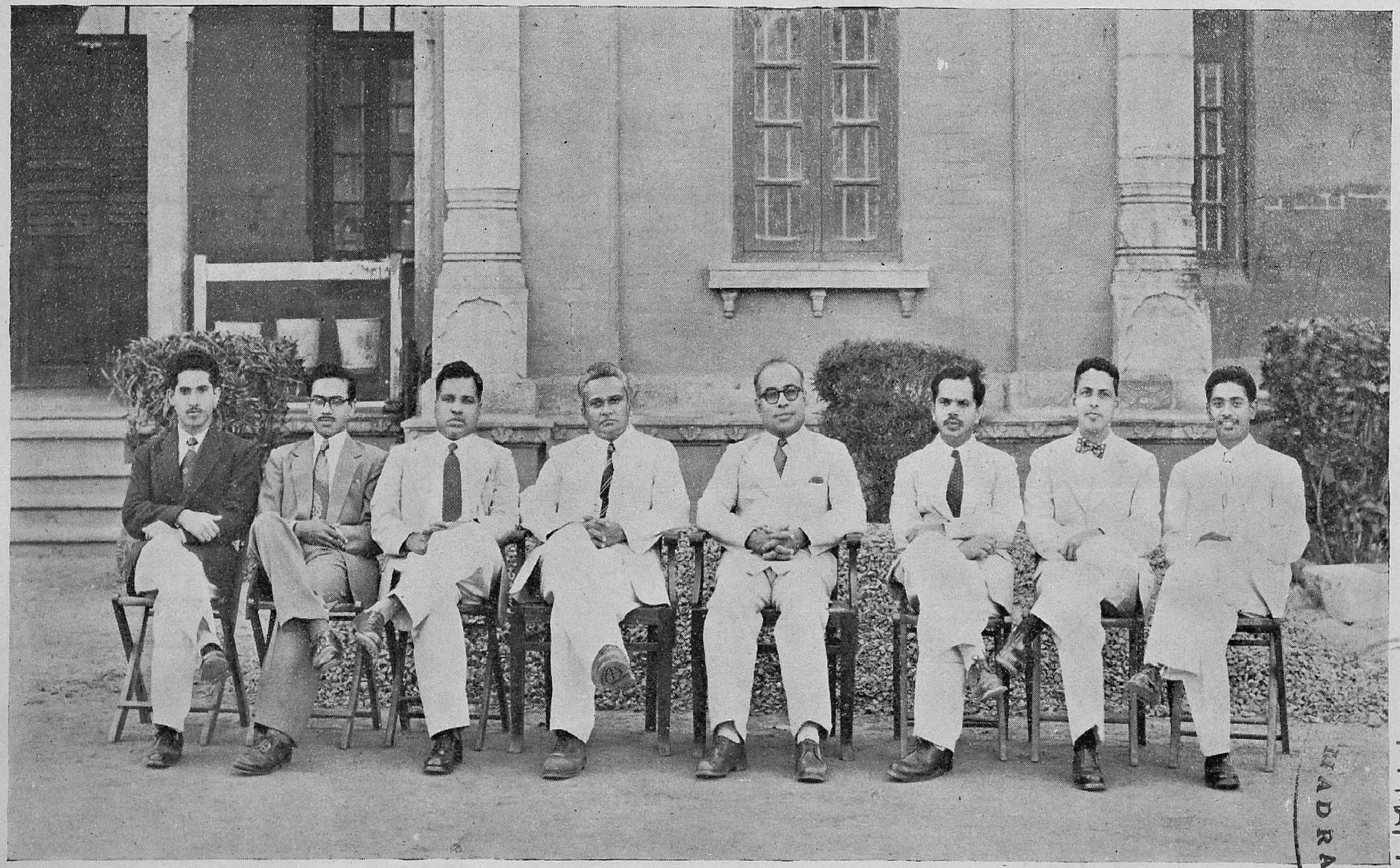
Mr. Basheer Ahmed Syed, our Student Chairman has been elected as the Vice-President for the All India Veterinary Students' Association.

Mr. M. G. Narasimhachari, Assistant Secretary of our Association and Mr. K. M. Subramaniam, have been elected as President and Secretary of the Madras Students' Adult Education Council, an inter-collegiate body.

* * *

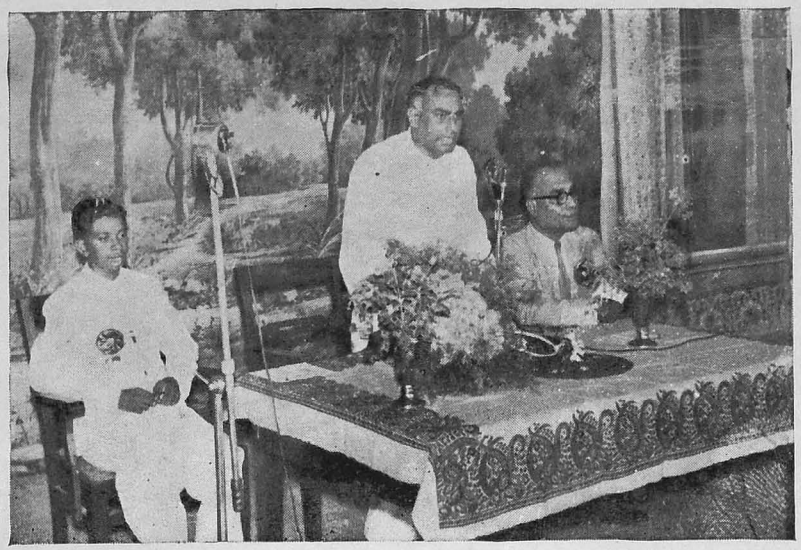
We began working for the magazine from November last. It is our pleasant duty to thank the President, Dr. Bertie A. D'Souza and the Editorial Board for the valuable suggestions, and Dr. K. P. Chandrasekharan Nair, our Vice-President for making our work light.

Madras Veterinary College Annual Editorial Board 1957—'58



Left to Right : John, K. J., *Associate Editor* ; Syed Hameed Hasan, *Editor* ; Dr. Velayudhan Nair, C. K., *Adviser* ; Dr. Mariappa, D., *Adviser* ; Dr. Bertie A. D'Souza, *President* ; Dr. Chandrasekharan Nair, K. P., *Vice-President* ; Sri Anantharaman, M., *Adviser* ; and Basheer Ahmed Syed, *Student-Chairman*

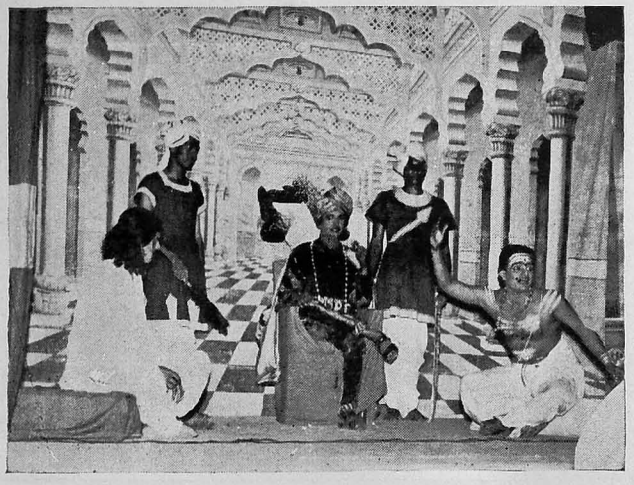
Graduates at tea
" Very camera conscious "



Mayor Addressing the Graduates
" While the Chairman looks at them "

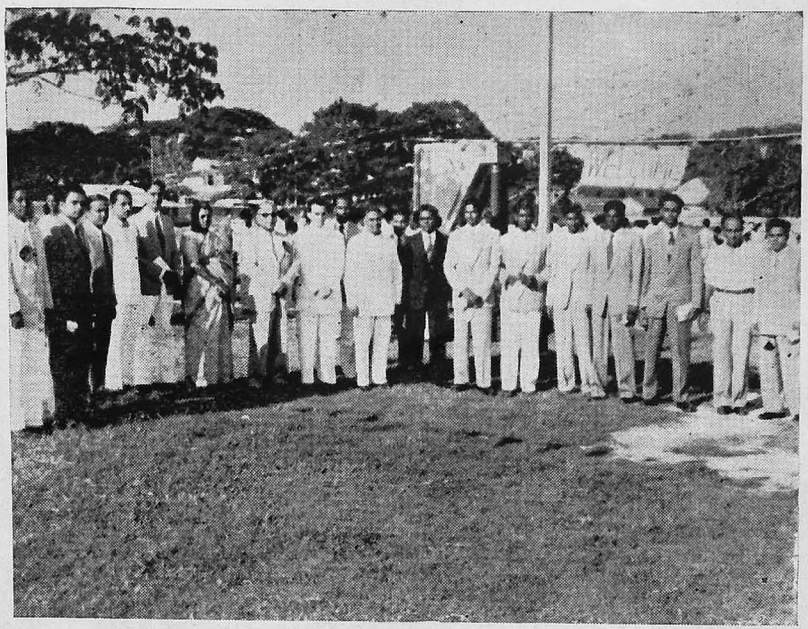
Krishna Reddy, K.

Dr. Raghava Reddi (left)
Panikkar gold medalist
" Thanks to anti-sedatives "



Mukundan, G.

Malayalam Drama
" Thai thak tha says Kesava "



The new Graduates
" At last it is all over "

Dr. Bertie A. D'Souza,
Principal, Madras Veterinary College

From the Principal's Desk

THE PRESIDENT, LADIES AND GENTLMEN,

WE celebrate today our Sports and the 54th Annual Day of this College. With pleasure, I extend a very warm welcome to the guests, staff and students this evening.

It is indeed a privilege for me to welcome among our midst Sri Vaidyanathan, Secretary to Government. Despite pressing engagements, your goodself have made it convenient to preside over our function. This shows the interest evinced by you in the promotion of Veterinary education and the advancement of Animal husbandry activities in our country. On behalf of the students, Professors and Lecturers and on my own, I thank you, Sir, and welcome you in our midst. It is traditional to review the work of this college on an occasion like this specially organised for the benefit of the public, who are entitled to have a knowledge of the work done here which is the basis on which the progress of the country's animal husbandry depends. I solicit your indulgence for some time while doing so.

Thanks to the great founder of this college who possibly was a foresighted visionary; this college is rendering great service to the State and has earned great reputation as is significant from the number of students from all over India and the many foreign students.

We are very thankful to the T.C.M. for its assistance to strengthen this institution, in teaching and research. Order for books and equipments to the value of about $ 50,000 is approved and they are expected to be received. One member of our staff has been sent to America for training and the question of sending the rest of the senior teaching staff is under consideration. I hope that it will be possible to increase the number of participants for this college, so that by the time the T.C.M. University of Tennessee contract is over, all the senior members of the teaching staff of this college would have had the needed experience of the way things are done in American sister institutions. We are happy to welcome and have among us Professor and Mrs. Stark. Dr. Stark is the T.C.M. Adviser—Professor attached to this College. Dr. Stark has already been recognised as a University Professor and he has taken three members of the staff to be his under-study and is directing research studies.

The recognition which this institution has earned through its high standards and good traditions have prompted the Government of India on the recommendations of the Indo-American Committee that inspected this College, to upgrade it to the status of the Southern Regional Centre for Post-graduate education in Animal Husbandry and Veterinay subjects.

At the recent Academic Council, the University has approved the regulations and course of studies for the degree of M.V.Sc. in Animal Husbandry and Veterinary subjects to be introduced from 1958–59. This is yet another remarkable milestone in the history of this College, as it seeks to provide Post-graduate

education and research as an integral part of the activity of this College than in the past. Due to the absence of such facility in this country, members of the profession were not able to secure a Post-graduate degree in the different subjects of Animal Husbandry and Veterinary Science, except far a few who had Government support or the means to go to foreign countries to secure the same. Thus, this College which has given the leadership in combining teaching with research and University education to the whole of India, continues to retain its leadership in many areas of activity.

The building programme is coming up steadily and it is my hope, that by now in the next year, the six departments for which it is intended, would have gone into the new buildings. Yet, there are the other departments that still will have to be provided with more and better accommodation. Sanction for the construction of buildings for the Pre-professional course is yet to be obtained from Government. If this is not done, the Madras Veterinary College will be singled out not to have the Pre-professional course run in this College, as running of the Pre-professional courses in Medicine, Engineering and Agriculture, seems to have been already accepted by the Government and separate buildings are already under construction. The former two have commenced the Pre-professional courses in their respective colleges. Meanwhile the University is insisting that within the next year or so, this College must take over the responsibility to run the Pre-professional course for Veterinary and Animal Husbandry students to give the students the proper bias in the Pre-professional classes. It is, therefore, hoped that Government sanction will be received to put up new buildings and the appointment of additional staff, the cost of which is Rs. 3 lakhs only, (far less than what has already been sanctianed to any other professional college in the State.)

At the recent meeting of the Principals and Directors at Dehli, to consider the proposals for the Post-graduate education, the Government of India had agreed to provide substantial assistance for buildings and staff. It is my hope the authorities will accept this assistance and will do everything possible to expand the facilities in this College for Post-graduate teaching and research and also to upgrade the teaching positions in this College to what is obtainable in other similar institutions in the country.

Courses run in this College : 1. This College is primarily imparting education of the B.V.Sc. standard, as recognised by the University. The admission to the B.V.Sc. degree course was fixed at 80 in 1949. Owing to the dearth of Veterinarians to implement the serveral Animal Husbandry schemes of the SecondFive Year Plan, the Government of India through the Indian Council of Agricultural Research, required us to increase the admissions in this College in order to secure a large number of technical personnel. And in doing so, they came forward to render financial assistance to strengthen this College to take the increased teaching load. From the year 1955–'56, the admissions to this College were increased from 80 to 100, followed up by a further increase from 100 to 120 in 1956–'57. In the current year 1957–'58 also the number of admissions has been 120. Though the admissions have been increased in the last three years and additional staff, equipments were provided for, we are still in the way of construction of buildings necessary, as required by the University regulations to regulate the standard of efficient teaching and the maintenance of the

scientific discipline necessary for the College to adopt the syllabus of the B.V.Sc. degree course, which is very comprehensive in nature covering all the Veterinary and Animal Husbandry branches of studies. The singular feature is, the regulations require apart from the regular training in this College, that every student should put in practical farm work for a period of $6\frac{1}{2}$ months on different livestock farms in the State.

The College has so far produced 690 Degree holders over and above the existing Diploma holders who would be double this number.

2. We have been conducting the Stockmen course of 11 months duration since 1954-55. Only 55 students were first admitted to this School in Hosur Cattle Farm centre of Salem district; in 1955-56, the admissions was increased to 100. In order to meet the increased demand for this personnel two more additional Schools were opened in 1956-57—one at Pudukottai of Tiruchirapalli district and the other at Orathanad of Tanjore district—each of these Schools having 50 students in the roll. This course is intended to give a working knowledge in the subject of Veterinary Science with special emphasis on Animal Husbandry so as to enable the successful candidates to perform the duties of the Stockmen. Candidates seeking admission should be between 17 to 22 years of age and should have passed the S.S.L C. examination.

3. There is a Flaying school attached to this college, wherein training in the art of scientific flaying is imparted to professional butchers and amateurs who wish to take to scientific flaying as a profession. The course has been designed with a view to reduce the national loss in the Leather Industry due to faulty flaying and to help the nation's earning capacity by producing quality hides and skin for the export trade.

The duration of the course is 3 months and students above 18 years of age possessing a knowledge of the regional language are admitted to this course. There are also auxiliary centres in the moffusil to cater to the requirements of the other urban areas. So far 386 (338 plus 48) candidates have been trained, but it is regrettable to note that many of them remain unemployed. It is time that steps are taken to absorb these trained men to do the work for which they are trained lest the financial commitment on this side of training met from the public exchequer is not considered a waste. It is also observed that trained flayers are not to be employed in the newly opened flaying centres established by the Industries Department, simply because they are not trained in carcase utilisation. As carcase utilisation is of minor importance than flaying, it is my hope that the Industries Department will relax this qualification and absorb these men in the newly opened flaying centres, where proper flaying must be done on the fallen carcases. Meanwhile, I am endeavouring to see that the flayers are also trained in carcase utilisation.

4. A Post-graduate course in Veterinary Parasitology, sponsored by the Indian Council of Agricultural Research, is run for the third year in succession with financial aid from the Government of India. The duration of the course is one academic year and students from different States are admitted to this course. At present four students are undergoing the Post-graduate course in this branch of study.

Scholarships: Only five scholarships are available for award to deserving Scheduled caste and Scheduled tribes and other socially and educationally backward classes, for each

year of the B. V. Sc. degree course. The value of the scholarship is Rs. 40/- per student per month and is tenable for the whole period of the course. Besides scholarships are also awarded by the Harijan Welfare Department and the Government of India to candidates belonging to Scheduled castes, Scheduled tribes and socially and educationally backward classes.

The students of the Scheduled castes and Scheduled tribes and socially and educationally backward classes, who are undergoing the Stockmen course, are paid stipends, the former at the rate of Rs. 35/- each per mensem and the latter at Rs. 30/- each per mensem.

The students undergoing Flaying course are also paid stipends. The value of the stipend is Rs. 25/- per student per month, if held by amateurs whereas it is Rs. 10/- each per mensem in the case of butchers.

Coming back to the professional education, I am to state that it is of paramount importance to this profession to institute Post-graduate education in this College, to help worthy young men of the profession in this direction. I am happy to mention here that the Government of India, Ministry of Education, have assigned two Senior Fellowships of the value of Rs. 200/- each p.m. for fundamental research in this College. One of these Fellowships has been allotted to one staff scholar working in the Animal Nutrition department, while the other is attached to the Department of Pharmacology. This is again the first Veterinary College to be accorded this recognition by the Government of India.

During this year, the Royal College of Veterinary Surgeons of Great Britain had conferred their highest Diploma F.R.C.V.S. on one of our Professors, in recognition of the higher order of work done in the department of Surgery of this College, and the thesis submitted thereon. This is a distinction to the Professor of Surgery, as it is to this College, in that, he is the first Indian to have secured this qualification and this College, the only College to have had the privilege to obtain this recognition of the Royal College of Veterinary Surgeons through the work done here. This year records the highest number of candidates registered—about 15—for the Degrees of M.Sc. and PH.D. from this College, for the different subjects of study. A research fellow has completed his studies for the PH.D. and two others have submitted their theses on completion of their works for M.Sc. Dr. Farhangfar of Persia, has joined this College for Post-graduate studies in Animal Nutrition under the Government of India Cultural Scholarship Scheme.

Prizes and Medals : The following are the Endowments available in this College for the award of prizes and medals for the encouragement of the learning of Animal Husbandry and Veterinary subjects in this College :

1. Dr. R. Swaminatha Iyer Memorial Prize, for Surgery. ... Rs. 2,000/-
2. Sri N. Kullamma Naicker of Neikkarapatti Estate Prize, for Dairy Science. ... Rs. 2,000/-
3. Sir Dorabji Tata Prize, for the alround best student—by Sir Dorabji Tata Trust. ... Rs. 3,000/-
4. Rao Bahadur P. Swaminatha Iyer Prize, for Genetics—by the Madras Race Club. ... Rs. 3,000/-
5. Dr. A. Srinivasan Prize in his name being administered by the Principal, Madras Veterinary College. Rs. 2,000/-
6. Dr. Panikkar Memorial Fund—award of a medal. ... Rs. 2,000/-
7. Dr. and Mrs. Ratnam—Award of a

medal to Final year student ranking first in the subjects of Medicine and Surgery put together. ... Rs. 2,500/-

8. Dr. Wilson award of prize for Meat Inspection. ... Rs. 2,000/-

These Endowments valued at Rs. 18,500/- with the University have now relieved me of that heavy feeling which used to creap for want of prizes to be awarded to deserving students of our Faculty at the University Convocation until now.

Examinations : Out of 88 students who took up the B.V SC. Final examinations during the year under report, 77 students came out successful.

Staff: The staff of this College consists of 11 Professors, 11 Lecturers, 46 Asst. Lecturers, 2 House Surgeons, 6 Demonstrators, 3 Research personnel and one Regional Sterility Officer and other non technical staff. The post of one Agricultural Officer sanctioned to impart instructions in Agronomy and Agricultural Economics, and a supernumerary post of Lecturer in Physiology sanctioned in the place of Sri K. N. Govindan Nayar deputed for Post-graduate education in America under T.C.M., are vacant. The posts of two Lecturers, five Asst. Lecturers, three attendants were sanctioned this year to take increased load of teaching in the third year of increased admissions.

Buildings : Consequent on the implementation of the programme of increased admission of students to the B.V.Sc. degree course, the problem of accommodation for class rooms, furniture, laboratories, staff, etc. has grown very acute. Appreciating the difficulty, the Government have sanctioned the construction of a three-storeyed building for the location of six non-clinical departments. The Honourable Minister for Finance, Sri C. Subramaniam laid the foundation stone last year and the building is now under construction. The new hostel buildings are now under construction and the special P.W.D. is endeavouring to place them at our disposal as early as possible.

The construction of X-ray block to house the new X-ray plant is still under construction, even though the work was taken up a year ago. I hope it will be handed over before the close of the current financial year.

Hostel : Inspite of the endeavours made to relieve the congestion of the hostel, no satisfactory solution could be found. As an interim relief the temporary structures used by the military department were put into use after execution of special repairs, etc. to accommodate about 50 students. However the other Asst. Warden's quarters has not been taken up for execution even though over two years have passed since proposals were accepted.

Library : There is a library attached to this College ; and attempts are made in every direction to meet the increased library requirements of under-graduate and post-graduate teaching. The Library Inspection Committee of the Indian Council of Agricultural Research visited our Library under the Chairmanship of Dr. L. Shaw and suggested ways and means to improve the present facilities. The library is kept open from 8 a.m. to 8 p.m. on all working days, to enable the students and the staff to avail themselves of the library facilities to the maximum extent possible. It has become now necessary to provide additional building space and furniture in the library to provide for the large number of students and staff who are making use of the library.

Hospital : The College hospital continues to attract a large number of cases to its Equine, Bovine and Canine clinics. This is

the only hospital recognised by the University for giving clinical training to students of this College. An operation theatre has been constructed ; one Vinsot's operation table for large animals has been received and is due for installation under special arrangements, for which sanction of higer authorities is awaited.

The total number of cases treated both as in and out patients during the year under review is 5,825 Bovines, 202 Equines, 9,914 Canines and small animals. Total Receipts of the hospital section is Rs. 20,246/-. There is also a Board of Honorary Visitors for the hospital, whose members pay visits to the hospital as frequently as possible and give their valuable suggestions for further improvements. The Board of Visitors has done a valuable service in improving the working facilities in the hospital.

There is a motor ambulance van for the transport of sick animals to and from the hospital and it is popular in the city. There is a shoeing forge attached to this hospital mainly intended to give practical training to students in the art of scientific shoeing and most of the Government animals are shod in this forge.

Laboratories : Considerable quantities of specimens and other materials are received for diagnosis from the field staff of this State and also from other adjoining States. This diagnostic work is as important and useful to the college as it is to the field staff in the control and prevention of livestock epidemics.

In planning ahead, every endeavour is made to train the junior members of the teaching staff in the respective subjects to create a reservoir of trained men to draw from, for teaching and research in the above departments for the future.

Animal Husbandry :

Breeding bulls : There are 11 breeding bulls stationed at this College for stud purposes, consisting of 1 Ongole, 6 Sindhis, 3 Murrahs and 1 Jersey. Some of them are used for natural service while others are used for artificial breeding work.

The Nutrition department maintains a demonstration fodder plot wherein different fodder crops are raised for research and instruction purposes. Research on preservation and storage of fodder is in progress.

Poultry unit : The poultry unit attached to this College is maintained purely for experimental and instructional purposes of students in poultry production and its developments. The R.I.R. breed is maintained. Work on sire index is in progress. The experiments with the country fowl and cross breeding experiments undertaken in this unit are yielding good results.

The number of birds in the unit at the beginning of the year under report was 439. During the year under report, 12,483 eggs were collected of which 11,028 were sold to the public, besides 332 eggs to the different departments of the college ; 668 chicks were raised and 95 birds sold for breeding purposes ; and 136 birds transferred to Poultry Research Station and other sections of the college, etc.

With a view to meet the demands of breeders, chicks and birds of different ages are also sold along with eggs for setting. The strength of the flock is now 464 of all ages, besides some country birds and crossbred ones.

The problem of Avian Leucosis Complex in fowls is under investigation. In this connection, additional runs with necessary complements were put up.

Madras Veterinary College Association : The

Madras Veterinary College Association continues to carry on its work very satisfactorily. Under the auspices of the Association, all extra-curricular activities of this College are carried out and the year under report was busy and active as usual. Cinema show was held to augment funds for our social service work under the Association.

The Planning Forum was inaugurated for the first time this year, and the Forum held four meetings during the period. The Planning Forum has now actively taken up the Small Savings Scheme drive.

College bus: A new students' bus is available.

Ambulatory clinic : It is necessary for this College to have an ambulatory clinic to carry on extension work in the villages around the city. The Government have accepted this proposal and sanctioned the conversion of the mobile van of the Veterinary Disease Investigation Officer, Ranipet, into a clinic.

Sports : Due to the building construction work going on in the College and the play grounds encroached upon, our students did not get as much facility for games this year as in the past. However, the college took part in the Inter-Collegiate competitions in Hockey, Foot-ball, Cricket Boxing and Volley-ball and acquitted itself creditably.

Our Hockey team was the Runners-up in the Stokes Shield Tournament. V. P. Sridharan was appointed Vice-Captain of the Madras University Foot-ball team. R. Solomon was selected to play in the University Hockey team. Md. Ghouse-ullah continued to represent the Madras University in Inter-University Boxing.

Professional course : As usual the selection was made for the year from among the candidates who were interviewed by a Committee. Out of 212 candidates interviewed 85 were selected for B.V.Sc. (coming from Madras State).

Pre-professional course : The same Committee interviewed candidates for the Pre-professional course. For 83 seats available, 47 candidates were selected and 2 candidates have been sent by the Government of India. These candidates are prosecuting their studies—Men in the Loyola College and Women in the Queen Mary's College.

In conclusion I am very happy to express that the college is progressing in all directions of teaching and research in the field of animal science for the advancement of Animal Husbandry in this State.

The conduct and discipline of the students have been very satisfactory. All this was made possible in the year only with the close co-operation of my teaching and ministerial staff, to whom I express my thanks.

To the Sports Secretary and the Physical Director, I am to express my appreciation for their good work in the field of sports and for the successful get-up of this function.

Circumstances

People are always blaming their circumstances for what they are. I don't believe in ciumstances. The people who get on in this world are the people who look for the circumstances they want, and if they can't find them, make them.

G. B. S.

There are no circumstances, no matter how unfortunate, that clever people do not extract some advantage from ; and none, no matter how fortunate, that the unwise cannot turn to their own disadvantage.

La Rochefoucauld

Dr. Wilson, F. D.
Head of The Departments of
Meat Hygein and Flaying

Turtles and their Slaughter

THE turtles which belong to the Reptilian family are essentially pelagic in habits. The only time they come to land being when they lay their eggs. They are met with in all tropical and subtropical seas—Their limbs taken the form of paddles, the front pair being much larger and more pointed than the hinder ones. The shell is rather flat and the carapace is never united with the plastron at the sides.

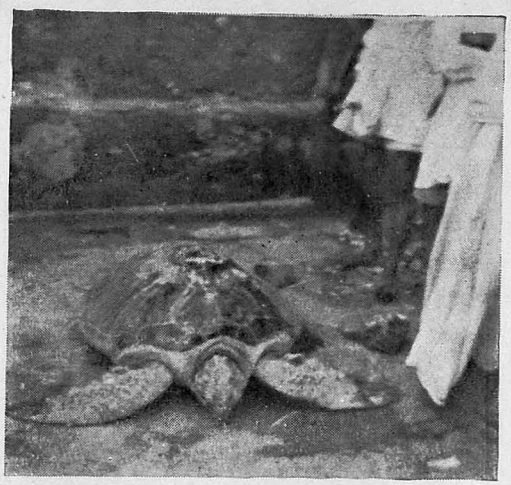
Of the different species of turtles the largest is the leathery turtles, leather back or luth which is said to attain a length of eight feet and a weight of 1500 lbs. The general colour of the reptile is dark brown, though sometimes it is decorated with yellow. It occurs cheifly in the tropical region of the Atlantic, Indian and Pacific Oceans—Its flesh is coarse and hard but it is eaten by the natives in some parts of the world.

The typical or true turtles comprise the hawksbill turtle, the green turtle and the logger-head turtles of which there are two species. "Tortoise shell" for frames is obtained from the first. It receives its name from the pronounced beak-like termination of its laterally compressed upper jaw. It is cheifly found in the Indian and Pacific Oceans. Its shell which rarely exceeds 3 ft. in length is covered with horny, shields beautifully marked. An adult turtle is said to produce 10 lbs. of tortoise shell. The flesh of this turtle is not appreciated as an item of food but the eggs are greatly esteemed for serving at table.

Dr. Frank D. Wilson, G.M.V.C., B.V.Sc. apart from describing the complete process of slaughter has given very interesting information about reptiles and the modes of catching turtles.

The green turtle, so called because of the green color of fat has long been associated with the famous turtle soup served at banquets. This turtle is similar in appearance to the hawksbill turtle but can be distinguished from that by the absence of the pronounced beak like extremity of the upper jaw. Moreover the horny shields of the carapace do not overlap, but join one another at the edges. The shell has no commercial value. The green turtle grows to a slightly larger size than the hawksbill turtle about 4 to 5 ft. in length. The author possesses a carapace measuring $3\frac{1}{4}$ ft. by $2\frac{3}{4}$ ft. and a circumference of $9\frac{1}{2}$ ft.

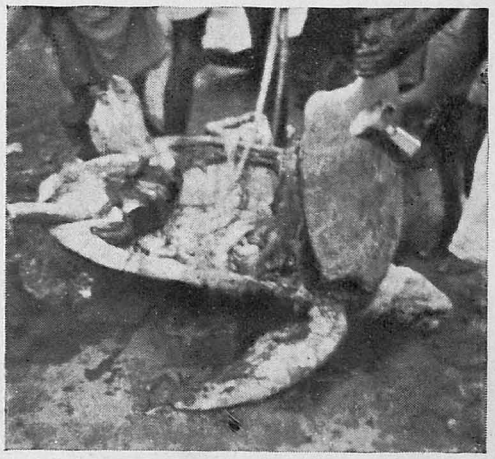
The food of the green turtle consists of fish and seaweeds. The other types of turtles are carnivorous, feeding exclusively on crustaceans, molluscs and fish. These turtles are caught by harpooning or by nets and sometimes by fishermen lying in wait and catching them when they come out to lay their eggs or when they are returning to the sea after having accomplished the task. The turtles are turned over on their backs with the aid of a pole and the captives are unable to get right themselves to make their escape. The strangest method is by means of the sucker fish and this is followed by natives of the Torres Strait and Mowambigue. The men take to the sea with



A Green turtle

A turtle lying on its back

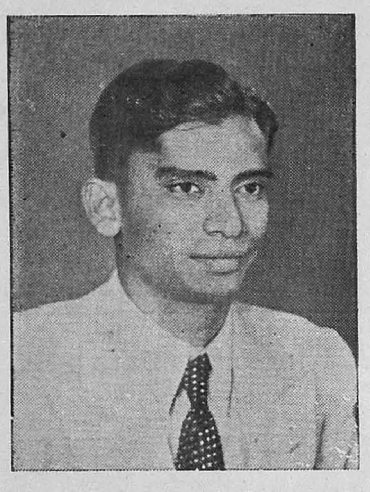
The opening cut



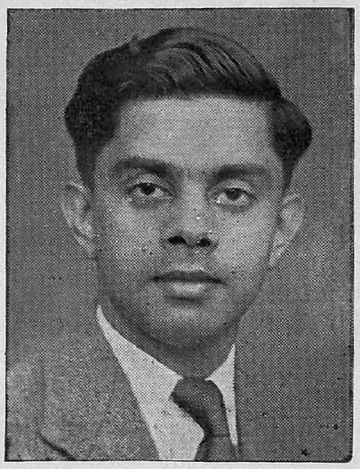
The plastron being removed

Final years at C. L. R. I. Guindy

" Vets & leather go together "



Dr. Umamaheswaran, V.
Recently returned from Germany
after qualifying for Dr. Med. Vet.
from *Hannovar University*



D r. Narayana Menon, M.
Prof. of Surgery, B.V.Sc., M.R.C.V.S
A.I.S.R.I., the first Indian to get
F.R.C.V.S., the highest diploma
awarded by the Royal Veterinary
College (Edin)

Dr. Govindan Nayar, K. N.
Prof. of Physiology who is
undergoing
training in U. S. A.

Dr. Clifford N. Stark,
Dairy Production Adviser, Madras,
Prof. Madras Veterinary College
Prof. Bacteriology Tennessee University

sucker fishes in a pail. When a turtle is sighted one of the fish is taken out a line attached to its tail and it is slipped over board. The fish swims a short time but being lazy in disposition, it seeks some object to attach itself. The boat and the turtle are probably only anchorages but as men prevent the fish from returning to the boat, it has no alternative but to attach itself to the turtle. The men then haul in the line and the prize is secured.

It is this green variety that is slaughtered at Tuticorin (Tinnevely District) on Sundays between 5-30 to 8 a.m. The turtles are obtained along the east coast and are brought to Tuticorin in boats. The previous evening (Saturday) from 2 to 5 turtles of various sizes may be seen in the fish stall, all lying on their backs. At about 5-30 a.m. one is dragged to the open space in front of the stall inside the Tuticorin Municipal Market and when sufficient number of persons are congregated, the slaughter commences—These persons who come from far and near villages, even from distant towns, collect here only for the sole purpose of buying and drinking a glassful or two of turtle blood. The turtle blood is sold at 50 nP. a glassful.

The opening cut is made at the junction between the carapace and the plastron, which is soft and ligamentous, and close to the anterior flipper. The cut is then extended past the hind flipper to the tail. Anteriorly the cut is extended to the region of the head. Similarly the other half is also opened and the plastron removed. Whilst doing these operations, a couple of assistants with tumblers collect the blood and hand it over to the purchasers for drinking. The blood is usually drunk before it gets clotted and clotting occurs within 3 minutes. The blood is dark red in colour. About 30 glassfulls of blood is sold from each slaughtered turtle. Each glass would roughly contain 6 ounces of blood.

The next process is the removal of the appendages. The front and hind limbs are simply cut through; disjointed and removed. Lastly the head is severed. All through these processess, the heart goes on beating and it is pitiful sight to see the flesh also living for more than an hour or two, even though the blood supply had been cut off. The disjointed head goes on twitching remarkably and there is movement for more than an hour. This phenomena of vitality however is characteristic of all chelonians. Although the above scenes in the slaughter of a turtle are very moving and pitiable it is doubtful whether pain is felt.

It is reported that Signor Redi, an Italian Zoologist, once cut off the head of one and it lived afterwards for 23 days while another specimen actually existed for six months after its brain had been removed. The following incident will confirm that snakes also are not sensitive to pain. It occured in the snake park at Port Elizabeth, South Africa. A rat was seen perched on the back of a python, eating its flesh. After sometime the reptile slowly uncoiled itself and proceeded to investigate, bringing its head close to the rat. It did not seize the rodent but pushed it away. The rat began to soon feed on another part of the reptile's body. The rat was once more dislodged but again it returned to eat. This went on for some time until the snake got tired of protesting against being eaten and allowed the rodent to finish its meal.

After the removal of the plastron, the intestines etc., are removed. The limbs, head and tail, heart etc., are cut up and then sold in the market. The green fat on the plastron is scraped and removed and later converted

into Turtle oil which is used as a tonic. The dark yellow soft fat adhering to the intestines however are not removed. All the cartilaginous portions are cut up salted and sun dried and are exported to Germany for making soup. Sometimes salted flesh also is exported. The flesh is soft and fibrous, without marbling and is dark red in colour. The cooked flesh is quite tasty.

Many curious beliefs were held in the past with regard to the turtle. The ancient Romans believed that its blood would prevent baldness. The reptiles gall was said to cure mumps, as well as to give brightness to the eyes. However the raw blood drinkers of Tuticorin belonging to all the castes, creeds and sexes drink it for piles, chronic dysentry and uterine bleeding. The author who interviewed a few of these blood drinkers was informed by them that blood should be drunk for at least 3 days for an effective cure and that after the first drink the patients find great alleviation of the symptoms. In one case a girl of 13 years was cured of a 5 year old asthma after the first drink of blood. The girl however came the 2nd Sunday for another drink. This was the only case of asthma being cured so far. It is possible the cure may have been due to auto-suggestion.

Seizure of tortoise

"I am carrying gold in it" whispered the old man, who became intimate with a young passenger of a Paris to Madrid bound train, pointing to a small stuffed tortoise.

At the frontier post the young man revealed the secret to the inspector who thanked, seized the tortoise and went off without checking anybody else.

When the train was safe in Spain the patriot opened his trunk and parted with double the quantity of gold seized.

Dr. Alwar, V. S. & Dr. Lalitha, C. M.
Department of Parasitology

Notes of Parasitological Interest

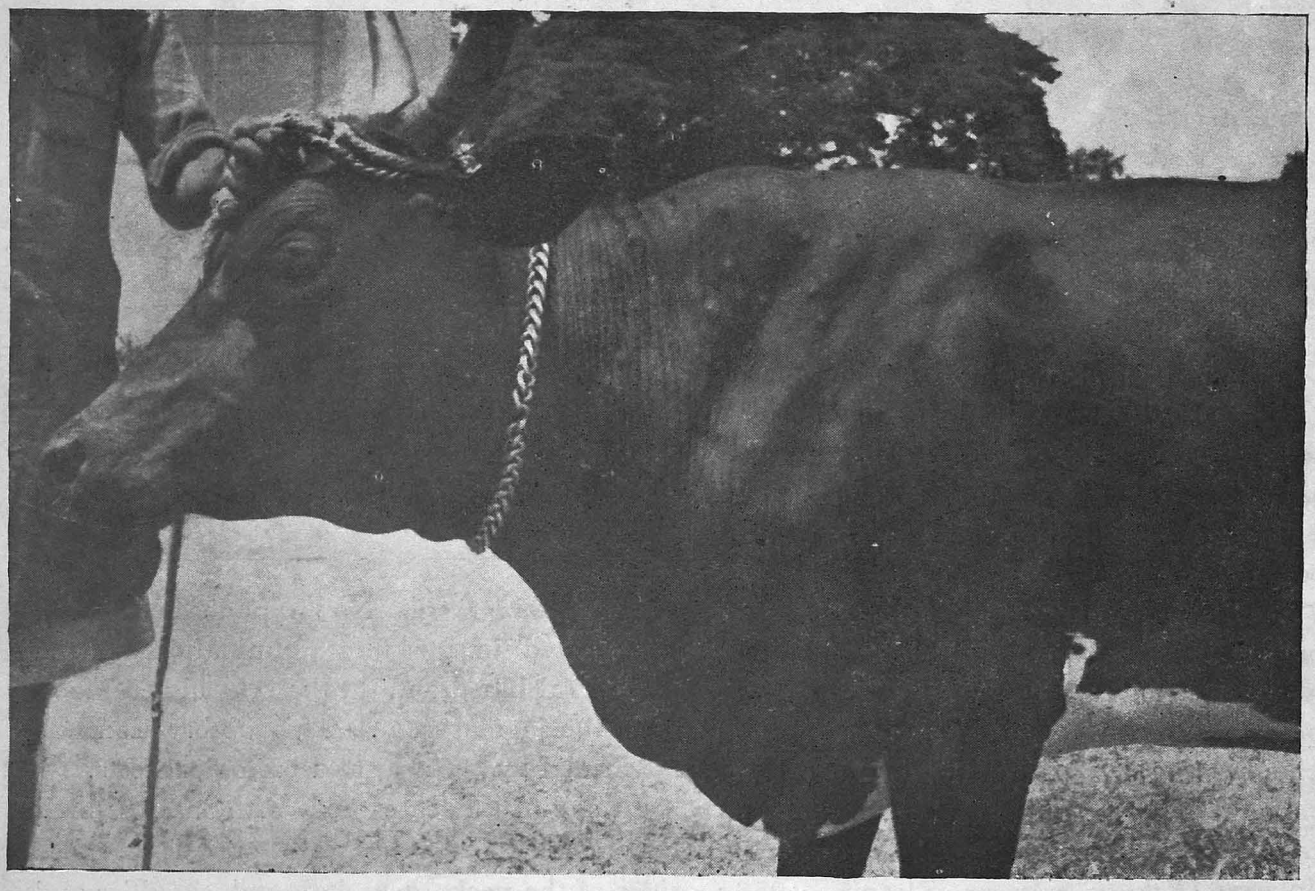
Dr. Alwar, Lecturer in Parasitology with his colleague Dr. (Miss) Lalitha has dealt with some of the interesting cases which are the basis of original research being carried in the abovesaid department.

IN THE course of routine examination of materials either received for diagnosis or collected for specific identification in this department, some interesting specimens and cases were met with and the authors take this opportunity of recording them.

Theileria sp. in the brain of cattle: Brain impression smears from a bullock (Periakulum, Madurai district), which had fits and opacity of both the cornea, revealed *Theileria* sp. and Koch's blue bodies. Surprisingly no organisms could be detected in the heart blood smears. Even though cerebral affections by piroplasms (*Babesia bigemina*, Zlotnik, 1953; *B. argentina*, Tchernomoretz, 1943; *Nuttallia minor*, Sassuchin, 1933; *B.canis*, Purchase, 1947; *Rangelia vitalii*, Velasquez, 1938; *Theileria parva*, Mettam and Carmichael, 1936; and *T. annulata*, Barboni, 1942—cited by Richardson and Kendall, 1957) have been reported in other countries, the case under report is the first of its kind in Madras State. The causative organism is considered as *T. annulata*, the pathogenic species in India.

Trypanosoma theileri in cutaneous nodules of cattle: The serosanguinous discharge from the freshly opened skin nodules of two cows attending the college hospital for some other complaints revealed trypanosomes on wet film examination. The parasites in the stained smears measured 50—63μ with an average of 55μ. Crithidial forms were also observed. The flagellates revealed the typical features of *Trypanosoma theileri*. No trypanosomes could be detected in wet film examinations of the peripheral blood and in the centrifuged blood from the jugular vein. This observation was confirmed by cultural and biological tests.

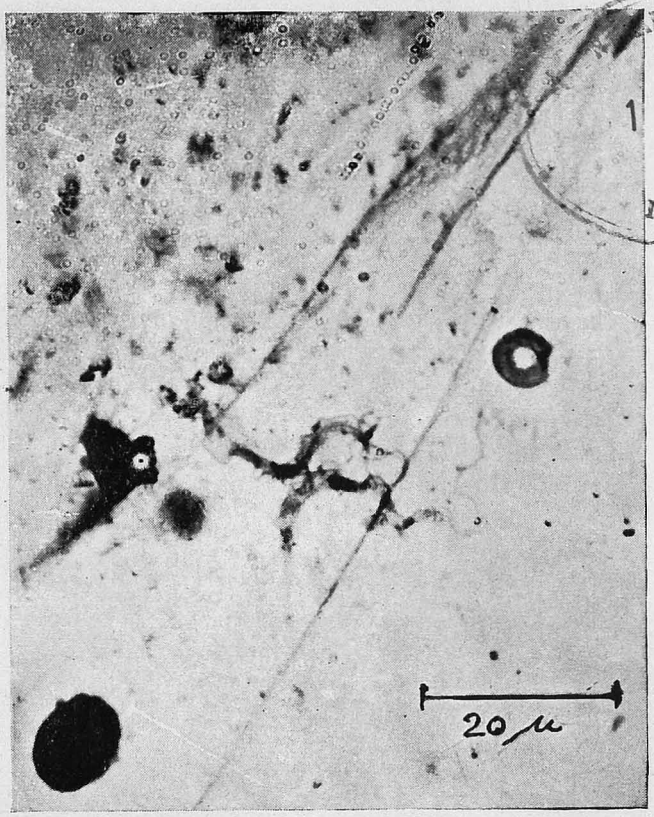
In one of the cases met with, a cross bred cow about 40 nodules were present on both sides of the neck, dew lap and shoulder and on the left flank. In the other, an Ongole cow more than 100 nodules were seen on both sides of the neck, chest and abdomen. Both the cows were said to be revealing the eruptions off and on since 3 months. The nodules were small and circumscribed with a diameter of 0·3 to 0·4 m.m. The centres of the thickened spots were denuded of hairs and the lesions looked like pustular form of demodectic mange. Neither appreciable itching sensation nor ulcers could be noticed. The only other record of a similar condition in cattle in this State was that of Rao (1943). He also considered that the trypanosomes might possibly be developmental forms of *T. theileri* and they measured only 25—35μ long. Manifestation of itching sensation and ulcerations observed by him were not noticeable in the cases under report.



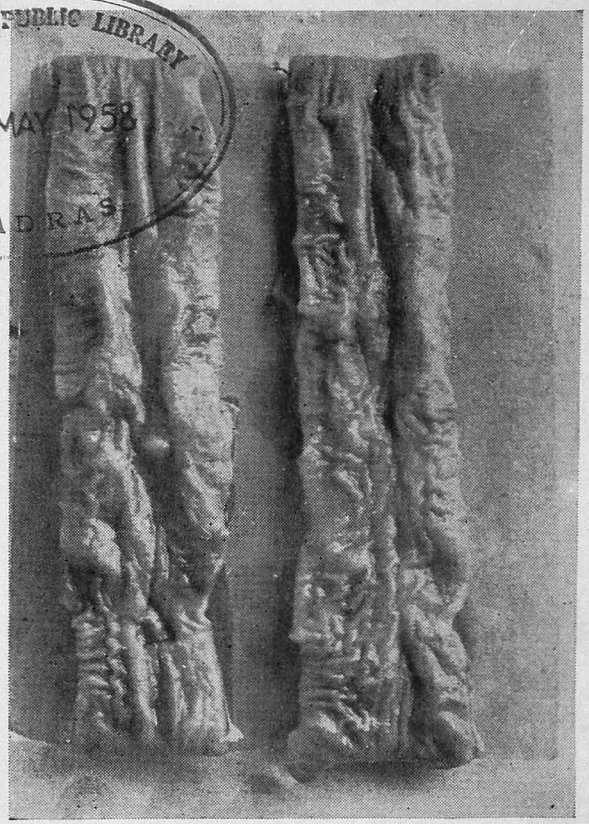
Cow with cutaneous nodules harbouring *T. theileri*.

Paracooperiasis in buffaloes : Numerous pea sized nodules similar to those described by Schwartz (1929), Sarwar (1944), and Chandrasekaran Nair and Anantaraman (1954) were observed in the intestines of a buffalo calf during post-mortem at the college. The measurements of the worms recovered from the nodules were as follows :

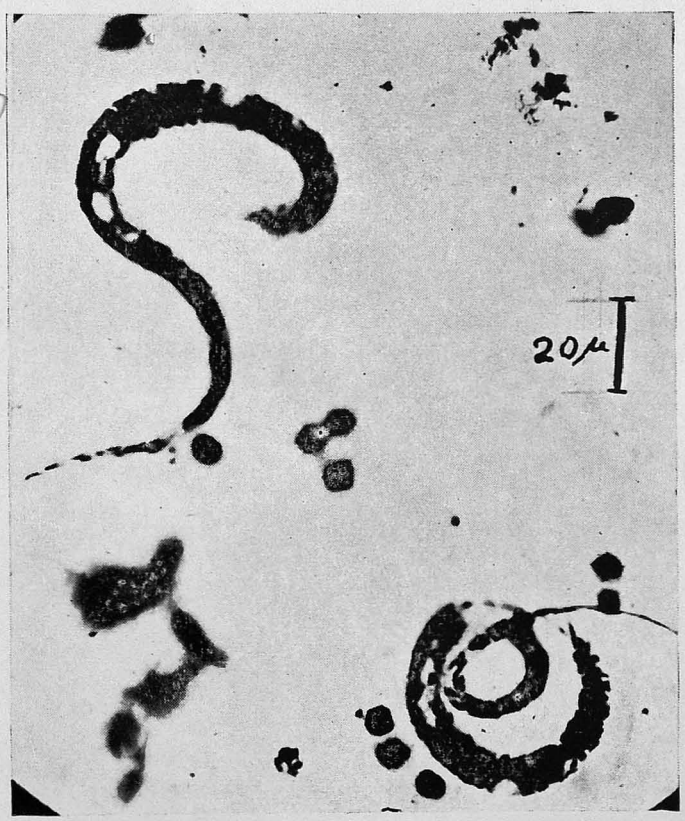
DETAILS		RANGE	AVERAGE
Width of the head	...	75—90μ	80μ
Length of oesophagus	...	445—610μ	530μ
MALE			
Length	...	5·766—6·733 m.m.	6·262 m.m.
Breadth	...	166—200μ	175μ
Length of spicules	...	315—390μ	336μ
FEMALE			
Length	...	9·483—10·3 m.m.	10 m.m.
Breadth	...	166—183μ	173μ
DISTANCE FROM THE POSTERIOR EXTREMITY			
to vulva	...	1·883—2·250 m.m.	2·103 m.m.
to anus	...	183—250μ	210μ



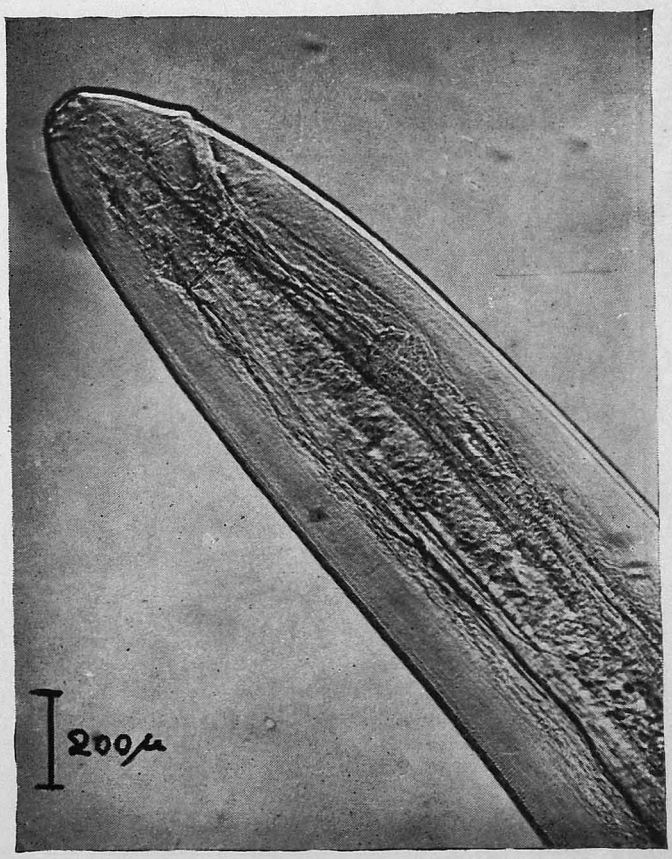
Trypanosoma theileri in nodule smear



Small intestine with nodules caused by *Paracooperia nodulosa*



Microfilariae from elephant ' Drona '



Head end of the filarid worm from elephant

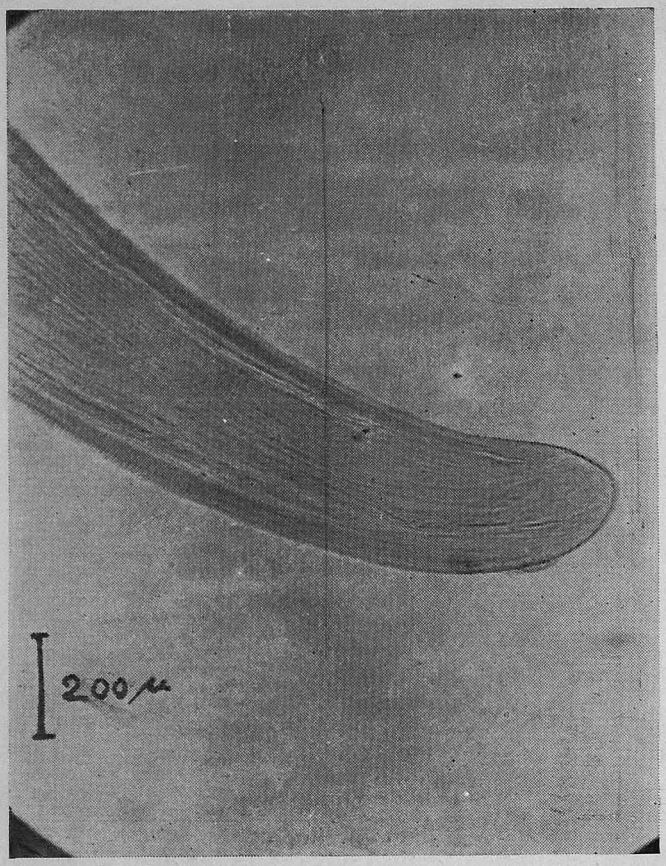


Fig. 1

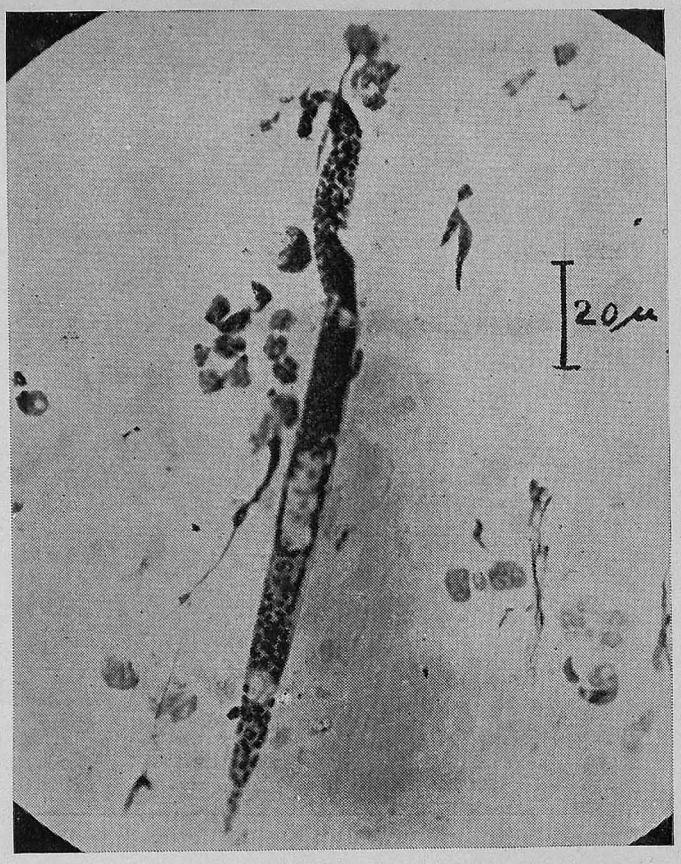


Fig. 2

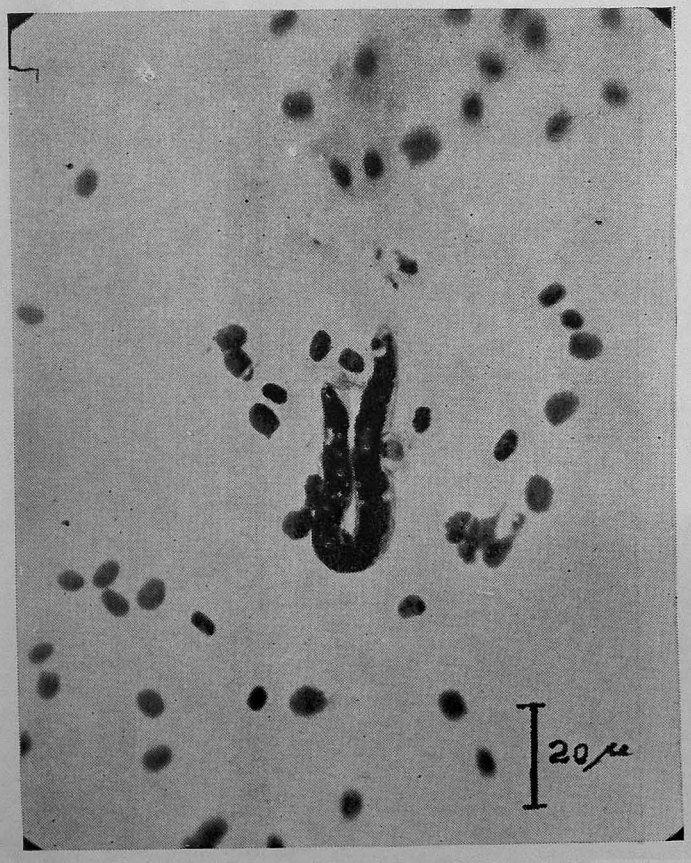


Fig. 3

1. Tail end of the filarid worm from elephant
2. Microfilaria of *Parafilaria bovicola*
3. Microfilaria from fowl

As the above measurements tally with those of *Paracooperia nodulosa* except for slight differences, it is considered that the helminths recovered from the nodules are *Paracooparia nodulosa*. This record brings to light the incidence of this helminth in Madras.

Haemorrhagic filariasis in elephants: A set of smears made from the blood oozing from the skin nodules of an elephant "Drona" from Coorg revealed unsheathed microfilariae. As this observation was made for the first time from an elephant outside the Madras State, a detailed study was made on them. Moreover the high incidence of haemorrhagic filariasis in elephants of this State was taken advantage of to make a biometric study of 200 microfilariae from 20 cases, since the original description (Ramanujachari and Alwar, 1954) was from one animal only. The measurements of the microfilariae from Coorg tallied with those from the Madras State, which were as follows :

DETAILS		RANGE	AVERAGE
		μ	μ
Total length	...	171—255	197
Breadth	...	8—11	9
Nerve ring (Distance from the anterior extremity)	...	34—58	44
Excretory pore	...	50—76	60
Excretory cell	...	66—110	95
First genital cell	...	100—158	124
Anal pore	...	137—173	161
Last tail cell	...	160—201	177

The causative adult filarid recovered from a lesion is under study and a detailed description of this interesting find will be published elsewhere.

The incidence of haemorrhagic filariasis in elephants in Coorg which is outside Madras State, points to the possibility of its occurrence in other parts of the country as well.

Parafilariasis in bovines : Though this condition due to *Parafilaria bovicola* is not infrequent in Madras, microfilariae from the lesions have not been met with so far in spite of our repeated examinations of smears from the bleeding nodules from a number of cases de Jeseus (1934) also did not find microfilariae from the bleeding nodules in Philippines.

Recently a few unsheathed microfilariae were observed by us in a smear from the outaneous nodule from a case of parafilariasis in a buffalo bull (Puttur, S. Kanara District). The absence of microfilariae in the auricular blood smear of the buffalo and the presence of the same in the smears from nodules only indicated the possibility of the microfilariae as the larval forms of *Parafilaria bovicola*.

A detailed biometric study of the above microfilariae revealed details as shown in the next page.

Description		Range	Average
		μ	μ
Length	...	196—249	214
Breadth	...	10— 13	12
Nerve ring (Distance from the anterior end)	...	49— 53	51
Excretory pore	...	68— 74	70
Excretory cell	...	114—121	117
Genital cell	...	162—172	168

Tubangui (1934) gave the measurements of the enclosed larvae within the body of the female worm as 160-190 μ x 5·26 μ ; Metianu (1949) recorded the measurements of the microfilaria in the oozing blood as 215—230 μ x 10—15 μ. Though the presence of the microfilariae in the blood from the nodular lesions was mentioned in the annual report of Indian Veterinary Research Institute, Izatnagar for 1949-50, the details about the measurements of the same were not available. As the microfilariae under report do not materially differ from the ones described by Metianu, it is considered that the larval forms encountered by us are those of *Parafilaria bovicola*.

Subsequently a similar microfilaria was detected in the smear from the oozing blood from a bull belonging to the college manifesting lesions of parafilariasis. The larvae measured 196 x 10 μ. The auricular blood smears from the same animal also revealed microfilariae, but they were quite different from the ones present in the nodule-smear, the former being 276—304 μ long with an average length of 287 μ. The location of the fixed points also varied.

Microfilariae in fowls : After the record of a sheathed microfilaria in the blood smears of a desi fowl with a concurrent infection of *Leucocytozoan* species (Ramanujachari and Alwar, 1953), three more fowls, one Rhode Island Red from Vizagapatnam and two White Leghorns from Bhadrachalam (E.Godavari Dt.) were found parasitised with *Leucocytozoan* sp. but not with microfilariae. Recently blood smears from a cock from Rapur (Nellore Dt.) revealed a few sheathed microfilariae. The measurements of the same ranged from 55—83 μ x 5—6 μ. The position of the various fixed points in relation to the anterior extremity were : Nerve ring 15—22 μ; Excretory pore 24—32 μ ; First genital cell 40—43 μ ; Anal pore 53—64 μ. The microfilariae under report were identical with the ones already met with here and the measurements of those described by Kuppuswamy (1936) in Malaya. The opportunity of a visit to Ernakulam was availed of to examine 16 apparently healthy White Leghorns in a poultry unit and it was surprising to note the infection in 6 of them with sheathed microfilariae indistinguishable from those already observed in our laboratory. The adult filarid worm of these microfilariae have not been recovered so far ; the only filarid worm recovered in India from the fowl was *Bhalfilaria badami* from the heart of a Black Minorca cock, though adult filarid worms and microfilariae have been recorded from a number of other birds (Bhalerao and Krishna Rao, 1944; Raghavan, 1957). As the measurements of the microfilariae of *Bhalfilaria badami* within the female are given as 20—24 μ x 2.2—4 μ

only, the microfilariae under description are considered as different ones for which the adult filarid worm is yet to be increminated. The large percentage of infection in fowl in Ernakulam, where the infection rate of filariasis in human beings is 7.6% is of particular interest especially in view of the fact that animal have been found to harbour the larval forms of human filarids, though the microfilariae encountered by us in fowls were comparatively very short,

Amblyomma sp. from bovines: The incidence of the longirostrate ornate ticks is not common in this State. These ticks were however collected from cows, bullocks and buffaloes. Palghat (Malabar Dt.), Sivagiri (Trunelveli Dt.), Vetaikaranpudur (Coimbatore Dt.) and Jangareddigudam (W. Godavari Dt.) were the places from where the collections were made and the largest number was obtained from the place last mentioned. Only three species of Amblyomma have been encountered in S.India (Patton and Cragg, 1913), out of the nine recorded in India (Sharif, 1928, 1938 ; Sen, 1938). Of the three (*A. integrum, A. testudinarium* and *A. crenatum*) *A. integrum* alone was found to infest calves in Madras. A close examination of our collections suggests that we are dealing with a new species of *Amblyomma,* and hence a detailed study of the same is in progress. Since these ticks have been collected from places adjoining forest areas, there is reason to suspect the possibility of some wild animals also acting as hosts for these ornate ticks and efforts are being made to confirm this possibility.

Lipoptena sp. from a barking deer: At Topslip (Coimbatore Dt.) the carcase of a barking deer just then shot was found heavily infested with Hippoboscids, which on closer scrutiny were found to belong to the Genus *Lipoptena.* As this pupipara has been encountered for the first time in Madras a detailed examination of the collections was made and it revealed certain differences in their morphology from those of the species known so far. The descriptive details of this fly will be the subject of a separate paper.

Acknowledgments. The writers thank Dr. Bertie A. D'Souza, Principal, for kindly permitting us to record the above interesting observations. Thanks are also due to Dr. C. K. Velayudha Nair, Professor of Pharmacology and Dr. K. P. Chandrasekharan Nair, Professor of Pathology, Dr. C. T. Peter of Indian Veterinary Research Institute, Izatnagar and many of our colleagues for the help given.

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(Continued on page 23)

Dr. Clifford N. Stark
Dairy Production Adviser
Government of Madras

Guest Professor's View

Doctor Clifford N. Stark, Professor of Bacteriology, Emeritus, Cornell University and now on leave from Middle Tennessee State College has been assigned to Madras Veterinary College, as Dairy Production Advisor. The Editor of the College Annual has invited Professor Stark to tell us what will be the nature of his work here.

IT HAS been my pleasure and privilege to be invited by the University of Tennessee to become a member of their staff; and to accept an invitation by the American Government and the Government of India, to spend two years in India. I am on leave from Middle Tennessee State College Murfreesboro, Tennessee. I am here on the, University of Tennessee Contract, under the supervision of Dr. Erven J. Long, our Group Leader. The only reason my wife and I have for coming to India is our desire to be of assistance to the Indian people. We hope that, in co-operation with the Staff of the Madras Veterinary College, we may have the privilege of working with Indian dairymen so as to help them to produce more milk and better milk at a greater profit to the dairymen. This can be done by doing a better job of feeding, breeding and management.

It is hoped that because of our stay in India, it will be possible for American people to have a better understanding of the customs, habits and lives of the people of India. The Indian people share with American people the strong convictions that the causes for future wars must be removed; that no one ever wins a war; and that future wars must be prevented. To accomplish this, better understandings between the Nations of the World must be developed.

The Madras Veterinary College has done me the honour of making me a Professor in their College. I have also been made a Professor in Madras University. The Veterinary College staff has unanimously elected me to a three-year term on the Academic Council of Madras University, where the future educational policies of India will be determined. The American educational policies and practices will be studied for their possible advantages to India. Three Madras Veterinary College staff members are now doing research toward advanced degrees, under my supervision. Their names and positions are: Sri A. R. Vedanayagam, Additional Lecturer in Animal Husbandry; Sri R. D. Michael, Assistant Lecturer in Hygiene; and Sri P. S. Krishnamurti, Assistant Lecturer in Animal Husbandry.

It is my belief that the training these men will get in their graduate study will have a far-reaching and helpful influence on future dairying in India.

Our Principal, Dr. D'Souza and his Staff have been very co-operative and extremely helpful to us since we arrived in Madras.

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Dr. Venkatakrishnan, R.
Dept. of Animal Nutrition

Animal Nutrition vs Reproductivity

THE tentacles of 'Nutrition' reach the realm of reproductivity of livestock as one of the major external factors. The reproductive system of animal mechanism is such a complicated field delicately balanced by different hormones, minerals and vitamins on one hand and ecological conditions and disease prevalence on the other hand.

Faulty nutrition either directly upsets the physiology of normal reproductivity or indirectly through lowered secretion of hormones deranges the normal activity leading to various stages of sterility. In dealing with cases of sterility, any treatment other than nutritional therapy will only be a short term remedy without the cause being removed.

The known components of the animal ration which bear relationship to the upkeep of normal reproductivity are : (1) Minerals, (2) Vitamins, (3) Protein, (4) Fat, (5) Balanced nature of the diet, (6) Roughage, and (7) Pasture.

I. *Minerals* :

(a) *Calcium and phosphorus :* From calculations based on analysis of food stuffs from the livestock farms having sterile animals in the herd, gross abnormalities have often been deducted in the Ca. and P. intakes, which, according to the work of Hignett & Hignett (1951) are likely to cause infertility. 50 to 60 gms. of Ca. and an almost equal quantity of P. are the U.S.A. recommended figures for a cow yielding 6 gallons of milk. Ca: P. ratio which does not lie between 2:1 or 1:2 is likely to cause impaired female breeding efficiency. Muir (1949) has reason to believe that, where the imbalance is towards the excess of Ca. the ability to utilise efficiently P, Mn, Cu and I. is impaired.

Dr. Venkatakrishnan, R., B.V.Sc. holder of Senior Fellowship of Govt. of India is doing research in animal nutrition. The name of his article is such that it needs hardly an introduction.

Ca: P imbalance causes deficiency in the secretion of anterior pituitary, lowered output of leutenising hormone which causes establishment of poor quality corpus luteum which regresses in a few weeks terminating pregnancy in abortion or resorption of the foetus. Very few natural feeding stuffs have a Ca. and P. content of more than 1:2%, so that additions of a balanced mineral mixture like churn flour is necessary to bring the ratio nearer to the ideal.

Adequate and balanced supply of P. in the ration, hastens maturity. Low P. results in temporary infertility, drops in the conception rate and also, the calving index increases.

(b) *Manganese :* The relationship between Ca, P, and Mn consumption and fertility indicates that, when the value for P_2O_5/Ca O was less than 4 and elemental manganese intake less than 0.04 gms. (Ca O, P_2O_5 and Mn. al expressed as gms/100 lb body weight), then the conception rate based on the first service was 48%; whereas outside this range the conception rate was 77%.

Hignett (1941) drew attention to a type of bovine infertility associated with heavy liming

of pastures and attributed it to manganese deficiency. There is spectacular improvement in the fertility of bulls on heavy liming pastures, when manganese is orally administered. According to Munro, the feeding of manganese in an optimun level to heifers in the livestock farm which had anoestrus raised the conception rate from 25 to 100%.

(c) *Copper :* According to Munro, subnormal level of copper in heifers is seen in cases of high incidence of suboestrous and anoestrus as well as return to service. Administration of 1 to 2 gms. of $CuSO_4$ daily for 3 months, each year, has improved fertility, especially with maiden heifers.

(d) *Other trace minerals* : The other trace minerals of vital importance are Mg. Zn, Fe, I. etc.

II. *Vitamins :*

(a) *Carotene & Vit. A :* stand foremost in the list of vitamins, the adequacy of which is greatly stressed for normal reproduction. Irregularity of oestrus, absence of sexual desire in males, reduction in proliferation of germinative epithelium, cystic degeneration, low conception rate of impregnated females, insufficient vitality of germ cells, restriction for the opportunity for nidation of the ova, kerato hyalin degeneration of epithelium of the endometrium, inability for normal production of embryotrophy, resorption of foetus, keratinization of the placenta, mummification absorption, undevelopment of sex organs of the foetus prolonged gestation, cornification of vaginal epithelium, placental injury in conjunction with difficult parturition, dead or weak newborn, retention of placenta are some of the sequelae so far known to have been caused by the nonavailability of Vitamin A or its precursor carotene in an optimum level. Remedy is found in abundant supply of green fodder.

(Continued from page 19)

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(Continued from page 20)

Everything possible for them to do for us, has been done. We hope to show our appreciation through co-operative accomplishments for the good of the College. It is my special desire to know the Student Body better. It is for the students that the College exists.

Many improvements in the Dairy situation in India can be made. Many beneficial changes are already in the process of being made. It is my hope to be associated with (1) better breeding of dairy cattle for higher milk production, (2) better feeding of them for more economical milk production, (3) the production of more forage of higher quality so as to be able to feed dairy cows better and cheaper; (4) the production of more milk at less cost; (5) making avairable to the people of India more healthful and more nutritious milk to be purchased at a lower price, (6) through the consumption of more and better milk and dairy products to improve the health and lengthen the lives of the people of India. With the co-operation and facilities available these improvements can be made.

A cow or a breeding bull of 1000 lb. body weight with moderate activity seem to require for maintenance 60 mgms. of carotene. During pregnancy especially from 6th month, cow requires 90 mgms. of carotene. In bulls, avitaminosis A. leads to increased number of abnormal sperms, cellular debris and reduced motility.

(b) *Vitamin E:* The role of Vitamin E. in the normal reproductivity is equally stressed. The deficiency causing disturbances in the anterior pituitary, testicular degeneration in the males and resorption of embryo in the pregnant female experimental laboratory animals suggest the significance of this vitamin in normal reproductivity.

(c) *Vitamin C:* The work of Nicholas, Harris & Thimann throws light on the work of ascorbic acid in reproduction. While considering the hypophysis-adrenal-gonad inter-relationship to reproduction, it is of interest to note a high content of ascorbic acid in the hypophysis and adrenals. Phillips-et al (1941) in their attempt to draw relationship of ascorbic acid to reproduction in cows seem to have successfully treated with ascorbic acid 10 out of 17 cows which had repeatedly failed to conceive.

III. *Proteins :* For the normal wear and tear and for the growth of body tissues protein is essential. As such any reduction in the quantity or in the quality of protein, delays the natural phase of growth, maturity of sex cells and ripening of ova, increase the age of maturity and leads on to various stages of sterility. The fact that the nitrogen rises from less than 0.5% in the early embryo stage to 3% at birth will show clearly the value of protein diet in the pregnancy period for the normal development of the embryo. Hence an addition of 0.3 lbs digestible crude protein from the 5th month of gestation is indicated for the embryonic growth, udder tissue development, etc.

IV. *Fat :* Adiposity in breeding bulls causes sluggishness in serving in the initial stages.

In majority of cases we find that it is the over-fattening that has derranged the physiology of reproduction. In the females, fat formation in the ovaries and effect of it on the ovarian follicle at all stages of development cause temporary sterility. It is still controversial whether sterility causes adiposity or vice versa.

V. *Balanced diet of optimum quantity :* Stimulating effect of additional supply of food is noticed on the reproductive organs favouring follicular development and maturation of a greater number of ova. Insufficiency of the right kind of nourishment seems to cause increased atrophy of the ovarian follicles, reduction in prolificacy, postponement of maturity resulting in sterility. A light laxative, diet fed to cows a week before and 10 days after calving is found to assist in complete cleansing and return of uterus to normal. Excessive follicular degeneration is traced to the insufficiency of output of anterior pituitary substance which is due to the insufficiency of stimulating power because of under nutrition. Flushing of ewes during tupping season is indicated for improving follicular development. In sows, it is probable that nutrition plays an important role in regulating the size of the embryo and the final degree of development of the same.

VI & VII. *Roughage & Pasture :* Pastures, the stage of the plants grown, the predominant grasses, pasture management, tendency to flood are some of the factors which are being studied in relation to normal reproductivity of livestock, thriving on them. From

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Dr. Umamaheswaran, V.
Department of Surgery

My days in West Germany

Dr. V. Umamaheswaran, G.M.V.C., B.V.Sc., Dr. Med., Vet. (Hann.) has recently returned from Germany after qualifying for the degree of Dr. Med. Vet. from Hannover University. He has given a fine sketch of his life there.

IT is but natural that our students are interested to know the life of their colleagues in other countries since companions are always interesting though not intriguing. When our students wanted me to contribute an article on Veterinary education in West Germany, I have readily agreed though I do not wish to caption the small article as such since I feel that the colleagues and institutions in those places do not require any special publicity. Similarly when I was in Germany, on the request of the students' circle I gave a small talk on Veterinary education in India. It is also necessary to note that every country has to develop its own colleges based on the country's problems with an eye on the general scientific progress maintained in other colleges of the world. Students from underdeveloped countries do certainly derive benefit from training in these institutions which are always reigned by an atmosphere of activity.

In the German education system there is absolute intellectual freedom. Most of the students feel their responsibllity and derive full benefits of this system. Whoever overstays the specified course does so at his own disadvantage as he loses his time and money. A check over the students activity is maintained by means of the study book system where the concerned professors make their endorsements every semester, which record has to be presented at the enrollment for the examination. To attend to the students there is the Students' Secretariat, the officers of which are always sympathetic and understanding. I feel that the intellectual freedom prevailing in the German Universities responsible for the high power of initiative and creative abilities of the German workers and their originality in thought and deed which are seen in every walk of life.

A sudent entering a college or other University in Germany is about nineteen years old having completed his high school carrer. The high school standard in Germany is well above our high school standards, the student being ready and fit to enter the University. As per rules, students from India seeking admission in German Colleges and Universities should have passed the Intermediate examination, but in actual practice students from India have either completed their professional degree course or are graduates in Science. In Germany there are Universities and also separate colleges. While the Universities have different faculties, the colleges specialise in only one faculty. There are four Veterinary Colleges in West Germany. The colleges in Berlin, Giesson, and Munich are affiliated to the Universities, while the college in Hanover, the largest of its kind in West Germany, is self-administered by its own Senate. In order to qualify for Diplomed Veterinary Surgeon, a student must pass the Veterinary State examination after studying for nine semesters, i.e., $4\frac{1}{2}$ years and after practical training for 6 months with a

teacher Veterinary practitioner. Those who want to qualify for any academic honours may work the Doctorate degree (Dr. Med.Vet.) by writing a thesis on an original theme and standing an examination on three subjects.

Among the nine semesters the first four semesters are preclinical and the rest five are clinical semesters. After studying for two semesters in one college the student can change to another college for the rest of his studies. The colleges in Austria and Switzerland adopt the same German system.

I was asked to study for two semesters but actually I had to study for three semesters as I had to learn the language as well, in order to enable me to understand the German literature and Professors. But sincerely I am of the opinion that one-and-half years is not at all enough to learn things in Germany. For us from the less developed countries there is always something to learn in those lands, though it may not be possible to implement everything in practice in our land.

The students of both clinical and preclinical semesters begin their work at 7'o Clock in the morning and end at 6'o clock in the evening with varying intervals. I found that there was much stress on the practical work a feature that can be found in all the professional institutions in Germany. The younger semester students hear lectures on general health from medical experts. There are regular extra lectures arranged every week on topics of livestock interest, Radiology, Animal psychology. Final semester students attend clinical demonstrations in human hospitals too, for sake of comparative interests. I found that clinical and operation demonstrations in Hannover college arranged in a most useful manner. During the semester time clinical and operation demonstrations take place every day between 11 a.m. and 1 p.m. in all the five clinics, namely, cattle surgery, obstetrics, horse surgery, medicine and small animals. The older semester students attend these classes by rotation so that nothing could be missed. Before the operation the Professors concerned explain everything if necessary with the aid of films or slides. The student spends an extremely useful time in the clinical demonstrations during the last two years of study as he is in a position to acquaint intelligently with all the important things occurring in practice in those places. I am happy that I was able to take part in these clinics especially in cattle surgery and obsterics in the Richard Gotze Institute. The clinics are held in beautifully and conveniently designed halls. The students are given regular lectures in diagnostic work in these classes. The students have to pass an examination in clinics too. The number of cases treated in that institute was very high and the procedure for examination of the patients has been standardised by the institute. Hence I had a good opportunity to see a good amount of work. Most of the cases were coming from far off places. This fact should make us realise that we have to work a lot outside our college and clinics to get more clinical materials. It is particularly so in our country. I will be failing if I do not mention about Prof. R. Gotze who is unfortunately no more and who with his thirty years of hard work had made the institute famous. He had contributed more than two hundred publications. Under his guidance many problems have been worked out, the chief being problems connected with food and mouth disease, malignant catarrhal fever, Bovine tuberculosis, tuberculin tests, Actinomycosis, liver flukes, foreign body disease etc. Many new techniques in surgical and obstetrical operations have been evolved

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Dr. Erven J. Long,
Group leader, University of Tennessee

Students' Responsibilities in College Education

RECENTLY Dharwar Agricultural College held a Seminar on Teaching Methods, which emphasized the ways in which the teachers of the college could improve the educational process. It emphasized primarily the teacher's responsibilities to learn and try out now, improved methods of teaching.

Obviously, however, education is a two-way process involving the participation not only of the teacher but also of the student. The best teacher cannot be successful unless the students make the necessary effort. There is, therefore, equal scope for seminars on studying methods, looking at improving education from the students' stand point, as for seminars on teaching methods, which looks at the same issue from the teachers' stand point. As a small substitute for such a seminar, It is, therefore, addressed directly to the students.

What, then, are the nature of the students' responsibilities? I shall here refer to the two which I consider most important.

1 The student must strive for UNDERSTANDING of the subject matter of his courses, rather than just memorization of the words in which the courses are presented.

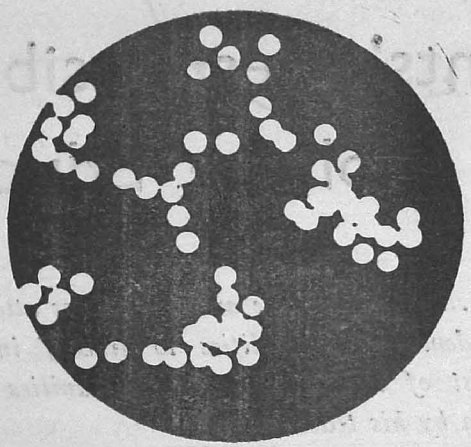
This is the starting point of a significant education. No useful purpose is served by sheer memorization of facts or words. The problems you students will encounter beyond college will not be the same ones, or will not appear in the same form, as those your professor presents to you today. India is changing rapidly. It will be your task to speed-up that change and to give it proper direction. The situation, the problems, even many of the facts, you are learning to-day will be either incorrect or irrelevant a few years from now. But if you can understand thoroughly the underlying principles, if you uaderstand *why* certain relationships exist between facts, you can apply your understanding to analysis and solution of these new problems you will be facing.

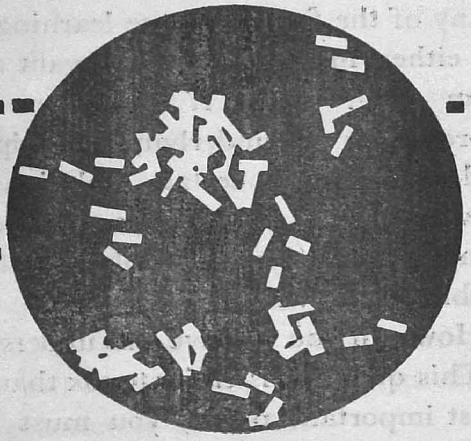
.....this little article focusses attention on the students' responsibilities to himself in making the most of the educational opportunities presented to him by his teachers.

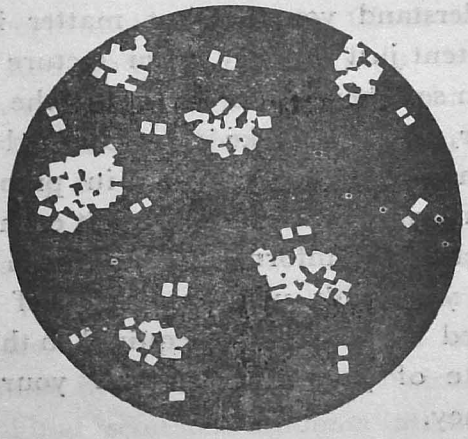
How can you achieve this understanding?

This question is easier to ask than to answer. Most important of all, you must *actively seek* for understanding. You cannot expect to understand your subject matter if you are content just to copy down lecture notes and then set them aside until near the end of the year, when you take them out and memorize then at the last moment in preparation for your examinations. You won't even remember much of the information learned in this way—and you won't understand any of it! A so-called "education" acquired in this way is a waste of your time and of your country's money.

To achieve understanding of subject matter, you must learn constantly to ask yourself, *Why*?..... Why *are* the facts as they are presented by the teacher? What are the basic principles by which these facts can be understood? Why, for example, will a suction pump draw water up only a certain distance







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and no further? Why will application of nitrogen fertilizer result in large increases in jola yield in one place but not in another, even though the soils are deficient in nitrogen in both cases? Why does the amount of paddy an individual cultivator produces *not* affect the price, whereas the amount produced in the country as a whole tremendously affects the price?

You must not only ask these types of questions of yourself, but you must try to get the answers *by yourself.* Always remember that you are in school to improve your own abilities, and your professors won't be around to answer your questions after you leave the college.

To get these answers, learn to write the questions down as they occur to you. Then search through the library books and other publications for the answers. Write out the answers suggested by the various authors (do not be content with one man's answer). If there is a conflict between the authors, or if, after every effort, you still can't find the answer, raise the question with the professor. A good professor will encourage you to raise such questions; if he does not, he is not worthy to be a teacher. He may not know the answer in many cases. A good teacher will not hesitate to admit he does not know, and will look up the answer for you or, better still, help you to find the answer yourself. Only the poor teacher tries to conceal his ignorance by pretending to know more than he does; usually he does this because he does not want to take the trouble to try and to find the answer.

This kind of study, through which you may achieve genuine understanding rather than superficial memorization, is a full-time job. It cannot be postponed until the end of the year. Neither will knowledge so gained desert you as soon as you have written your examinations; it will be a resource from which you will draw strength the rest of your life.

The professors, as well as the students, have a great responsibility to see that this type of learning process is followed. One of their greatest responsibilities is to design examinations of such a character that no student can pass them unless he *understands* the subject matter. Examination quesstions must be so designed that a student must use his own reasoning powers and understanding of basic principles to answer them; they must not be answerable by mere memorization of lecture notes.

2. The student must develop the capacity to put his understanding to practical use to establish effective communication between his head and his hands.

It must be remembered that no important contribution has been made to the world merely by thinking—or talking—about it. Students must learn to transform, through their own physical labor, their ideas into accomplished facts. Knowledge and ideas not put to work are useless—the world is untouched, unimproved by them. Knowledge and ideas put to work are the most powerful forces in the world—the forces by which mankind is constantly remaking the universe to suit human purposes and satisfy human needs. A million men who *know how* to grow more rice per acre and do nothing about it accomplish less than *one* man who knows how and does it!

This seems obvious, and simple. But it is a very difficult thing to teach and to learn. To learn it, the student must attempt always to do the things himself which he learns about in his classes. To teach it, the professor must insist that the students themselves do as many of the exercises, conduct as many of their own experiments, as possible. The "demonstration" by the professor should be used with

extreme caution. Its primary use is to assist a student to conduct his own experiment. It can, of course, be used to enlarge upon what the student can be expected to do himself; but great care must be taken not to substitute this for the student's own work.

The most challenging responsibility to teacher and student alike is that of setting up exercises which encourage students to put their own ideas to work. The greatest shortcoming in education to-day is, without doubt, its failure to develop as fully as it should the creative abilities of the students. Tight curricula handed down from past generations to the present, laboratory exercises designed merely to prove what is already fully known, examinations which reward precise memory rather than imaginative analysis—all these contribute to forcing the student into following the tight ruts worn deep by his teachers and their predecessors. As Philosopher John Dewey once suggested, the study of science is by it nature interesting, because it is an exploration of the unknown; but the way science is too often taught, there is little exploration left. Experiments lead to predestined conclusions—the answers are already in the back of the Professor's book. Therefore, the study of science has lost its spirit of adventure and become dull and uninteresting.

Agricultural students and teachers, working together, can do much to improve the educational process. They can set up procedures which will vastly improve the students' understanding of principles, which will help develop their analytical and creative capacities, and which will get students into the habit of putting their knowledge to work. This will require a great increase in effort by both teachers and students. If they fail to do so, teachers and students will have failed their obligations to themselves and to India.

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time immemorial, pasture is the natural source of food for livestock ; pastures supply the nutrients, minerals and vitamins in the most natural and assimilable form. Roughage which forms the bulk of the food for livestock gives the sense of repletion and the interconnected physiological functions are thereby kept in the normal chain. It is worth mentioning in this connection that in Australia, Gunn et al concluded that degeneration in ram's semen occurred when green feed was scarce or unavailable for long periods.

Bartlett, S., Folley, S. J., Rowland, S. J. et al (1948) have presented preliminary evidence which suggests the galactopoietic effects of spring grass in lactating cows.

Conclusion : The Science-Nutrition, is thus playing a major role in the reproductivity of livestock as a major external factor of great significance.

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by him, which are used in practice in many countries in the continent and other parts of the world. I trust that the motto of R. Gotze Institute—"Die exakte Untersuchung ist der Grundlage der tierartliche Handelns". (The actual observation is the basis of veterinary practice') will be helpful for us too.

In the Hannover college there were eminent Professors the recent of them being Prof. Malkmus, Prof. Opperman, Prof. Trautman and Prof. Miessner. The present staff too are giants in their fields if I am competent to add. Our contacts with them either personally or through literature will definitely infuse enthusiasm in us and help us to contribute to the profession and science our best from this part of the globe too.

A worker coming out of a factary with a wheel barrow filled with hay was stopped at the gate for checking. The hay was turned over again and again by the gate-keeper only to find nothing concealed in it. Each day the process was repeated.

One day the gate-keeper stopped the worker and in a friendly manner told him that he was transferred to another place and asked him what he carried each day promising that he won't reveal the secret.

The worker looked around and told " Wheel barrows ".

Mr. Badshah, M. A.
District Forest Officer, Chingleput

Wild Life

This is the speech delivered during Wild Life Week celebration in our College by Mr. Anser Badshah, B.A. He has dealt here ways and means of preserving the fauna which are our country's half beauty,

WHEN MY learned friend Dr. D'Souza invited me to speak on this occasion, I accepted the invitation with pleasure for more that one reason. Firstly this is a subject next to my heart for Wild Life is not a profession of me but a passion. Secondly the veterinary profession is intimately connected with Wild Life which formed the original stock from which the present day domestic animals have descended. If I am to give some examples, antelopes are the original stock from which oxen and sheep were derived. Similarly the horse tribe is reminiscent of the Wild Ass and Zebras. The Forests still shelter the Wild Buffalo, the Indian Wild Ass, The Wild Goat, The Wild Boar, The Wild Cat, The Wild Dog, Marcoplos' sheep, The Jungle Fowls, The Peahen, spur-fowl, Wild Duck and Wild Goose. Doctors of Veterinary Science have an important role to play in furthering the interests of Wild Life Thirdly I was deeply touched when your student secretary Mr. S. A. Joseph came all the way to Chingleput to invite me to give a talk during the Wild Life Week Celebration of your renowned College.

Now coming to the talk of this evening I am afraid it may surprise you when I say that these Wild Life Week Celebrations reminds me of the quoted saying "Locking the stable after the horse has been stolen". But there is no doubt in my mind that such celebrations do create some sympathy and kindness towards the dumb animals and stimulate the interest in Wild Life. It has to be admitted at the outset that this world-wide movement for the conservation of the fauna is one of the most significant changes of our times as it has succeeded in focussing attention on problem facing Wild Life Preservation. This movement may help us to preserve the common animals of today and conserve and multiply the vanishing ones but it is impossible to regain what we have lost. We may regain the lost wordly wealth but not the lost wild life wealth. All the scientists of the World who have produced the atomic bombs, hydrogen bombs and the satellites cannot reproduce one lost animal. Gentlemen, this is not a discovery I have made but I wish to impress upon you some homely, stark, naked truths so that when you are seized with a desire to shoot a dumb and defenceless animal you may pause and ponder whether you can reproduce it.

The Lost Wealth. The human race seldom values his present possessions until it has left its home and vanished. Many countries are now mourning over the loss of its several rare varieties of animals and birds. To cite a few examples, Africa has lost its Blue Buck, Burchells Zebra and the Quagga, Australia its

great Auk, the Dodo, and the Sea Cow and in America its passenger Pigeons. The last passenger pigeon that ever lived died in a cage in Cincinnate Zoo in 1914. These pigeons were once so numerous and abundant that they darkened the skies by their flight for miles together. It was taken for granted then that any amount of indiscriminate killing will not reduce their number. But now what has happened, there is not a single passenger pigeon in the world. The last heath hen died on an island off the coast of Massachusette in 1935. The Labrador duck is extinct. So are the Guada Lupe Carcara, The Beautiful Green Carolina Paroquet, The Eskins Curlew, Giant Mink, Plains Wolf, and the Adirow Clack Mountain Lion. Some species such as the Trumpeter Swan, the California Caridor, the Ivory Billed Wood-Pecker, Woodland Caribon, Sea Otter, and the Wolf are all in a vanishing stage.

India stands on equal footing with other countries in the matter of squandering away its wild life wealth. We have lost for ever one of our most beautiful animals, the hunting cheetah, the fastest mammal in the world ; our world famous massive two horned rhinoceros, the dainty looking pink headed duck and the mountain quail. The Indian Lion, the population of which was sprawled over a quarter million square miles, is now reduced to a negligible number confined to a small area in the Gir forests in the Saurashtra State which has now been declared as a sanctuary for the Indian lion. The fastly disappearing Himalayan stag of Kashmir, the Malabar squirrel, The snow leopard of Himalayas, the clouded leopard of Nepal, The Indian wild ass of Kutch, the musk deer of Sikkim, brown-antlered Deer of Manipur, the pigmy hog and wild buffaloes of Madhya Pradesh would have vanished from the Indian soil but for the timely action taken by the respective Governments and various institutions in declaring these animals as protected animals. The same fate would have overtaken the red crested pochard, Jerdon's Courser the white-winged wood duck, the great Indian Bustard and the Florican if these had not been declared as protected species.

Rare Gifts to India. Mother nature was extremely generous and lavish when it made magnificient gifts of very rare animals and birds to India which we have not valued and cared to conserve. Indian wild life wealth occupies a unique position in the world today. It has a great International value. People from all over the world visit India to see India's Rhinoceros and Blackbuck which are found no where in the world. It should not be forgotten that the Gir Forests in Saurashtra is the only spot in the world outside Africa where lions are found. Every citizen of India should be justly proud of this. Exports of wild animals and birds from India have been fetching Rs. 63,00,000 annually besides a few crores of revenue on account of the tourists traffic to see India's wild life.

Importance of Wild Life. Wild life is an integral part of human civilization. Its scientific, cultural, ethical, aesthetic, recreative, legandary, industrial and commercial values should not be lost sight of. There is no educated man who does not realise that the kingdom of nature provides science with a vast and productive field for research. There are numerous investigations, anatomical, physiological, geographic and evolutionary which can only be made by the study of Animal life. Apart from the scientific there are many material considerations too. The animal products such as furs, hides

horns and tusks, etc. bring large revenues to the States. Besides some animal products are used in the treatment of human debility and disease. The wild life of a country is a source of sport and enjoyment to its people. It gives healthy recreation to all classes. It is a definite source of income to the State by the sale of shooting licence, sporting arms, ammunition, picture postcards and above all it attracts tourists traffic bringing wealth and fame to the State. It has been admitted that the fauna and flora which constitute the national beauty are an asset to the country and these should be preserved for the physical and intellectual development of its people.

Role of birds : Any scheme for the protection of wild life would be incomplete without adequate provision for the protection of birds. Quite apart from the sentimental and aesthetic values, birds render incalculable service to man. Without their vigil and help, our crops, our orchards and other food supplies will be devoured or destroyed by herds of ravaging insects. Birds control the bewildering multiplication of insect and rodent life which, if allowed to develop unchecked, will overwhelm and efface all life from this planet. Those who realize the value of bird life cannot but strive for its conservation. There is need to put an end to the wanton destruction of familiar birds specially insectivorous birds in the immediate vicinity of towns.

CAUSES OF WILD LIFE DESTRUCTION

(i) *Clash of interests* : As matters stand there is a terrific clash between the interests of man and the animal. The reason is that agriculture is making inroads on forestry extending cultivation in forest land which is the main domain and shelter of wild life. In this process much wild life has been wiped out and whatever had survived was mercilessly destroyed by thoughtless people on the plea of crop protection when wild animals visit their erstwhile territory unaware of the trespass by man. On account of the tremendous increase in population there is need for bringing more land under the plough to grow more food. If our wild life is to find protection at all, it must find it somewhere in our forests. This clash can be avoided by resorting to intensive cultivation as has been done by other countries.

(ii) *Conquest of Natural defences of Nature*: In olden days there were certain natural difficulties which prevented too deep an invasion by man into Nature's strongholds. Malarial and black-water belts, the thick and impenetrable undergrowth, the gigantic and fearful rampart of trees and the natural physiographic barriers afforded a degree of protection to wild life. But in the present times with the invention of the D.D T., dynamite, bull-dozers, jeeps, rifles and safaris the natural deferences of nature have been conquered. The result is that the animal who enjoyed complete freedom and strict protection all these years, came face to face with man who started butchering them. Certain rare animals are nearing extinction and desperate efforts are being made to save the last surviving species.

The position of rare animals : As stated already lions used to be abundant in Northern India in the good old days for earlier than the tiger who is comparatively a late comer from North-eastern and Central Asia. The Lions have now largely disappeared. In 1822 they were found in large numbers in Sharanpur and North Rohit-khand. In 1830 they were seen at Mount Abu and Sabarmathi regions. It was a daring sport of British officers to kill lions on horse back till 1832. Soon guns were opened against them. Poaching and uncontrolled shooting decimated

their numbers rapidly. The situation became so alarming that a report from Mr. Wellinger, District Forest Officer. Junagadh State in 1913 revealed that 6 to 8 lions were alone left in an area of 700 square miles. Mr. Rendall, Administrator to whom we should all be grateful imposed a total ban on shooting of lions. 1936 census disclosed that 287 lions were surviving in this region. Lion is now a protected animal in India.

The Indian Rhinoceros, specially the horned one, which is unique in the world met with the same fate in Assam as the Lion, but the position was soon retrieved by constituting a sanctuary in Kaziranga and prohibiting shooting of Rhino. The last census conducted in 1951 showed the number of Rhino in India as 300.

The Cheetah or hunting leopard so abundant in Northern India and Deccan in the past has vanished completely. Emperor Akbar had 9000 cheetas in his encampment for deer and antelope hunting and today a cheetah had to be imported from Africa at a cost of Rs. 5,000.

In Africa there used to be herds and herds of ostriches. In 1930 there was a big massacre by plume hunters. The last of these species were killed in 1944 and now it is a metter surmise whether any ostriches are surviving in that country.

The extinction of American bison is yet another illustration of the ravage resulting from man's excessive cupidity. Just a century ago these animals roamed over the prairies in herds of thousands. At present they are so few that they remain as a curiosity in the National Parks.

It must be borne in mind that these gifts of Nature once destroyed can never be reproduced by all the ingenuity of man. Be it noted that replacement can never be fast as destruction for example, a huge sturdy tree cut down in a few minutes after a slow growth of hundred years will require another hundred years to reach the same size. Every generation owes a duty to the next that natural objects both animate or inanimate, are not destroyed and wasted by too unwise and thriftless an exploitation.

Balance of Nature: The preservation of wild life maintains a balance in animal kingdom. It should be distinctly borne in mind that the least disturbance to this balance will rebound on human habitations as it is happening today. The tigers and panthers who are deprived of their natural food namely deer and sambhur destroyed by men in large numbers to satisfy his unsatisfiable greed and lust, are now making inroads on the village cattle. Instances are not wanting in our state where hundreds of cattle are being lifted away by tigers and they have been deprived of their natural food by man. The unhappy incidents at Lucknow and Agra recently when hyeanas and wolves, consequent on the clearance of jungles and destruction of deer, visited human habitations and carried away innocent human babies are still fresh in our minds.

Lessons from Wild Life. Before I conclude, I wish to touch on only one aspect of wild life, that is the understanding among wild animals which has fascinated me most. The understanding is such, I may be pardoned if I say that sometimes it surpasses understanding among human beings.

When man does not hesitate to attack his enemy and murder him wherever he is found whether it be a place of worship defiling the temple of God, there is the noble example of the lion who never attacks his prey at or near a water-hole. The deer or antelope approaches

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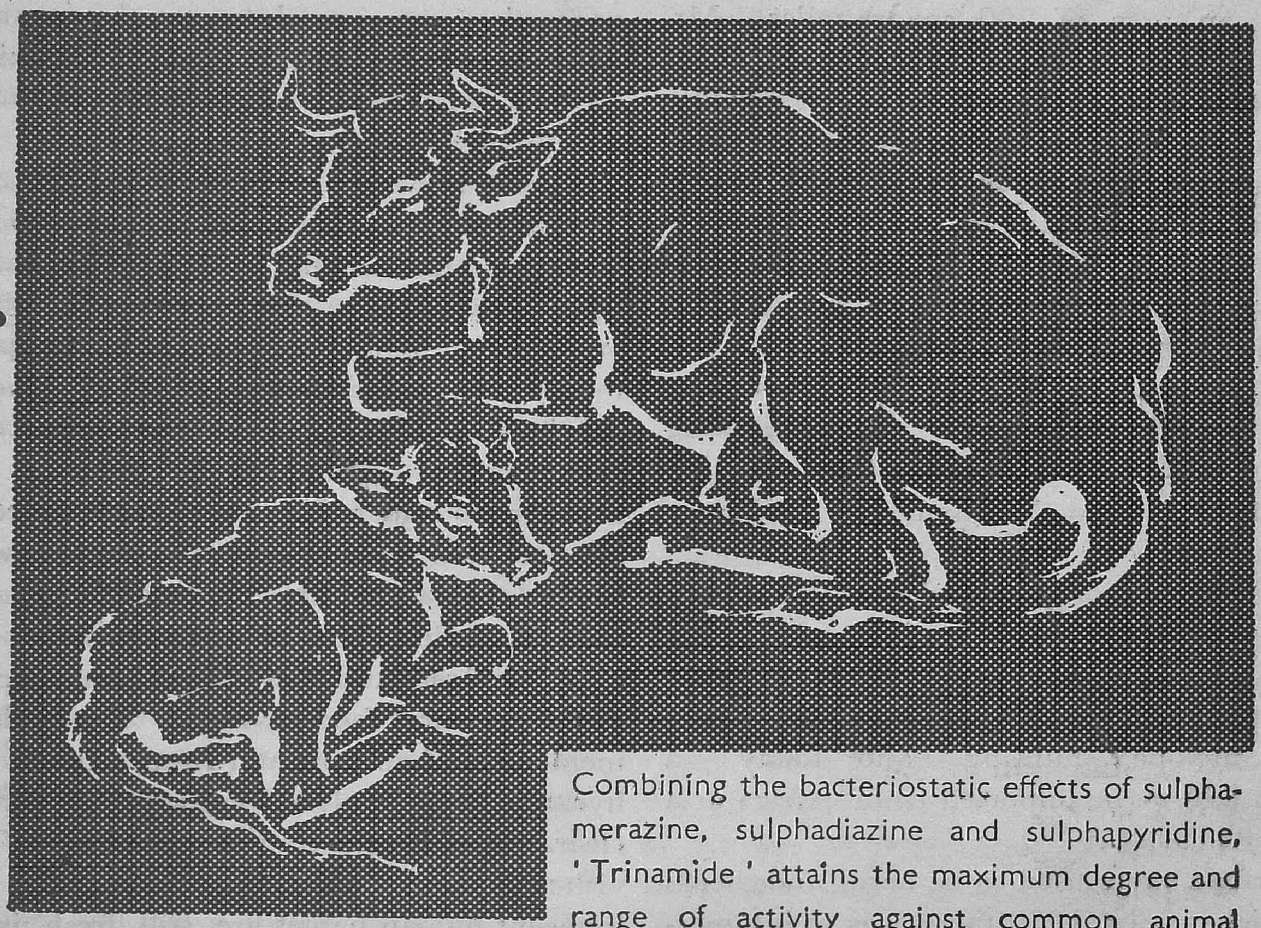

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Final B.V.Sc.

Asepsis and Antisepsis

Here the author describes in a concise manner the keynotes of ascepsis and antisepsis stressing on intact skin, vaginal and syringe disinfection.

THE two major advances that made surgery possible and progressive today are: the introduction and development of Antisepsis and Anaesthesia. The story of introduction of antisepsis dates back to 1858 when Sammelweis first stated the process of disinfecting Surgeon's hands without actually realizing the exact nature of his epochol discovery. The beneficial effect of antisepsis was demonstrated by Lister in 1865 when, inspired by Pasteur's work on fermentation he applied the principle of disinfection to surgery using carbolic acid as a disinfectant. The great success of the Listerian method rapidly led to its adoption throughout the civilised world. The lapses frequently observed on the part of the students in regard to certain aspects of Asepsis and antisepsis prompted me to write this article.

Being a student who attends variety of cases one should know something about the skin. Despite of the type variety of tasks that we do with our hands remarkably few pathogenic organisms are normally present in our skin. Staphylococcus aureus is found in 20% of normal hands at least in small numbers. But the hands of a student or a surgeon who handles the dressings of an infected wound will carry millions of haemolytic streptococci. Self infection of the patients skin from exudations from distant lesions in its body is like the anal ulcer or digital ulcer must also be taken into account.

Natural skin defences are many, the wavy pattern of the skin is protected by a continuous layer of dead keratinous tissue which is pierced only by the openings of the sweat and sebacious glands. This layer is not dehydrated, at the acid reaction normally found in the skin. It gets dehydrated only when it becomes alkaline and dry, when it hardens and cracks. This layer is covered by a surface coating of lipis derived from the secretions of sebacious glands. The surface lipids are chemically shown to contain about 40% of unsaturated longchain fatty acids which will destroy pyogenic streptococci and other organisms like the tubercle bacilli. The bactericidal actions of lipids does not take place in the presence of serum albumin and is therefore inefficient when the skin is covered with exudations. In addition the lipids serve to protect the horny layer. While an ordinary wash with soap does not remove the lipids, repeated washings definitely dissolve all the surface lipids which are not restored readily. Mere drying on the skin is found to destroy some gram negative bacteria like Pseudomonas pyogenes which are not acted on by the surface lipids.

An ideal antiseptic must be active against all pathogenic bacteria. It should be non-

irritant and least toxic to the living tissue and rapidly acting It should be effective even in the presence of serum, blood, pus or other organic matters. It should be stable self-sterilising in solution, easily and quickly handled and dispensed and cheap and readily available.

Perhaps it is very hard to get an ideal antiseptic which would satisfy all the above requirements. A drug that acts rapidly, does so by effecting the very structure of bacteria; and animal tissues are not structurally very different from bacteria. As no agent satisfies all conditions the best agent must be selected to serve each practical situation.

Disinfection of the Intact Skin : Pre-operative preparation of the skin before an incision is best done with 70% alcohol containing 1% iodine which sterilises effectively. Dettol has also been found to useful because of its non-irritant and rapidly acting properties. But its use in our practice is limited because of its cost. The hands known to be definitely contaminated with bacteria as after contact with pus or an old ulcer must be thorougly washed with soap and water to remove the serum exudate sticking and then soaked in 30% Dettol for a few minutes before proceeding to disinfect the skin of patient.

Open Wounds : Before attending to any wound the hand should be washed well with soap and water. The time spent in washing hands is well spent, as mere washing alone helps to reduce the number of pathogenic bacteria. The apron worn by the student or the surgeon should be scrupulously clean. To test the cleanliness of aprons swabs were taken from different parts of the apron and sent for bacteriological examination such swabs proved the presence of Staph. aureus, S. Albus, Proteus group and aerobic spore bearers. These organisms may soak through the apron if it becomes wet while washing the hands. So it is recommended that aprons should be clean, and should be changed frequently. It is desirable that samples should be taken periodically from the instruments linen, etc., so that the complacent attitude to many of the probable sources of infection may be replaced, by vigilance. These precautions will help the open wound to heal up quickly.

Fresh open wounds constitute a big problem. Though they are apparently clean they are contaminated with organisms like S. aureus. Removal of gross foreign contamination with detergents and disinfection of the surrounding skin with an effective agent are desirable. A satisfactory occlusive dressing is yet to be discovered to isolate the wound completely from further contamination.

Vaginal Asepsis : Penicillin and Streptomycin pessaries are superior to other antibacterial agents in keeping vaginal passage sterile both during the preoperative and post operative periods. But its use is much limited in veterinary practice due to economic reasons. Instead sulphanamide or iodoform pessaries which also give appreciable results may be used. In all viginal manipulations the hands should be clean and smeared with antiseptic creams, using other lubricants such as castor oil etc., are not recommended as such applications may introduce infection into the maternal passage. It is always better if the operator uses a sterile glove in all vaginal or routine handlings. Because the glove can be sterilised and will be more aspetic.

Sterilisation of Syringes : The best method of sterilising syringes is by an hot air oven or by an auto clave rather than boiling. How far this is practicable is yet to be judged. Some practitioners keep the syringe inmersed in alcohol or rinse it before use. In the course of an investigation in 1939

Resuny found out that 12 out of 13 samples of alcohol had pathogenic organisms. This is due to the fact that the antibacterial value of alcohol is undoubtedly inferior in any strength higher or lower than 70%. and proper care was not taken to maintain this strength. Efficient boiling must be resorted to, for sterilising syringes in the absence of facilities for auoclaving. This must be repeated each time after use of syringe. In Intravenous injections also one should be sure about asepsis because it is regarded as a surgical operation. The syringe and the needle or any other kind of appratus with tubing glass window or cannula must all be sterilised by boiling. The solution of the drug to be injected unless ready available in a sterilie ampule also must be sterilised by boiling and injected at body heat.

The question also arises of the methods used in giving a large number of patients in the field or in ward. It is recommended that a fresh needle should be used for each patient and a syringe should never be filled with the substance without being sterilised even when different needles are used each time. This is necessary because the tip of the syringe becomes infected with the back flow of fluid at the time of withdrawing the needle. Negligence in this will result in severe swelling of the part injected or an abscess being formed which will prevent the animal to return to normal within the usual time. Disinfection at the site of injection is best done with tincture iodine in all cases.

Conclusion : It may be argued that even in the absence of many of the precautions frequently urged not many accidents have occured. Probably we may have missed many instances. If many untward reactions are not observed with the defective methods, it is only a tribute to natures defence forces, and does not constitute or plea for the continuance of methods that can and must be bettered.

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the water-hole with perfect ease and confidence about its safety. This may sound strange but it is true. Whether this is due to the unwritten laws of the wild no one can say with certainity but hundreds of water-holes have been inspected by naturalists who have dedicated their life for the study of animal habits and no one has seen any evidence of a kill by lion.

It is difficult to understand the relationship existing between lions and the various animals that supply them with food. It is not an uncommon sight in the African wilds to see a herd of deer or zebras feeding quite unconcernedly not far away from a pride of lions. A lion or two may walk past the herd without causing the slightest suspicion or alarm. Somehow the deer and zebra seem to know that the lion is not hunting and they feel perfectly safe from his attack even though it is passing so close to them. It is an established fact that lions do not kill prey when they do not need it.

The chattering and restlessness of the monkeys when the tiger approaches its kill in the stillness of the night, is within the common knowledge of shikaris and sportsmen. What does this sudden activity of the monkeys indicate? It is a signal to associates of the approaching danger. Many mammals take this warning and make their escape.

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Birds often act as scouts and give warning to the mammals of the approaching danger. Deer and antelope are quick to note when a bird scout whistles. The fox heeds the jays' outcry and the rabbits sit up and watch when the black-bird shricks its alarm.

The common rabbit has his obligations too. On being alarmed he strikes the ground with its hind feet making a sharp thump which is carried to a surprising distance alerting all his associates of the impending danger. If he has no chance of escaping unseen, it hops high over the tufts of grass brandishing its white tufted tail conspicuously. Others of its kind seeing this follow suit.

Among elephants, the mother of a young calf is invariably assisted in the care and protection of her baby by another cow elephant who takes on the duties of a nurse and nurses the baby elephant as carefully as the mother.

In short the realm of wild life has many mysteries if one has time to pry into their ways and habits and discover them. Lessons of toleration, frugality, espirt de-corpse, readiness to help can be learnt from the animal kingdom.

In conclusion I wish to express my thanks to all of you for giving me an opportunity to expound the cause of the dumb animals of the forest. May I, in all humility, request everyone of you assembled here, to do your bit in the furtherance of their cause and promotion of their welfare.

JAI HIND

Syamasundaram, S.
Final B.V.Sc.

Common Salt

In his review Mr. Sadhu Syamasundaram has given the mode of action, therapeutic uses, normal requirements and Toxicology of common salt.

COMMON salt chemically known as "sodium chloride" is a white crystaline odourless substance having a saline taste. It is also known as table salt or muriate of soda. It occurs native or is got from brine. The solubility of sodium chloride is one in three of water.

Salt solutions are absorbed largely from the bowels and little from the stomach. The absorption takes place mostly by osmosis and diffusion. Thus hypotonic solutions are more rapidly absorbed from the intestines than hypertonic solutions. Absorption of salt solution from serous cavities and lymph spaces takes place by diffussion. Although a certain amount of chlorine is stored in the skin and subcutaneous tissue, sodium is not stored appreciably, any excess over the body needs being immediately excreted. The concentration of sodium ranges from 0.16 to 0.22 percent in most animals.

The action of salt is mostly due to alteration of physical properties of fluids. The osmotic action of sodium chloride is greater than most other salts as it has a low molecular weight and as it disassociates into its two ions rapidly. Red blood corpuscles shrink in size when they are placed in hypotonic solutions due to absorption of water by the cells and this is followed by haemolysis. In isotonic solution they remain unaltered in size.

Muscle is also affected in a similar way. In isotonic solution muscle preserves its irritability for many hours. Exposed nerves are irritated by strong solutions. Small quantities of salt when added to food increase its palatability and thus reflexly increase the flow of gastric juice. In the mouth salt has a characteristic taste and a strong solution, acts as astringent. In the stomach hypotonic solutions cause swelling of stomach wall and hypertonic solutions cause shrinking and irritation inducing vomition. Sodium chloride promotes digestion and assimilation. But if given to horses in a concentrated form sodium chloride may produce violent colic. A concentration of five percent sodium chloride in water produces satisfactory purgation in cattle. When hypotonic solutions pass into blood from bowels the blood becomes diluted and hydraemia results. Strong salt solutions in the bowel cause effusion of fluid and the blood becomes concentrated. When the blood is rendered hypertonic by injection of strong salt solutions the lymph begins to flow into the blood vessels by osmotic action. This results in hydraemia and increased capillary pressure which in turn induces flow of lymph from the blood vessel into lymph space. In lactating goats with limited water intake diuretic doses of salt decrease the milk

yield but the fat content is increased. This may be due to reduction in the amount of available water (Steenbock 1915). Externally strong salt solutions act as antiseptics due to irritation.

Chlorides contribute very largely to the acidic ions of blood and play an important part in the acid base equilibrium. Further chloride is an essential constituent of gastric juice and forms two thirds of the acidic ions of blood. Sodium chloride maintains the correct osmotic pressure for the metabolic charges and also stimulates the salivary secretion and favours the activity of digestive enzymes. The regulation of chloride is taken care of by the adjustment of urinary excretion or degree of chloride absorption in the tubules of kidney. Sodium chloride is mostly excreted by the kidney and a little by perspiration. Urine is very much increased by the injection of salt into blood. The potassium salts which are present in large quantities in the blood of herbivora increase the excretion of sodium chloride to a certain extent. The excretion of sodium chloride is controlled by adrenal cortex.

Salt poisoning can also occur in animals when they accidentally gain access to salt trucks, salted potatoes etc., In cattle in case of red water fever if salt is not given well diluted poisoning may take place. In case of salt poisoning cattle show agitation, loss of appetite, suspended rumination, thirst etc., in the beginning. Later animals become recumbent, head and hind limbs extended. The motions are liquid and greenish and mixed with mucous and blood. The animals die in twenty four hours. Fowls fall from perches and show great signs of thirst and weakness due to salt poisoning. There is viscous discharge from the beak and finally death takes place due to loss of power of respiratory muscles. Somnolence or hyperaesthesia and vertigo are also noticed. The approximate toxic doses for various animals are as follows :

Cattle	... 4.5 to 7.0 lbs.
Horse	... 2.0 to 4.5 lbs.
Sheep & Pigs	... 0.4 to 0.8 ounces.
Fowls	... 4 grams/KGM body weight.

Experimentally when strong salt solutions are injected in the body death takes place due to withdrawal of fluid from the central nervous system. The symptoms in mammals are weakness, lassitude increased reflex excitability, tremors and finally convulsions.

On post-mortem examination of animals that die of salt poisoning, lesions characteristic of gastroenterites are seen. Blood is dull red, rapidly coagulating the clot separating easily from a slimy serum. The cereberal membranes are injected. The treatment in salt poisoning consists of administration of emetics stimulants and demulcents. Cerebral symptoms may be treated with bromides.

Carnivorous animals get their requirements of sodium and potassium from the meat whereas herbivores do not get them adequately since vegetable foods are not rich in sodium. Hence it is essential to add common salt to the rations of herbivores unless they have access to salt licks. Sodium deficiency results in retarted growth, reduced fertility, reduced ability to utilise digested protein and carbohydrates. In laying hens there is frequently an outbreak of cannibalism as well as loss of weight and lowered production. Chlorine deficiency is rarely differentiated from sodium deficiency as the two elements are invariably provided in the form of common salt.

Isotonic salt solutions (0.85%) is often, administered when the body has lost much

fluid as it is rapidly absorbed and is devoid of irritant action. Thus in severe haemorrahage these solutions are injected subcutaneously or intravenously. A rapid improvement in the circulation follows. It is also given in surgical shock, uremia and similar intoxications, with the idea of washing out the toxins through the kidney. Gum saline is better for this purpose as it is not quickly excreted and gives some viscosity to the plasma. Glucose (5 to 15%) can also be added to give some energy to the body. In urgent cases of severe harmorrhage quantities of normal saline may be administered per rectum. In emergency normal saline solution can be prepared by dissolving one drachm of sodium chloride in each pint of boiled water. As a purgative for cattle six ounces of sodim chloride with an equal amount of mag. sulph and with one drachm of powdered ginger is given in water or in treacle. Salt should be provided in the daily rations of both cattle and horses both in manger and on pasture. In early stages of red water in cattle sodium chloride given as a purgative frequently aborts the attack. In gastric derangement of cattle small doses of common salt given as electurary proves useful and by inducing thirst leads the patient to drink fluids freely. According to Lang one or two pints of a solution containing five percent each of sodium chloride and sodium citrate can be injected slowly intravenously for impaction in horses. The treatment produces great thirst and the animal drinks large amount of water which softens the contents of caecum. Strong salt solution is used as an emetic in cases of emergency as in poisoning and generally produces vomition rapidly owing to irritant action. For this purpose the solution may be prepared by adding one or two teaspoonfuls of common salt to four ounces of warm water with a half a teaspoonful of mustard flour. In silver nitrate poisoning salt arrests its corrosive action by the formation of silver chloride. A solution of one ounce of salt added to one pint of water can be injected into previously emptied rectum to destroy oxyuria, or thread worms. It can be injected into vagina in case of trichomonas infection. As a purgative for cattle six ounces of sodium chloride can be given in water or in treacle with an equal amount of magnesium sulphate. Similarly for sheep half to one and a half ounces can be given. About two to three ounces can be given to horses and cattle twice daily in water or in feed as a stomachic.

Externally chloride of sodium can be used as an antiseptic in the form of a five percent solution with half per cent sodium citrate. Common salt combined with nitre and chloride of ammonia forms a refrigerating lotion. A solution of few grains to each ounce of water is employed as a sedative lotion in irritable conditions of skin in dogs. In summer heavy working horses should be given adequate salt to prevent heat cramps and laminitis following it. Salt is used in the preservation of meat. It is also used in the purification of water alone with mercuric chloride to prevent the rapid precipitation of the latter in the presence of albuminous matter.

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Sudarshan Sahu,
Final B.V.Sc.

Coxo-Femoral Luxation in the Dog

This is the extract of the paper read by Mr. Sahu during one of the meetings of our Clinical Club. His essay deals with the occurance, classification and treatment of the said subject.

COXO-FEMORAL luxation or dislocation, commonly known as dislocation of the hip, can be designated as the displacement of the articular surfaces of the bones constituting the hip joint.

Coxo-femoral joint is formed by the lodgement of the head of femur into the acetabulum formed at the infero-external aspect of the os-coxae, by the union of its three components. The head of the femur is set almost at right angles to the proximal end of its shaft and its articular surface is extensive and hemishpherical in shape. It is an endarthrosis, or ball and socket joint, allowing all sorts of movement, the most marked ones being extension and flexion. The supporting ligaments of the joint are (a) Capsular ligament, (b) Cotyloid ligament, (c) transverse acetabular ligament and (d) round ligament or ligamenturm teres. The gluteal muscles reinforce the supporting mechanism of the joint,

Occurance : Dislocation of any joint may occur in dogs, but coxo-femoral luxation is the commonest.

Classification : I. According to degree of displacement of articular surfaces.

A. *Complete :* When the head of the femur has been displaced completely from acetabulum, obviously with the rupture of the round ligament of the hip.

B. *Incomplete :* When the displacement of the femoral head is partial.

II. According to the position of the head in relation to the cotyloid cavity.

According to this classification coxo-femoral luxations are designated as dorsal, ventral. anterior, posterior, and anteriodorsal. It is not uncommon for the displaced head to slip into the obturator foramen.

It is noteworthy that coxo-femoral luxations are nearly always upwards and forwards, occasionally upwards and rarely backwards.

III Stader has classified coxo-femoral luxations into three types according to the kind of injury.

Type.B. Includes all fresh cases, which are easily reduced and are not easily redislocated by freely moving and rotating the extremity. These cases are said to require no further treatment.

Type II. Includes recent cases which are easily reducible but which tend to redislocate with rotation of the limb. In these cases further treatment consists of bandaging the exremity in an extreme degree of flexion.

Type III Includes cases which repeatedly redislocate immediately after reduction. There is possibly severe damage to acetabulum and some filling perhaps, of the socket.

Causes : The nature of trauma is inter-

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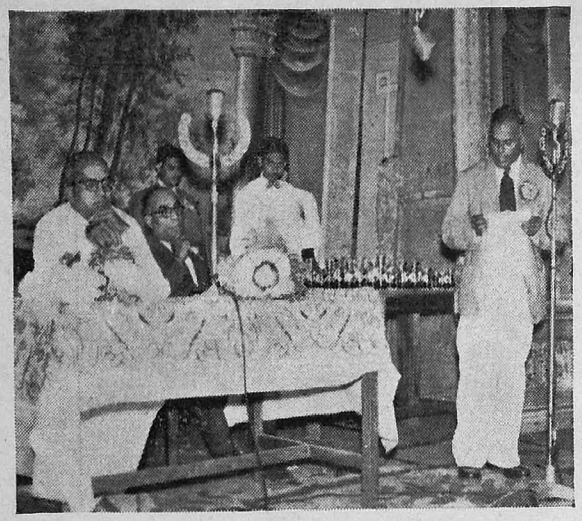

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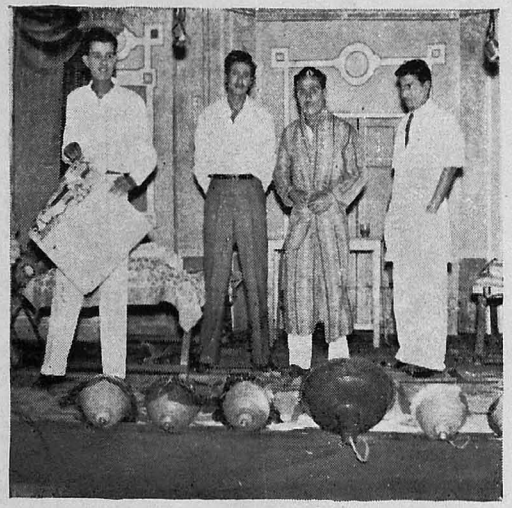
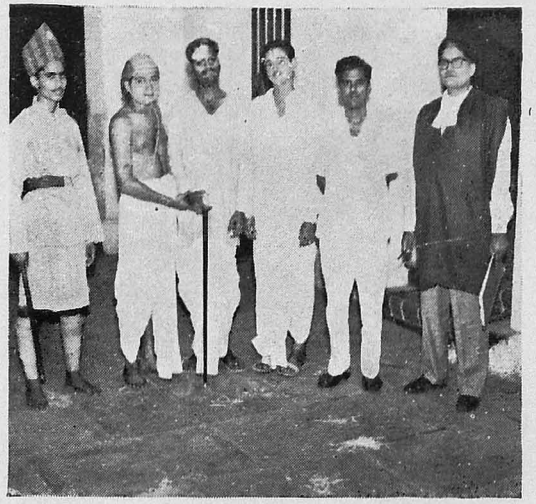
Fancy Dress
" Veperized in Centre "



English Drama
" with the Posing Doctor "

Tamil Drama
" Bawa in his Studio "



Telugu Drama
" Varusulu "

esting and is surprisingly constant. The injury most often appears to be a result of being involved in automobile accidents like a mere bump and the dislocation is nearly always found as the only injury, cut and bruises being absent. It is the rule, subject to rare exception, that dogs with complete ossified bones are only ones that sustain the luxation. The trauma which causes a coxo-femoral luxation in the adult dog, will fracture the neck of the femur in a young dog and under the age of about six months.

Coxo-femoral dislocation occasionally encountered in young growing dogs are largely due to developmental abnormalities of the hip. The acetabulum may be too large, too small or too shallow, on the other hand the head may he flatened, the neck may be bent downwards or the femoral epiphysis may be separated. Certain breeds are more prone to the types of congenital luxation. It is met with in German Shepherds (Konde), wire hired terriers and English Setters (Schnelle). These de formities may be due to trauma, septic infection, congenital defects, endocrine disorders, malnutrition and or vascular disorders.

Symptomatology and diagnosis. In a case of dislocation of the hip joint the common symptoms noticed are impaired locomotion, inability to bear weight on the affected limb, muscular spasm, pain, and rigidity of the muscles of the thigh region.

Apart from the foregoing general symptoms certain definite symptoms of great diagnostic value are noticed.

1. In Antero-dorsal luxation which is the commenest type encountered. The displaced head of the femur is always found resting on the dorsolateral aspect of the shaft of the ileum, in the region, which serves as the origin of rectus-femoris muscle. On manipulation of the limb 'head' can be felt moving freely in this region. The disposition of the limb is altered. The limb is slightly adducted, the stifle and foot being rotated laterally with the hock in a state of adduction.

Dibbel's tests for antero-dorsal dislocation of hip.

1. With the dog on its back when the two hind limbs are grasped by the torsi brought together, and held up over the body the dislocated leg appears to be shorter.

2. When the hind legs are extended anteriorly, parallel to the body, the affected limb appears to be longer.

3. When the limbs are extended posteriorly the affected limb is about one inch shorter.

In this type of luxation the trochanter major of the affected side limb is most pronounced being displaced laterally. The trochanter can be felt by placing the dog in a ventral recumbent position on the table allowing the hind legs to extend beyond the edge of the table.

In antero-dorsal dislocation the space between the tuberischium and the great trochanter is more on the affected side.

If the thigh is abducted to the maximum limit straight outwards keeping the thumb on the greattrochaner, the prominance of the latter disappears on the sound side, but becomes more pronounced on the affected side. Digital palpation also helps in diagnosis.

Diagnostic Radiography is an essential aid to diagnosis. For those without facility for radiography, the above methods will suffice to diagnose a case of antero-doesal dislocation of the hip.

Posterior luxation : In posterior luxation the head of the femur rests posterior to acetabulum. The limb is adducted, thigh is roated inwards and stifle and toes point medio-obliquely. When limbs are examined for length it is found that affected limb is longer when

held at right angles to body longer when extended posteriorly but shorter when extended anteriorly. The hip appears as if flattened the great trochanter being less pronounced compared to the side unaffected.

Treatment : Treatment consists of reduction or replacement of the displaced femoral head into the acetablum under anaesthesia and retention by appropriate immobilisation.

Anaesthesia : Complete relaxation of muscles is highly essential for effective reduction. It is said that thiopentone is the best. Nembutal at 1/7 to 1/5 grain per pound body weight I/V gives satisfactory anaesthetic results.

Reduction can be done either by the open or close method. In long standing cases the a cetabulum is filled with granulation tissue and may be adhesive around the head of the femur and hence open reduction is obligatory.

Close Method of Reduction : It can be performed by manipulation with or without traction.

1. Without Traction : The credit for this method goes to Dr. R. W. J. Knight, the technic is as follows :

After complete relaxation a calving rope is fastened over both the the hocks with slip knots. The dog is then suspended from a hook or door. The operator grasps the dog in stifle region raises it 6 to 8 inches then drops it from the same distance. The luxation is reduced by the dog's own weight. Dr. Knight claims that his method is very effective. The technic is very simple and actual reduction takes in a few seconds.

This method is of no value in poserior luxations.

II. With Traction : The dog is placed on its sound side, the thumb is placed over the trochanter major and the leg is grasped in the hock region, extended, and carried in a forward direction. It is then adducted and at the same time brought backwards with a gentle rotation. The head is replaced with a sudden click.

It is most important to note that for reduction leg is always dragged in the direction of the luxation first and then in the opposite direction.

Where reposition cannot be effected by manual traction, a retractor, that provides steady traction at a desired angle can be used with advantage.

Open Method of Reduction :

Anterodorsal Luxation : An incision 6 to 7 inches is made in front of the hip parallel to the long axis of femur. Structures cut through are skin and fascia, and the gluteal muscles. By careful seperation of the severed ends, the superoanterial aspect of the joint is exposed and the joint cavity can be explored. The adhesions from the femoral head, and granulation tissue from the acetabulum are removed scraped off and the head replaced. Joint capsule fascia of the severed muscles, and skin are sutured and the latter is then lightly covered with collodion.

Post operative care consists of a rest period of seven to eight days.

Posterior Luxation : A vertical incision of 6 to 8 inches long is put posterior to hip. The skin fascia and superficial gluteal muscle are cut through. The sciatic nerve and its satellite artery and vein are moved aside. The joint is reached after cutting and seperating the ischiotrochanteric and obturator internus muscles luxation is reduced carefully and wound is closed as in forward luxation.

If the reduction is complete the legs will be of equal length trochanters will be of same prominence and passive movement of femur is free, unobstructed and smooth. Reduction is best verified by radiography.

Prevention of Recurrence : The depth of the

acetabulum in the dog is such that a recent complete dislocation without trauma of the articular surfaces if once reduced correctly will remain in position. But redislocation do occur occasionally which has to be prevented.

There are different methods of preventing redislocation but the simplest method is to put a figure of eight bandage of adhesive plaster after complete flexation of the limb. The bandage is removed after 4 or 5 days.

The other methods of preventing redislocaare as follows :

(*a*) By creating an inflammatory process around the joint either by injecting into the joint one to one and half c.c. of a mixture of oleum terbinthinae and spiritus camphorae or by bruising the tissue around the joint by a wood or rubber mallet.

(*b*) By suturing the capsular ligament fairly tightly.

(*c*) Inserting a stader pinlock to the trochanter major and fastening with an elastic band to the girth strap of a harness.

(*d*) Two Krischner pins are inserted into the shaft of the ilium and ischium respeetively. A horizontal rod is connected to maintain the two pins rigid. Two bars are connected to this rod so that a triangle is formed the apex being just lateral to great trochanter. At this apex a ball and sucket carries a Krishchener pin which is driven laterally into trochanter. This constant inward pressure maintains the head in acetabulum although forward and backward movements are allowed.

(*e*) A contrivance called Olson coxofemoral appliance is said to be very effective in maintaining the head in the acetabulum although it allows free forward and backward movement.

Brown's femoral head posthesis can be resorted to if there is damage to the femoral head. The damaged head is removed completely and an artificial head, suitable for the acetabulum is fixed at an angle of forty five degrees to the shaft.

In chronic luxation of the hip, the prognosis is very grave but the followings operation can be performed where the client is very sentimental and money is not a matter of consideration.

A 5/32 inch tunnel is drilled from a point just below the trochanter major up to the exact centre of the femoral head and extended through acetabulum into pelvis. A Knowle's taggle pin with tying material is then passed into the pelvis by means of a special type of trocar and canula. When the tying material is dragged the taggle pin is hooked up inside the pelvis and a double surgeons knot is put after the interposition of a nylon button in between the tying materials. The tying material thus used serves as an artificial round ligament. The tying materials used are fascialata, umbilical tape or heavy plastic suture.

ACKNOWLDGEMENT :

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Hook Worm Disease

Mr. Patnaick one of the five post graduate students of parasitology in combination with Lalitha and Vijayalakshmi under graduate students of parasitology has exhaustively dealt with each and every aspect of the disease, reviewing all the important literature available on the subject.

'HOOK WORM' diseases or '*Ancylostomiases*' as it can be otherwise called is caused by the—worms of the family '*Ancylostomidae*'. These worms are widely distributed throughout the world and probably there is no widespread infection of equal significance affecting both human race as well as dogs and cats which is more assertive than this. The "*Ebers Papyrus*" supposed to have been written in the 16th century B.C. and '*Brugsch Papyrus*' written a little later, mention of a disease so called 'ááá. The symptometology described in the ááá disease fits in with that of the present "*Hookworm*" disease. Later in Egypt a disease called '*Chlerosis*' was recognised and subsequently proved to be ancylostomiasis which was also reported from other countries under different names viz., "*Maldestomac*", "*Mal de Coeur*", "*Anemia*", "*Cachexia*", "*Amærellao*" etc.,

Goeze in 1782 discovered the worms for the first time and called them '*Hookworm*' because of the bursal rays which looked to him like hooks. Species was named "*Uncinaria criniformis*" (Chandler 1929). In 1789 Frohlich described similar worms from fox and created a separate genus for them and called them '*Uncinaria*'. It was Dubini in the year 1838, that first discovered the worms in a pneumonic human in Milan and in 1842 some similar worms were found in further autopsies. In 1843 the worms were nomenclatured as '*Agchylostoma duodenale*' after describing them which became '*Ancylostoma duodenale*' in Latin and has been accepted as correct. The Greek '*Agchylos*' meaning 'hook' and '*stoma*' meaning the 'Mouth' and it comes to be known as '*Hook Worm*'.

Pruner (1847) Bilharz (1852) and Griesinger (1854) definitely established '*Chlerosis*' of Egypt as "*Ancylostomiases*". Wucherer (1866) in Brazil and Porroncito (1880) in Italy confirmed these findings and discoverd this to be the cause of the ghastly epidemic among workers of St. Gotthard tunnel. The latter's work gave incentive to young workers in Parasitology. Thus Grassi and Parona Bros. (1878) discovered for the first time a method of diagnosis by finding the eggs in stools.

Ercolani (1859) was first to describe the dog hook worm '*A caninum*'. He first named it '*Selerostomum caninun*' subsequently called it "*Strongylus caninus*" finally named it '*Uncinaria canina*'. Railliet (1900), and Hall (1913) studied the morphology and called it '*Ancylostoma caninum*'.

In the meantime, Looss in 1898 in Cairo discovered by accidentally infecting himself

that the infection could take place through the skin, which was soon confirmed by Grassi (1903) and Pieri (1902). In 1904 Looss traced out the course taken by the infective larva through the skin to the intestines. But Leuckart, and Looss himself had further shown that infection could be '*per os*' also. (Chandler 1929).

In 1910 de Faria described an ancylostomum from cats and dogs in Brazil and called it "*Ancylostoma braziliense*" Looss in 1911 encountered identical worms from a civet cat in Ceylon.

The worms belong to the family '*Ancylostomidae*', Order—'Strongyloidea' and are commonly called as "Hook Worms". There are two genera. (1) '*Ancylostoma*' and (2) '*Necator*'. (i) "*Ancylostoma caninum*" and "*A. braziliense*" occur in dogs, cats, foxes and rarely in man· "*A. duodenale*"—occurs in man. (ii) "*Necator americanus*"—occurs in man and sometimes in pigs. "*N. suillus*"—occurs in pigs. "*Uncinaria stenocephala*"—occurs in dogs, foxes and cats in Europe and Asia.

MORPHOLOGY :

(1) *Ancylostoma*—The worms have cylindrical bodies with a transversely striated Chitinous cuticle. A pair of tactile cervical papillae are seen near about the middle of the oesophagus. The subglobular buccal capsule is bent dorsally with a '*gape*' or '*notch*' on its dorsal side ; dorsal oesophageal gland is also present. The dorsal teeth lie on eighter side of the gape. Ventral teeth and a pair of triangular ventral lancets are seen centrally. The buccal capsule leads to oesophagus, a muscular clubshaped triradiate organ with three oesophageal glands The dorsol oesophageal gland opens into the buccal capsule while the other two open into the oesophagus. A pair of cephalic glands each composed of a single gigantic cell open by a pair of minute pores at the sides of buccal capsule These glands secrete the anticoagulant and are called "*Poison glands*". The bridge cell supposed to serve as excretory vesicle receives ducts from laternal tubules and the unicellular cervical glands. The excretony pore opens on the midventral line, a little behind the nerve ring. The nerve ring surrounds the oesophagus by about its middle. Vulva is a little behind the middle of the body. The vagina is short and bifurcates into two uteri. The coils of ovaries occupy the coils of uteri. The ovary and uteri are continuous by means of oviduets. The receptaculam seminis lies between the uterus and the oviduct.

In the male, the tail end has a bursa with 3 lobes. The small dorsal lobe has single dorsal ray which bifurcates about the lower third, each fork ending in either bi or tri digitations. The externo-dorsal ray gives support to the lateral lobe. The three lateral rays are markedly prominent. Spicules are very long, slender, similar and sharp pointed. A small gubernaculum is present. The ejaculatory duct runs forward from the cloaca leading to seminal vesicle. From here the male reproductory tube is continued as the tubular testis.

1. *A. Caninum* : Females are 10-12 mm. long, males are 9 mm. long. 3 pairs of well developed ventral teeth are present.

2. *A. duodenale* : Females 12 mm. long and males 9 mm. Buccal capsule possesses two large ventral teeth on either side with a third pair rudimentary.

3. *A. braziliense* : Worms are smaller. Females measure 8 mm. in cats, 9 mm. in dogs, 11 mm. in man and males 6.6 mm. in cats, 7.5 mm. in dog, and 9 mm. in man. The striking peculiarity in freshly passed worms is the hyaline gelatinous looking anterior one fifth which is due to the oesophagus.

The colour of the body varies in different localities, Buccal capsule has two pairs of ventral teeth of which one pair is rudimentary. Bursa is similar to "*A. Caninum*".

(ii) *Necator*: Instead of teeth, ventral cutting plates are present. The head end is almost perpendicular to the body dorsally. The oral opening is eliptical. The oesophageal gland opens through the tip of tooth like structure, on either side of which, are non-serrated lateral lancets, powerful longer ventral lancets are present. The ventral margin of capsule bears two thin cutting plates ventrally and 6 to 8 pairs of head papillae orally. Oesophagus is shorter. In females vulva is anterior to the middle of the body No terminal spine is seen.

In the male the small dorsal lobe is further divided into two smaller lobes each supported by a branch of the dorsal ray that is split at its base and each branch is bifid with a small lateral branch at its trip. The externo-dorsal ray is long. In the lateral lobe the postero and medio lateral rays arise from a common root. There is a well developed prebursal ray on the ventral side. Spicules are long slender with delicate membronelles ending in barbed points. Gubernaculam is absent.

N. americanus and *N. suillus* are alike but the former occurs in man and is shorter whereas the later is in pigs and is longer.

Uncinaria stenocephala: Predominat species of dogs and cats in Europe. It differs from the other Necators in :—

a. absence of lateral lancets and a dorsal tooth.
b. divergence of medio and postero lateral rays and
c. the dorsal ray is split only in the distal end.

The distribution of the various species of hookworms depends upon climatic condition, feeding habits of the hosts and their resistance but in general it has been noticed that heavy incidence is noticed between latitudes 35°N and 30° S (Faust 1949).

Life cycle: The hookworms are prolific breeders. Attaching themselves to the walls of the intestines of the host they feed constantly except at times. It is likely that the males move more frequently in order to indulge in frequent copulations. Herick (1928) working on "*A. caninum*" of dogs found that there were 1031 females and 886 males in 10 dogs out of which 150 were copulating pairs. They remained in copulation for several hours in warm saline and often till death.

Sweet (1924) and Cort *et al* (1926) working on the egg production of the female ancylostomes found that about 20,000 eggs per day were laid by each and Herick (1928) found that the average is 14,870 eggs per day per worm. Egg production gradually increases till the worm is 4 to 7 months old when it is 17,199 per day per worm. Under adverse physiological condition of the host like starvation, fever etc., the egg production goes down. Eggs are usually in 4 celled stage when expelled and are clear, colourless, ellipsoidal with wide space between the shell and the contents. The size of the egg varies according to the species of worms. Eggs of "*A.caniunm*"— 75 to 80 μ long. "*A.duodenale*" 54 to 65 μ, "*A. braziliense*" — 60 μ and Necator 50 to 80 μ. Unfertilized eggs have a sort of bluish glassy appearance without any clearly defined cells or embryo (Chandler. 1929).

The eggs do not develop further than the 4 celled stage inside the host as they require oxygen for further development. Their requirements are warmth, air and small quantities of moisture. Chandler working on the

hatchability of the eggs after cutting off the air found out that the eggs remained in the 4 celled stage even after 2 weeks. Looss (1911) records that at 70 to 85° F. the eggs develop well, it is rapid at 85° F. At lower temperatures the development is only retarded but the viability is not lost. Svensson (1926) observed that the eggs did not develop at all in ice box and continued to remain so till one week after their removal to room temperature. But the larvae hatched out at room temperature were able to withstand ice-box temperature for 6 weeks in case of *Necators* and more than 15 weeks in case of *A. Caninum,* Her work was corroborated by Augustine (1924),

Moisture is very essential for the development of the eggs. Eggs exposed to the desiccating action of tropical sun in dry atmosphere are destroyed but the amount of moisture required however is slight.

Under favourable conditions of air, moistute and temperature the eggs develop very rapidly and the tadpole form it soon assumed. Gradually it elongates into a vermiform embryo which hatches in about $\frac{1}{2}$ to 2 days. The newly hatched larvae are 0.25 mm. long and 0.017 mm. wide. Head is blunt. Body is thickest at the anterior and tapers on each side. Digestive tract is well developed. The mouth is simple with a narrow elongate buccal cavity (10 μ x 2 μ) followed by a rhabdi form oesophagus (85 μ). The intestine is a straight tube. This is the first stage larva which feeds voraciously upon decaying organic matter and bacteria of the faeces. Under favourable conditions it grows in 3-4 days upto 0.4 to 0.43 mm long.

Then they shed the cuticle to become the second stage larva. Further growth takes place till it is 0.5 to 0.7 mm. long in about 4 to 3 days whereupon the second cuticle is developed and is retained as a sheath which is characteristic of the free living 3rd, stage larva of hook-worms The body of the larva shrinks slightly so that the sheath is loose upon it and this takes from 4 to 5 days. At this stage it possesses a closed mouth, a narrower oesophagus and a small genital rudiment. It does not feed but depends upon the reserve food stored in the intestinal cells. This is the infective larva. Cort *et al* (1922) found that under certain conditions it loses its sheath while wriggling through closely packed sand particles. This unsheathed larva though becomes less resistant to the action of chemicals, desiccation etc. still retains its infectivity.

Another point of interest about the survival of the hook worm larva as noted by Stoll (1923) and McCoy (1929) is that the larva does not thrive in the excreta of vegetarians as much as they do in the excreta of persons with mixed diet. Miyagawa (1916) Heyden (1927) support this view and also found out that when vegetarian stool was mixed with charcoal powder the inhibiting factor is lost and the larva thrive normally. Chandler found out that the dung beetles provide an excellent cultural condition for the survival of larvae by burrowing through into the faeces and mixing it with the earth which would not have been possible had not the beetles got access to it.

The infective larvae are positively phototropic to mild light and negatively geotropic and thigmotropic. They are also attracted to moderately high temperature (95° to 104° F). The larvae do not migrate at all. If at all they are found at other places it is purely due to the larvae being carried to those places gradually by heavy water currents (Cort and Payne 1922, Augustine 1922 and 1923, and Chandler 1925).

The longevity of the infective larvae were

considered to be great (that is 12 lo 18 months) basing the facts on laboratory findings. But Looss (1911) pointed out that the larvae become short lived when once the reserve food material is exhausted. Sometimes infective larvae are dead even under normal conditions in about a month's time (Augustine 1922).

Leuckart in 1866 advanced that infection of hook worms was only by accidental infestation of the infective larvae through contamination. Looss (1898) discovered the skin penetration route of the hook worm larvae by accidentally infecting himself and in 1905 he proved it and traced out the route the infective larvae followed in order to reach the intestine which was supported by Miyagawa (1923 and 1916) and by his opponants, Yokogava (1926) and Scott (1928) proved that infection *'per os'* is possible besides the migratory route.

The infective larvae after getting swallowed remain in the stomach for 2 days (Looss 1911) and Yokogawa (1926) or may go to intestine and remain in the crypts of Lieberukuhn (Fulleborn 1927) and later return to the lumen. He is of opinion that the larva has initial tendency to migrate but something in the mucous of the stomach and intestine inhibits this migration and they quickly realise that they are in their seats of predilection. In the intestine they moult twice, sexes are differentiated and they grow to adult stage.

The larvae penetrating the skin undergo migration. The larvae in the migratory phase cast off their sheaths, if not already done. Most of them find their way through the superficial lymphatic capillaries and reach the right side of the heart *via* the thoracic duct. From the heart they are pumped to the lungs through the pulmonary artery. In the lungs they get caught in the lumen of the capillaries the diameter of which being only 20 μ much less than that of the larvae, and by the wriggling movement pierce through the capillary wall and reach the alveolar spaces of the lung due to some attraction for oxygen. From here, through the bronchiole they migrate upwards, are coughed up, and then get swallowed along with mucous into the stomach. The larva now grows and the 3rd moult is completed in the intestine.

Blood picture in anaemia. There are two kinds of anaemia depending on the degree of infestation.

(i) Anaemia of nonfatal hook worm infestation, is typically microcytic hypochromic (Foster and Landsburg 1934) and is identical with that associated with chronic haemorrhage. Blood picture presents a majority of red blood cells undersized, pale, decreased haemoglobin content and decreased volume. Predominance of microcytosis, anisocytosis and poikilocytosis is seen. Evidence of haemopoitic regeneration by the occasional presence of erythroblasts and polychromatophelia is also noticed.

(ii) Anaemia associated with acute fatal infestation :

There is rapid and progressive decrease of R.B.Cs. and haemoglobin count till death. The blood changes are typically those of acute post haemorrhagic anaemia. Neither the size nor the haemoglobin content of the R.B.Cs is affected. At the onset there will be marked increase of reticulocytes and the blood smear just before death shows nucleated R.B Cs, polychromatophelia and anisocytosis to some degree.

Eosinophilia in dog, did not follow every infection and when present occurred inconsistantly (Landsburg and Foster 1937).

Zainalstreef and Streefspaan (1940) working

on the blood plasma of hookworm patients showed that there is a decrease in the albumin and increase in globulin with a net decrease in total plasma proteins. Thus there is a fall in the colloid osmotic pressure as a result of which, in very acute cases there is oedema of the dependent parts.

Coagulation time of the blood of dogs infested with hookworms is greatly increased from 83 seconds in normal dogs to 119 seconds in the infested ones as shown by Greenstaff and Spensor (1940). They believe that this phenomenon may be due to lack of prothrombin, fibrinogen or calcium contents consequent to the heavy loss of blood. This makes the hookworm patients more vulnerable to post operative haemorrhages than the normal ones.

Another noteworthy finding recorded by Yutuc (1932) is that *A. caninum* from dogs infected with surra parasites (*Trypanosoma evansi*) also harboured the parasite and caused surra in rabbits and dogs experimentally inoculated with the extracts of such worms. According to him this may be one of the causes of the frequent relapses of surra in dogs treated and cured of the disease.

Besides the various blood changes, certain tissue changes are also noticed. Liver is slightly enlarged, spleen is also enlarged showing a large number of proliferative erythroblasts. Oedema of lungs, effusion of yellowish fluid into the pleural cavity and pericardium have been noticed. In chronic cases heart is very much enlarged. In the intestines the mucosa is found haemorrhagic, ulcerated, congested and mucous coated.

Symptoms : In mild to light infestations no symptoms are shown. They harbour the infection, constantly disseminating the eggs for further infection. They are a potent source of danger to others.

In acute cases anaemia, digestive disturbances, diarrhoea followed by dysentry, pyrexia, emaciation. The dog becomes listless either has no appetite or has voracious appetite without being able to assimilate anything. In chronic infestation lachrymation from eyes, tendency to vomit with occasional signs of colic, small quantities of mucous coated stools a number of times a day. In early stages there is dry cough with mild pyrexia. When infection is per cutaneous route, there is transitory inflammation in puppies while in old dogs marked oedema and inflammation parasiting for one week with exudation and necrosis at the centre of the lesion (Scarles as reported by Landsburg 1939).

After some further development in its anatomy, sexes are differentiated. In the male, bursa is formed. By this time the larva is 3-5 mm. long. 4th moult takes place. Now the worm continues to grow to adult. They copulate and produce eggs again. In *A. caninum* eggs appear in stools of puppies in 15 to 18 days after infection.

Besides the above two routes of infection there is a third in which the foetus is infected transplacentally. Foster (1935) observes that the infective larvae exhibit a pronounced affinity for foetal tissue. Eventhough the mother could also be infected after taking the infection, she remains unaffected whereas all the foetuses get infected. No further development takes place in the foetus but it is resumed after the puppies are born and within a short period of 10-14 days postnatum, the puppies discharge eggs in stools.

Pathology : Hookworm disease is a slow insiduous disease. It has a slow progressive action with a cumulative effect on the victims. It differs from protozoan or bacterial infection in that the worms do not multiply in the

body. The severity of the infection depends mainly on the number of worms present in the host. The symptoms depend upon the host's condition of health, degree of infestation and feeding habits. Acute cases due to multiple small infestations result in abdominal pain, rapid anaemia, cachexia and death. Sometimes oedema of dependant parts and fluid effusions into the serous cavities is also not uncommon.

Mild cases are apparently healthy, evince no untoward symptoms at all, to warrant any treatment. There might be a slight discomfort with occasional liquid or semisolid motions.

Unlike other diseases "*Hook Worm Disease*" has no incubation period.

Pathogenesis by larva : Skin penetration leads to irritations of the part with consequent pruritis, local inflammation and swelling of the part causing vesicles that persist for about 12 days. This condition is known as '*Creeping eruption*'. *A. braziliense* and *U. stenocephala* are said to cause creeping eruption.

The larvae in their migratory phase in the lungs break the capillary walls resulting in haemorrhage into the alveolar spaces and a very large number of such haemorrhages which will lead to pneumonia. This does not however occur because the number of the larvae entering at a time is not so great. There may be mild pneumonia. The injury in the lung is quickly healed if there is no secondary bacterial invasion. In its fourth larval stage the larva gnaws at the intestinal mucosa and sets up digestive disturbances.

Pathogenesis by adult worms : By their attachment to the mucosa the worms take a plug of mucous membrane and gnaw at it. This portion undergoes necrotic changes and is digested by the worm. The worm pierces the capillaries of arterioles and sucks blood for the utilisation of oxygen and rhythmically lets it out through the anus. The blood thus sucked in and let out does not undergo any other change either in its composition or in its cellular contents. The worms have a histolytic action on the mucous coat, which later develops into a follicular ulcer infected with the pyogenic bacteria of the intestine.

It was Grassi that first observed the blood sucking habit of the ancylostomes. Later Leichtenstern (1896) and Perroncito (1886) confirmed this who believed the parasites to live upon blood. Subsequently however Looss (1905) has shown that the parasites live on tissue elements of the gut and that the bleeding is purely accidental. It was Wells (1931) that conclusively proved that the worms are potent blood suckers, each worm sucking as much as 0.84 cc. per day, and that the blood flow is not accidental as could be evidenced from the suction action of the oesophagus which contracts and relaxes at each such action at a rate of 120-250 times per minute. The blood loss from the host is not only on account of the worms sucking action to meet their oxygen requirement but also to a greater extent to the anticoagulatory secretion of the worms which they leave behind as they change for a fresh sites, leaving the wounds to bleed for a considerable length of time. On account of these factors the most important and outstanding symptom of hook worm infestation is the anaemia it produces in the host, the degree of which being entirely dependent upon the density of infestation. Early workers believed that the anaemia was caused by the haemolytic action of the toxins produced by the worms.

Whipple (1909) attributed the anaemia to be due to the absorption of bacterial toxins through the intestinal wounds ; de Langan (1924) suggested that it might be due to the

inhibitory action of the toxin upon the bone marrow. It was Foster and Landsburg (1934) and Landsburg (1939) that proved that the anaemia is only due to blood loss and they experimentally reproduced a similar picture of anaemia by bleeding a healthy dog.

Diagnosis : From the symptoms one may suspect hookworm infection but positive diagnosis can only be arrived at after finding characteristic eggs in stools. For evaluating the degree of infection egg count methods may be adopted. According to Faust (1949) infection is considered mild when stools contain upto 2000 eggs per c.c. of formed stools, moderate when it is 2000 to 11000 eggs and severe when it is more than 11000 eggs.

Treatment : Treatment of hook worm disease has been rather difficult until recently. Various drugs like Malefern, Santonin, Thymol, etc. were tried. Until the beginning of 20th century thymol remained the drug of of choice. Darling (1920) Lane (1940) were of opinion that Thymol was the safest of all anthelmintics. It produces burning sensation on stomach causing nausea vomiting diarrhoea, etc. It is a cardiac depressent causing fall of blood pressure. It also damages the kidneys hence it has been discontinued as a hookworm remedy.

Oil of chenopodium : The active principle is ascaridol which has anthelmintic property. It is also a cardiac and respiratory depressent. This also has met with disapproval.

Carbon tetrachloride : Hall (1921), Leach (1922) and Lambert (1924) gave fair trials to this and reported that it was 100% effective. After preliminary trials it was noticed that a saline purgative 2 to 3 hours after medication was necessary to remove the dead worms as well as the drug. It is quickly absorbed in presence of fatty substances and causes liver cirrhosis. Large doses cause fatty infiltration of kidneys in dogs. In cats even in small doses fatty degeneration of the kidney and albuminuria has been noticed. Minot (1927) showed that the deleterious effects of carbon-tetrachloride is due to low blood calcium which could be got over by calcium therapy.

Hexylresorcinol : It is a crystalline white powder with pungent odour and sharp astringent taste. It is both a bactericide as well as an anthelmintic. Lamson, Brown, Robbins and Ward (1932) reported very good results with it. Medication should be preceded and followed by a 12 hour fast and a purgative may be given 24 hours after the drug has been administered. Treatment should not be repeated within 10 days. Dosage for dogs– 0·2 – 1·0 Gm. in gelatine capsule (B.V. Codex 1953). One of the authers of this article (B.P.) tried the drug in Orissa and had good results with mixed infections of "*Ascarids*" and "*Ancylostomes*". But with only *Ancylostome* infections his results were variable when compared with those obtained with tetrachlorethyline. The cost of tbe drug also is a point of consideration in veterinary practice.

Tetrachlo: ethylene : Hall and Shillinger (1925) used this against hookworms in dogs with success. Subsequently Robbins and Ward (1929) in dogs, Maplestone and Chopra (1935) in cats have reported encouragingly about the efficacy of this drug in Ancylostomiasis. Fernando et al (1939) studying the therapeutic index of the drug remarked that this drug is much superior to others. They opine that it has a low toxic effect and high therapeutic index. Hare and Dutta (1939) reported that it fulfills the requirements of an ideal anthelmintic.

According to one of us (B.P.) it is the drug of choice in the treatment of "*Ancylostomiasis*" because it can be administered without any

bad effects even to one month old puppies with maximum anthelmintic efficiency. But the most important and essential factor in his findings is that the worms should be expelled out after they have been killed by the drug otherwise they get digested and toxaemia results. In canine practice a suitable and efficient purgative is yet to be found out for this purpose, as the saline purgatives used fail to respond as desired.

Dosage recommended by B. V. Codex 1953 is 1 to 5 cc for dogs and 0·2 to 0·5 cc for cats. The dose be better calculated on body weight at 1 cc per 10 lbs body weight. Administration of the drug should be preceded by 12 hour fast, and administration of calcium and glucose parenterally during and before treatment. A saline purgative must be administered 2 hours after medication, which may not work always and hence a deep soap-water enema becomes necessary for the effective removal of worms and the drug.

Whatever be the method of deworming followed and whatever be the percentage of worms removed, treatment of hookworm disease remains incomplete without iron therapy. As has been already stated the worms cause acute anaemia depriving the body of its iron content making the haemopoitic system functionless—supply of easily assimilable iron becomes absolutely essential and is equally important if not more than the successful removal of the worms. Rhodes, Castle, Payne and Lawson (1934) have stated that the removal of worms alone has very little effect while rapid improvement followed the administration of iron whether the worms are removed or not. Povoa (1934) remarks that the treatment for anaemia should normally precede the removal of worms to make the patient better able to help the action of anthelmintics.

Immunity : Hookworms are to a great extent species specific. *A. duodenale* of man can infect young puppies but not adult dogs. They however take up the infection but the infective larvae do not develop in them but remain in the intestines for about a week till expelled for unknown reasons. *A. caninum* though affecting dogs and cats equally are physiological variants. *A. caninum* of dogs fails to develop in cats and vice versa. Even in dogs there is selectivity in infection. *U. caninum* of England cannot infect dogs of India and *A. caninum* of India cannot thrive in dogs of the west.

Otto and Kerr (1939) using a number of light infections of *A. caninum* were able to bring about an active immunity in dogs which resisted large doses of infection while the controls died of it.

Otto (1940) further published evidence that sera of dogs immunised against hookworms contains an antibody which is inhibitory to the larvae. Following exposure to such a serum the infective larvae lose their ability to further develop even though their vitality is unaffected.

Small numbers of hookworms should always be present in the body to maintain the immunity against further infection (Cort and Otto 1940).

Prevention and control : This aspect of the problem will ever remain a difficult task for obvious reasons. But it can always be tackled indirectly wherein the willing cooperation of pet owner becomes absolutely essential. The owners may be advised to get their animals checked up periodically and treated if found necessary. Since soil infection continues to exist for long periods it would be advisable for the pet owners to get the surroundings treated with alkalies like lime, caustic soda, etc. so that the pH of the

soil be raised to beyond 12 when the infective larve are all destroyed (Mc Culloch 1936). This is essential as otherwise the larvae thrive best at pH 6 to 9·4. (Landsburg 1939). Sea water greatly retards the hatchability of the eggs and kills the freshly hatched out larvae (Caldwell and Caldwell 1927). Hence 3% sodium chloride may be used for the purpose.

The role of a nutritious and a well balanced diet should under no circumstance be lost sight of. Under-nourished and irregularly fed pets are the most easily predisposed preys for easy infection.

ACKNOWLEDGEMENTS

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Inderjit Singh Bakshi,
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Nonspecific Chronic Endometritis in Bovines

Reduced fertility and subsequent sterility due to chronic endometritis in bovines caused by non-specific causes is stressed in this article. Mr. Singh has reviewed this classification symptoms diagnosis and treatment of the conditions.

IT was first pointed out by Albrechtsen(1920) that Chronic Endometritis is the most frequent of very numerous conditions which reduce the fertility or give rise to permanent sterility in bovines. Quinlon (1929) states that in 70-80% of sterile cows in South Africa barrenness was due to chronic endometritis. During the involutionary period following parturition or abortion, organisms gain entrance to the uterus and become established there. But endometritis which occurs in heifers that have just reached the breeding age according to Williams (1921) is due to the infection from the male. If in contagious abortion there is no secondary invasion of the uterus the endometritis caused by Brucella abortus is of a transient nature and causes no permanent pathological change inimical to reproductive functions. In mild cases of endometritis sterility is due to the early embryonic death.

Classification : Neilsen (1929) following Richter (1922) has classified metritic conditions into two groups.

(i) Endometritis puerperalis : All pathological conditions which occur during the uterine involutionary period without reference to the severity or the nature of pathological changes it occurs within three weeks after parturition.

(ii) Those cases of metritis which occur outside the puerperal period of 3 weeks post partum, have been classified according to the pathological changes into the following types.

(1) Chronic Endometritis of the 1st degree : Catarrhal endometritis without mucopurulent discharge ; In this there is slight inflammation of endometrium at the most accompanied by only very small amount of mucous discharge.

(2) Chronic Endometritis 2nd degree : Endometritis catarrhalis chronica with muco purulent discharge.

(3) Chronic Endometritis 3rd degree which in reality is pyometra (Pyometra Endometritis Chronica).

Etiology : The cause of Chronic endometritis may be specific or non-specific.

Specific Causes : They are Vibrio foetus, Trichmonus foetus, Brucella abortus, uterine Tuberculosis and some moulds like Asperigillus fumigatus or Mucor rhizophodifazmis.

Non-specific Causes : Infection of the uterus by bacteria like Streptococci, Staphylococci, B. Coli, Bacillus subtilis and various haemolytic and non haemolytic diptheroies, including Corneybacterium renale and C. Pyogenes which may be normally present in the posterior part of vagina but are not normally patho-

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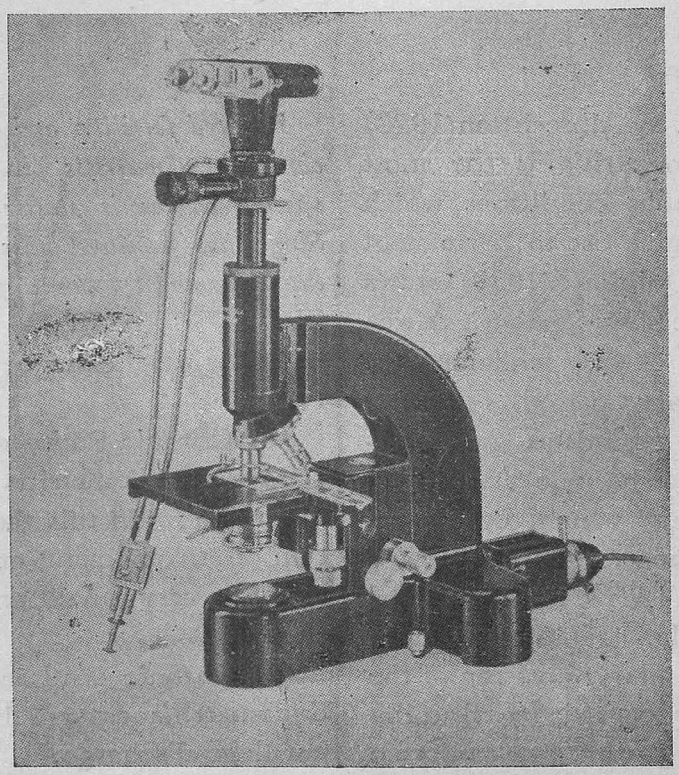

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genic to uterine tissue begins immediately after parturition in majority of cases, and also in a few cases due to machanical trauma not associated with parturition but as a result of damage with instruments like insemination pipettes etc. Extensive out breaks are usually associated with C. Pyogenes infection which has been regarded by some as of primary etiological significance but on the basis of rather indefinite evidence.

The predisposing causes which operate before these organisms invade the uterus and cause disease are not very clear. But in some cases the infection follows and appears to be associated with, dystokia, attendent damage, infection with Brucella abortus and retention of foetal membranes, whether or not preceded by Brucella abortus infection. And yet many cases do occur after normal uncomplicated parturition. Another predisposing factor is the stage of oestrous cycle i.e., if bacteria gain entrance to the uterus during the follicular phase they may not be able to survive due to the high oestrogenic content which destroys the organism, but if the organisms gain entrance during the luteal phase they do get established in the uterus and are not destroyed because the oestrogen level is low and produce endometritis later. Ovarian abnormalities and irregular oestrous cycle may complicate or produce chronic endometritis but the evidence available could be construed equally well as indicating that they are secondary to endometritis. In a non gravid animal vagina is continuously contaminated and the infection spreads up the vertibule but the bacteria are destroyed as they go up so that normal cervix and its surroundings are sterile or nearly so. But the mechanism by which the infection of the genital tract as distinct from contamination is pevented is not known. Derangement of oestrogen and progesterone level in the system and above all parturition which lowers the general and the genital health of the animal predispose to chronic endometritis.

Pathogenesis : After parturition continuity of the epithelium of the surface of the cotyledons is broken and the infecting organisms invade these areas and spread to the other parts of the mucous membrane. Occasionally the infection may have an acute febrile phase but most often there is no systemic disturbance, the infection being chronic from its inception. Exudation from the uterine epithelium takes place which varies in character from catarrhal to purulent according to the degree of infection. Single or multiple abcess formation usually occurs in association with C. pyogenes infection. The abnormal intrauterine conditions are generally believed to be inimical to sperm survival and thus cause sterility. Uterine infection in some cases may be associated with the infection of fallopian tubes and their fixation so that the ova are not picked up when they are shed or their passage down the tubes or the upward passage of spermetazoa is prevented.

In purulent endometritis in some cases the pus becomes retained and accumulates within the uterus to form pyometra. Cyclical activity of the ovaries is absent in pyometra and a large corpus luteum similar to that of pregnancy in size and consistency is always present though deeply embedded. However it is not known whether the corpus luteum persists because of pyometra following chronic endometritis and normal regression takes place in pyometra due to other pathological cases. Chronic endometritis with increase of fibrous tissue prevents the uterus from expanding with growth of the foetus at the subsequent pregnancy. Sometimes the infection spread to the peritoneum causing metro peritonitis. A

type of diffuse chronic endometritis which occurs at a later months of pregnancy attacks the utero placental membrane causing adhesions between the two and causes pain and tenderness in the walls of uterus giving rise to what is known as " Uterine rheumatism ".

Symptoms : The condition is usually chronic from its inception but acute febrile symptoms immediately after parturition caused by acute endometritis may have been noticed. The symptom first noticed is the discharge of abnormal material from the vulva which may not be continuously seen after parturition; when seen it may be continuous or intermittant and sometimes more pronounced before or after the oestrous. The nature of the discharge varies through all stages from that of clear fluid, nucous with a few greyish flakes of pus to pure pus oestrous cycles may be regular or irregular except in pyometra where, oestrous does not occur. Animals fail to conceive or do so after repeated insemi-nations.

Vaginal examination reveals the presence of abnormal discharge lying in the vaginal wall or flowing through the cervix. There may be diffuse reddening of the anterior part of vagina cervix is enlarged and its canal relaxed. In well established cases the vaginal portion of cervix is grossly enlarged, red and oedematous with inner folds extruded. Rectal examination reveals the enlarged and atonic condition of the uterus and its horns. Enlargement of horns is not equal bilaterally. Ovaries are normal with corpora lutea of varying degrees of development according to the stage of the cycle except in case of pyometra where an old deeply embedded corpus luteum is always present in one of the ovaries. Symptoms will vary according to the degree of endometritis. In first degree endometritis there is either no uterine discharge or slight intermittant one. Sometimes it may be difficult to differentiate it from normal uters since it is purely catarrhal.

Endometritis of the 2nd degree shows more definite clinical symptoms which include failure to conceive and muco-purulant discharge from the vulva. Uterus is felt to be relaxed and roughy with distended lumen and slight hypertrophy of its wall.

In Endometritis of the 3rd degree i.e., pyometra, uterus is enlarged to a varying degree according to the volume of the pus present. Contents are less fluid and fluctuant than in pregnancy and oestrous does not occur.

It must not be forgotton however that endometritis with cystic degenration of ovaries is not inflammatory in nature and is secondary to ovarian changes.

Diagnosis : Diagnosis is made by the presence of vaginal discharge and the enlargement of uterus as felt on vaginal and rectal examination. In C. pyogenes infection the characteristic foul smell will be present. Bacteriological examination of the discharge will reveal the type of organisms involved. Failures to conceive signify endometrial changes. Vaginal examinations will reveal cervicitis with its canal relaxed. Uterus will feel atonic and doughy per rectum.

Differential Diagnosis : Differentiation from the specific type of endometeritis caused by trichomonas foetus and vibrio foetus is made on the history of the case, their enzootic occurance as distinct from sporadic type in non specific endometritis, absence of abortion in non specific type and also the absence of trichomonads, and vibrios. Differentiation from tuberculous type is made by examination of the stained films of uterine discharge and if required by biological test. Pyometra must be differentiated from pregnancy. In

pyometra both horns are distended symetrically. This can be confused with twin pregnancy. Progressive examination month after month should be done. In pregnancy there is progressive enlargement of the uterine horns and foetal membranes are felt. It can also be confused with mumified, foetus in utero and usually the foetus can be felt as a hard and irregular contoured mass.

Prognosis : This depends upon the lapse between the onset of symptoms and the treatment. In uncomplicated cases of catarrhal endometritis prognosis is favourable because it responds to simple treatment and recovery is spontaneous. Prognosis is favourable in all cases where C. pyogenes is not involved and the disease does not follow dystokia or retention of foetal membranes. In C. pyogenes infection prognosis is unfavourable because of the frequency with which it affects the fallopion tubes and reduces the reproductive efficiency of the animal. Pyometra has also a poor prognosis.

Treatment : Irrigation of the uterus with Lugol's iodine in various concentrations is good and is very commonly employed in all types of chronic endometritis. In slight catarrhal infection intrauterine injections of 1:4000 Lugol's iodine by the rectovaginal method of about 150 cc has given best results. Volume injected varies but should be such that uterus can be felt under the left hand per rectum to become only slightly distended. Irrigation with Lugol's iodine may not be very useful in well established cases but will help recovery to some extent. Uterine irrigation with 15% propamidine (B.P.C.) on 3 successive days in doses of six, three and three fluid ounces has been effective especially in C. pyogenes infection but relapses may occur which require retreatment and complete recovery and fertility follows only after a lengthy period probably due to an extensive destruction of the uterine tissue and enough time is required for complete healing. If there are abnormalities of the oestrous cycles in conjunction with purulant endometritis better results are obtained if these are directly treated in parallel with uterine therapy. The most usual abnormality is sub oestrum and effects of uterine irrigation are aided by ennucleation of mid cycle corporalutea.

In those cases of purulent endomeritis which have developed to pyometra best results are obtained with stilboestrol 10-20 mgm by intramuscular route for a few days followed by intrauterine irrigation with 1 in 400 Lugol's iodine. Stilboestrol causes contraction of the uterus and expulsion of its content. If the corpus luteum which is invariably present can be ennucleated spectacular emptying and involution of uterus usually occurs and is considered to be the best form of treatment in pyometra. Recovery in such cases is spontaneous with passage of time and change of environment. Some times the corpus luteum in pyometra is deeply embeded and can be removed only by applying great presure which involves the risk of permanent damage to the ovaries or fatal haemorrhage.

Sulphanomide group of drugs are ineffective in the treatment of chronic endometritis but at present antibiotic therapy, with strep to penicillin is very useful in controlling the infection in early stages. Supplementation of liberal quantities of iodine, calcium Vitamins A & D, and phosphorous will maintain the health of the animal and genital tract. Irrigating the uterus with normal saline, 5% Mag. Sulph or with 1% boric acid will be useful in increasing the tone of the uterus.

(Continued on page 68)

Ramachandran, S.
Third B. V. Sc.

Nutritive Value of Milk

Mr. Ramachandran, S., has given a detailed list of nutrients available in milk in a form which is both explanatory and interesting.

THE MODERN man can rightly boast of his advances in preparing supplementary food articles to make up the dificiency in nutrients of his diet. In this direction he may move like a master of his achievements in the production of 'Multivites', 'Protein Supplements' and 'Mineral Supplements'. Of course, he has to his credit the epoch making achievements of science. Yet, his dependence on the cow, after all a creature far backward from the evolution point of view, has not diminised. On the other hand as he has advanced in the field of nutrition, his dependence on the cow has also increased and today milk and milk producted have become indispensable to the modern family. She has rightly been acclaimed to be 'the foster mother of the human race'. It is to her credit that the development of dairy industry has been recognised by all civilised countries, as one of the potent factor sharing its formost and direct influence on the national prosperity. This fact has long been realised in our country—as early as Vedic days. Perhaps it is this that has secured the cow such an honoured place in India.

Why milk enjoys such a unique position which no other single food does ? The credit belongs to modern discoveries in nutrition. These discoveries are responsible for the recognition of the inherent qualities of milk as the only natural and wholesome food. An analysis of the nutritive value of milk will bring out the special value of it as a food for all.

The importance of amino acids in the nutrition of an individual connot be overestimated. Milk is a rich source of essential amino acids, especially Lysine and Histidine, both of which are lacking in cereals, which form the principal course of energy in human diet. It also contains a fair quantity of methionine and cystine which are found in inadequate amounts in leguminous seeds.

A comparision of amino acid composition of different fees is given in the following table.

Table I. Amino acid in different feeds (Grams per 16 gm. of N_2)

Amino acids	Wheat	Rice	Peas	Egg Protein	Beef Flesh	Dried * Skim Milk	Whole Milk
Arginine	4.2	7.2	8.9	6.4	7.7	3.I5	4.3
Histidine	2.1	1.5	1.2	2.1	2.9	2.45	2.6
Isoleucine	3.6	5.3	4.1	8.0	6.0	7.27	8.5
Leucine	6.8	9.0	6.4	9.2	8.0	9.85	11.33
Lysine	2.7	3.2	5.0	7.2	8.1	8.42	7.5
Methionine	2.5	3.4	1.0	4.1	3.3	2.41	3.4
Phenyl lanine	5.7	6.7	4.8	6.3	4.9	4.45	5.7
Threonine	3.3	4.1	3.9	4.9	4.6	4.30	4.5
Tryptophane	1.2	1.3	0.7	1.5	1.3	1.18	1.6
Valine	4.5	6.3	4.0	7.3	5.8	6.33	8.4

* From H. H. Williams and associates, The "essential" amino acid composition of animal feeds, Cornell University Agr. Expt. Sta. Mist. 227, 1955.

Milk contains the cab ohyrarate, lactose, which is of special value in infant feeding as well as the sick. Lactose is superior to other sugars in that it is less liable to fermentation. It is less liable to cause direct irritation of the stomach mucous membranes than sugars like sucrose. It is also shown to be important in maintaining the normal condition in the intestines, for it aids the growth of desirable flora as Lactobacillus acidophilus. Lactose helps in the assimilation of Calcium. Lactose is said to play an important role in the nutrition of the brain and nerve tissues.

Milk fat has been unique in that it contains more fatty acids than any other fat of animal or vegetable origin. Some of its lower fatty acids such as butyric caproic etc., are of special value in nutrition. Milk fat, perhaps, s the most easily digestible of all other natural fats since it is in a finely emulsified form.

Milk is a rich source of Calcium and Phosphorous. It is also a fair source of Magnisium and Iodine though the amount of the latter in milk will be determined by its amount in the animal feed. Cereals, which form the bulk of the human diet, is liable to be deficient in Calcium and milk is the best factor in compensating this deficiency in our diet.

Milk is a good source of important Vitamins especially of Riboflavin and Vitamin A. It is also a fairly rich source of Thiamine and Vitamin C. Besides it contains appreciable amounts of other members of the Vitamin B, Complex, Vitamin D, E, and K. The food constitutents of milk are shown in the table below :

Table II. Composition and food elements of milk.

	Non fat dry Milk solids*	Dry whole Milk *	Whole Milk (per 100 cc)
Protein (N 6.38), %	36.9	26.50	3.3 Gm.
Minerals (ash) %	8.2	6.00	—
Lactose	51.0	38.50	4.8 Gm.
Fat %	0.9	26.75	3.8 Gm.
Moisture %	3.0	2.25	—
Vitamin A, I. U. per lb.	165.0	4,950.00	37.0 mmg.
Riboflavin mg. per lb.	9.2	6.70	158.0 mmg.
Thiamine, mg. per lb.	1.6	1.20	42.0 mmg.
Niacin, mg. per lb.	4.2	3.10	85.0 mmg.
Pantothenic acid, mg. per lb.	15.0	13.00	350.0 mmg.
Pyridoxine mg. per lb.	2.0	1.50	48.0 mmg.
Biotin, mg. per lb.	0.2	0.185	3.5 mmg.
Choline, mg. per lb.	500.0	400.00	13.0 mg.
Energy cal ories	1,630.0	2,260.00	69.0
Calcium %	1.31	0.97	—
Phosphorus %	1.02	0.75	—

* From Production Trends—Dry Milks and Relied Products, Bul. 1147, American Dry Milk Institute, Inc., Chicago, III, 1947.

Table III. Indicates the extent to which the different amounts of pasteurised milk supply the nutritional needs of a moderately active man (70 kgm.)2.

Nutrient	Nutrient content of milk.					
	Daily allowance recommended.	In 100 gm.	In 1 quart		In 1 point.	
			Total	Allowance supplied	Total	Allowance supplied per cent.
Calories	3,000.00	69.00	670	22	335	11
Protein	70.00	3.50	34	49	17	24
Phosphorous Gm.	1.32	0.093	0.88	67	0.44	33
Calcium	0.80	0.118	1.15	144	0.58	72
Iron mgm.	12.00	0.034	0.33	3	0.17	11
VitaminA, I.U.	5,000.00	154.00	1,500.00	30	750	15
Thiamine mg.	1.50	0.034	0.33	22	0.17	11
Riboflavine mg.	2.00	0.169	1.65	82	0.82	41
Ascorbic Acid, mg.	75.00	1.436	14.00	16	7.0	9
Niacin mg.	15.00	0.087	0.85	6	0.43	3

Milk proves to be the cheapest source of a fair proportion of nutrients when compared to other food stuffs. By collecting datas of expenditures and their corresponding nutritive values (of American families in North Atalantic cities) Prof. Steibeling has found that no other single food supplied as many important nutrients as milk, so cheaply.

Today the developments in the field of Nutrition have made man realise the importance of nutrition in relation to his health, wealth and his progress—that nutrition can determine his look or his activity; whether he can be lively or inert; whether he shall enjoy his work or make it a drudgery; whether he can progress or be stagnated.

Individual progress is the national progress and adequacy in diet will form the basis for the individual progress. Nutritionists Physicians and public health officials agree that milk is the foundation for adequate dietary. According to Prof. Mac Collum, "milk is the only factor of safety in making good the deficiencies of grain, which form, and shall continue to form, the principal source of energy in our diet". And therefore it is indispensable for a country like India wherein 2/3rds of her population are undernourished, and that any plan aiming at the progress of the Nation and the amelioration of her people should inextricably include at least a minimum supply of 16 oz. of milk per head.

I am thankful to Dr. V. Mahadevan, Professor of Nutrition, for his valuable advice and guidance in preparing this essay.

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(Continued from page 64)

Prophylaxis : Post partum endometritis can be prevented to some extent by adoption at parturition of strict hygienic measures with regard to housing and in any assisance given at the time of dystokia. Necessary antiseptic treatment in retention of foetal membranes following their mannual removal should be adopted. The animal should be examined periodically to ensure that complete involution of the uterus has taken place and that no endometritis has supervened as the disease can be controlled if deteced in early stages. Attention should be paid to better feeding and general management.

ACKNOWLEDGEMENT :

My sincere thanks are due, to the staff of the Department of Sterility Madras Veterinary College for their kind help and guidance in preparing this article.

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Mukundan G.,
Final B.V.Sc.

Recognition of meat of inferior quality

Mr. Mukundan, G., in this article, deals with the detection of sound meat of Cattle, Horse, Goat & Pig; besides he has described how differentiation between Horses, Cattle, Sheep and Goat carcases is carried out.

MEAT constitutes the principal food stuff for the human body. The term meat should not be applied exclusively to the striated muscles of the body and the tissues in connection therewith; but rather to all parts of the animal which are suitable for human consumption (such as fat, connective tissue, nerves, blood, lymph glands, bones cartillages etc.)

Meat is the best source of protein and fat. Protein is an essential substance for the body necessary for proper growth and repair of the tissues. Animal proteins are easily digested and the glands of the animal body supply certain amount of minerals and vitamins.

In the handling of meats and preparation of meat food products, attempts are made to substitute meat of lesser quality for that of higher quality. For the prevention of these dangers, there should be an expert supervision of meat food products of man. Sometimes abnormal conditions which do not amount to disease are encountered. Thus a well organised meat inspection undertakes the task of protecting the consumers from frauds and deceptions, caused by offering meat which is not altogether unobjectionable in regard to its origin and consistence. This requires that the meat inspector should have fundamental knowledge of the anotomy and pathology of animals.

Flesh

Cattle: Flesh constitutes the major component of meat. The colour of beef varies with age, sex and condition of the animal. In young, it is pale red. In steers it is light red to brick red. In older fattened cattle, it is darker. The muscle fibres are coarser. In older bulls, the meat is dark copper red in colour, coarse fibred, tough poor in fat and dry. The odour is characteristic. Flavour depends upon the proportion of extractives or meat bases. The age is mainly determined by seeing the teeth. Good meat is however firm and elastic to the touch, is well marbled with fat and has a characteristic fresh odour. If inflamed, the flesh is dark, discoloured and moist. When putrified, it is pale, soft and flabby and has an offensive smell which can easily be detected on cutting or boiling. Sound meat adheres well to the bones.

Horse: This flesh is marked by its dark red colour. On exposure to air, it becomes bluish or even black. Odour is stable like and almost repulsive. The fibres are very fine, the consistency is firm and fasciae are very prominent. There is no intermixing of fat. For distinguishing the various kinds of meat especially horse meat, a biological method is employed. The method is based

on the formation of precipitins in the blood serum of animals which received for a certain time intraperitonially blood serum or meat juice of other animals (say horses). If then such blood serum of rabbits is added to the blood serum or meat juice of the horse, a cloudiness will develop in the latter which results in a precipitate. The reaction appears only with blood serum or meat juice of the same specimen of animals which were employed for the preparatory treatment of the rabbit and from which the serum which supplies the precipitating serum originated. Therefore the reaction is specific.

Sheep : Mutton varies from light red to brick red colour. Muscles fibres are firm, dense and fine. The muscles are not intermixed with fat. The odour is specific, slightly ammoniacal, often resembling the odour of sheep-stable. In well fed specimens, there is plenty of fat between the groups of muscles, subcutis and round the kidneys.

Goat : Goat flesh is in general paler than sheep meat. Fat is mainly deposited around the kidneys. But the subcutis and muscles present only little amount of fat. The subcutaneous tissue is often sticky and may have hairs adhering to it. The odour resembles that of living goat and is disagreeable and repulsive especially so in males.

Pig : In hogs, age, nutritive condition and the particular body region influence the colour of meat considerably. It appears whitish grey-pale red, grey red to dark red. The colour of the pork depends upon the liberal interpenetration of fat. The fat is pure white, finely granular and soft-cooking causes pork to become white but most other meats turn grey or brown. The change is due to the conversion of haemoglobin into methaemoglobin The fibres are fine. The consistency is soft to firm and the odour indefinable. Muscles are intermixed with fat.

Calf : In few days old calves, the flesh is watery and paler. In milk fed calves, the flesh is white and firmer. Fat is jelly like consistency.

Buffalo : Fresh buffalo meat is darker and the fibres are courser and looser in structure than beef. The odour of buffalo meat and fat resembles that of musk and if boiled in strong acidified water, it develops a disagreeable odour similar to that of cattle manure (Pantigam & Halusa).

Fat

After chilling, fat from cattles is firm, a light yellow coloured and has peculiar odour. In older cattles and pasture fed cattles fat is more yellow. Buffalo fat is white but is dry and sticky and has musky odour. Mutton fat melts at 31°-52° F. has fine white colour and is odourless. Pork fat is already dealt with. Horse fat is yellow, soft and oily with a melting point of 30°. The colour of the dog fat is white to whitish grey and its consistence oily and greasy.

Bones

Horses and cattle : The cervical vertebrae Nos. 3-7 are very short in cattle but much longer in horses while in cattle the spinous processes of dorsal vertibrae are longer and of the lumbar vertibrae more separated and upright. The ribs are again much broader and less strongly curved in the latter animal and the number 13 against 18 in the horse while the sternum is broader. The *clod* bone has two pulley like grooves at the elbow as compared three in the horse and the ulna is separate. The digits and hoofs are characteristic. The pelvis of the ox is narrower and longer. Third trochanter of the horse is missing in the cattle. The grooved surface of the astragalus and tibia are straight in cattle but oblique in horses. The pubic

symphysis of buffalo is strikingly plane. Bones are more brittle.

Sheep and Goat : In the goat the bones are more slender and joints smaller. The spinous processes are longer and more angular, Whilst the spinous processes of the first eight dorsal vertebrae are bent sharply back. The diaphragm corresponds with 12th not the 11th spine. Scapula is less curved the pelvis wider and leg bones are shorter and more slender than in sheep. However it is very difficult to differentiate.

Blood : Blood becomes lighter on exposure to air. Healthy blood is always alkaline. When sulphuric acid is added to the blood, the odour characteristic for each species comes out. The blood does not coagulate within the blood vessels. Incomplete bleeding is seen in the liver and superficial veins and muscles all of which are darkly coloured and full of blood. Incompletely bled meat is easily attacked by bacteria and becomes putrified sooner. The meat of exhausted animal will be darkish and emits objectionable sour odour.

Unborn and still born animals : Unborn and still born animals are not suitable for consumtion. Foetal meat may be distinguished as follows :—It has blood in the widely opened vessels attached to it. The stomach and intestines are empty. The lungs are collapsed and sink in water. The flesh is soft flabby and watery.

Viscera : Lungs should be smooth and shiny. It should not contain blood. This should float on water. Heart tissue is brownish red and is covered by smooth shining serous membrane. Its substance should be firm and if cut, should not be dull cr contain much blood. The shape of tongue is an important criterion for distinguishing between the carcases of the different animals. Tongue of ox is narrower than that of horse and has marked ridge on the upper surface. There are 12 or more circumvallate pappillae on each side compared with two in the horse. In sheep there is a central hollow near the tip. The filiform pappillae are neither sharp nor spiny. In the pig there is no mound on the upper surface. The lining of the alimentary canal should be blue grey with a smooth lustrous surface. The gut should not be entirely empty and the contents should be easily movable. Liver should be reddish brown, has shining appearance and should not contain blood in the veins. Manifold differences in the liver which are described in anotomy text books should be noted. In sheep and cattle spleen is red brown. In the pig it is shaped like a tongue is flabby and the colour changes from bright to dark red. The kidneys are enclosed in the flat and are firm, smooth and shining. In the case of udder, the colostrum or running of milk should not be mistaken for inflammatory fluid. The peritoneum and pleura are light grey in colour and of opalascent transparency. The lymphatic glands should not be swollen. In colour they are white or grey to greyish blue, but in pigs, they are paler. External lymph glands are firmer.

ACKNOWLEDGMENT

I am greatly thankful to Dr. F. D. Wilson, Lecturer in Meat Inspection and Dr. R. H. Sundaram, Asst. Lecturer in meat Inspection for their valuable guidance in preparing this article.

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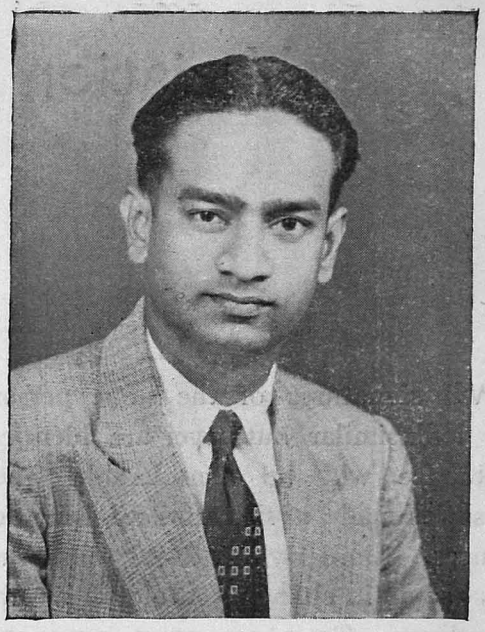
Mr. "Anonymous"
of our College

Tell me Friend

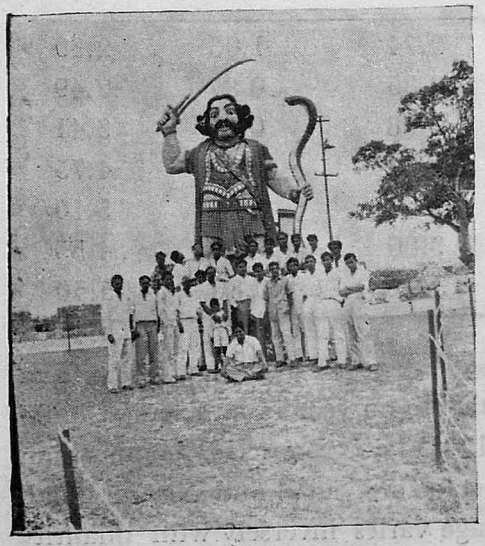
Tell me friend what you call,
When always one thinks of her,
Who in his bosoms dwell
Night and day and everywhere.
Thinks of her and her alone,
None but she can calm him down;
Feels her presence though alone
Gives her all yet wishes none.
All the beauties he doth shun,
All the jewels mean him none,
Seeks happiness in that One,
And she to him the "Heavenly One"!
Her graceful gait he delights,
Her sweet red lips he alway' seeks,
Like melting diamonds her shining eyes
He drinks "Manna" with hungried eyes
To him they are like cupid's bow,
The glances dart as arrows go,
Their mortal wounds he doth know,
Yet he wishes them to be so!
Tell me friend, tell what it is
Queer through his love disease
Even slander he takes it ease
'cause the joy is only his.
Call ye love or call ye naught!
Slander, scolding, he minds them not,
'Loving her' his only thought;
Keeps her hidden in his heart.
He sees her more and disires more
To see her on him smiles shower;
He desires but nothing more,
For "a thing of beauty is joy for ever".

Subramaniam, K. M.,
Secretary, Madras Students' Adult Education Council
"Each one teach one; well said than done"

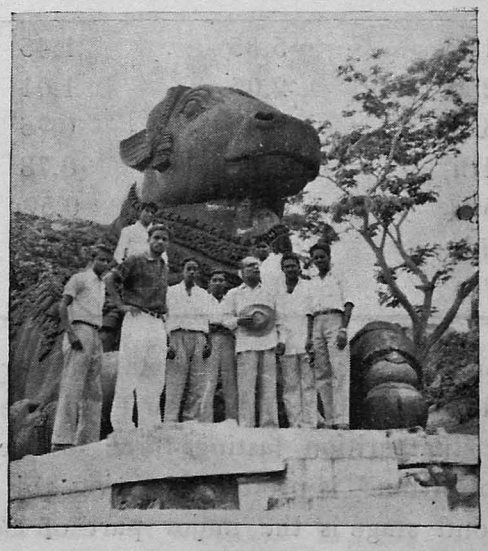


Joseph, S. A.
Secretary, M.V.C. Association
"Friend of thin old red lady—his autocycle"

Second Years at Mysore



"Sword and Snake"



"Students with 'pal"

Balakrishna Rao, P. V. G. V.,
Third B. V. Sc.

Variation in Composition of Milk

TWO signatures of the same person may look similar but never are identical, the difference will be considerable when the person is made to sign under different circumstances. Similarly any living animal will not react same in changing atmosphere and surroundings. Cows are more prone to such fluctuations ; particularly in the high yielding animals slight change will be shown off in the form of deviation in the qualities and quantities of milk to a small or a large extent.

The variation in milk composition depends upon stage of lactation, stage of milking, length of interval between milkings, excitement, season, temperature, health and nutrition.

Stage of lactation : Lactation period is divided into three stages, first is immediately after parturition lasting three to five days. "Colostrum" is produced during this stage. Second stage is the major part of lactation period depending upon the cow itself. The final stage is the period when the animal tends to turn dry.

Composition of colostrum is different from normal milk it gradually turns to normal in course of three to five days, It has a very high globulin content, twelve to fifteen times as high as normal. Lactose is low, about half the normal. Minerals consequently increase. Fat is not always constant.

Accompanying table illustrates the gradual conversion of colostrum into normal milk.

The minor constituents such as iron, manganese, zinc and copper increase by thirteen, five, four and three times the normal respectively. Riboflavine, Vit. D and carotene have seen to increase enormously.

Milking	Clobulin	Albumin	Casein	Lactose	Ash	Fat
1st	5.35	1.45	4.85	2.74	1.03	2.30
2nd	2.05	1.01	3.45	2.85	0.87	2.49
3rd	1.45	0.76	3.10	3.38	0.87	3.41
4th	0.66	0.78	2.71	3.63	0.82	4.75
5th	0.56	0.52	2.62	3.64	0.82	5.10
6th	0.49	0.50	2.56	3.86	0.82	4.55
7th	0.32	0.63	2.21	3.92	0.80	5.50

The second stage of lactation lasts from seven months to an year in an average milking animal. Fluctuations in composition during this stage are small and very gradual. Fat percentage varies inversely with quantity

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of milk. Calcium : Phosphorus ratio increases with advance of lactation. The extended lactation period of the third stage begins with the marked fall in the quantity of milk. The percentage composition of all constituents except lactose increases. Fat and chlorides are seen to increase to a maximum.

2. *Stage of milking :* The milk drawn during a single milking may be arbitrarily divided into three parts, the fore milk, middle milk and strippings.

Stage of milking	Amount of milk	Fat %	Amount of fat/lb.
Fore milk	1	2.0	0.02
Middle milk	8	4.0	0.32
Strippings	1	10.0	0.10
Total.	10	4.4	0.44
Excluding stripping	9	3.7	0.34

The solids not fat content of the milk during each milking is practically same. Fat percentage on the other hand increases with the stage of milking.

Incomplete milking causes a gradual reduction in the quantity of milk and a marked reduction in percentage of fat. This fact may be illustrated by the above data.

According to workers at University of Missouri, milk left in the udder tends to suppress the rate of milk secretion earlier, resulting in early drying.

Age of cow has little effect on the composition except for small decrease in fat percentage with advance of age.

Length of interval between milkings : Milk drawn after shorter intervals is richer in fat. In one experiment a herd was milked for three years with a day interval of nine hours and night interval of fifteen hours. During the three years the average fat percentage in milk drawn after long period was 3.2% as against 4.6% of the short period.—indicating that percentage does not fall when cows are milked more. Shortening the intervals between milkings lower the solids not fat content of milk.

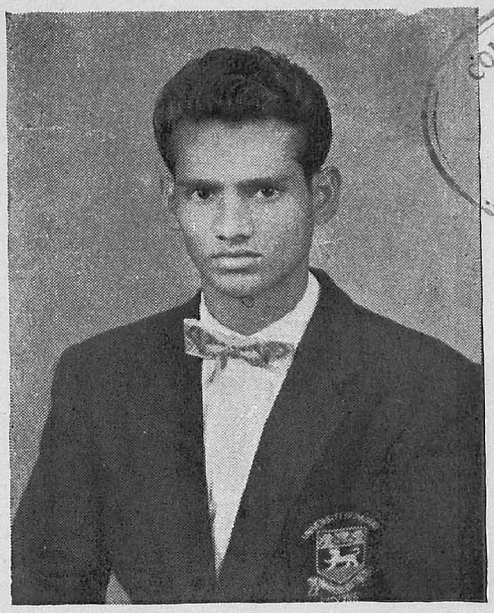
If milking is delayed for several hours marked changes occur. The concentration of lactose casein and fat decrease, globulin chlorides and ash increase.

Excitement due to high causes production of hormones as adrenaline and the like resulting in marked changes in various constituents especially quality of fat.

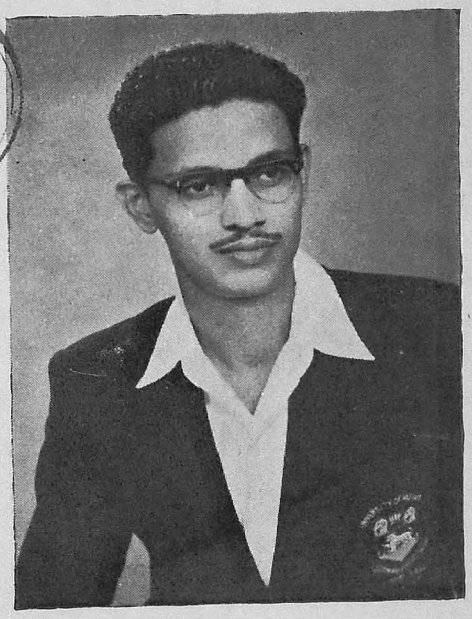
Season : Fat content of milk varies with season. Usually the fat percentage of a herd is at a minimum in the early summer and reaches maximum in early winter. Probably two factors are responsible for this first being the birth of calves during early spring make the cows reach a low fat level in early summer. Secondly, the season itself is seen to have some effect.

Temperature : According to Hayes who conducted experiments is Missouri with two cows kept in temperature controlled rooms equipped with steam radiators and refrigeration coils, a little increase in fat between 70 and 90°F occurs with the volume of milk diminishing rapidly. Below 70°F the fat percentage increases at the rate of approximately 0.2% for each ten degrees drop in temperature upto

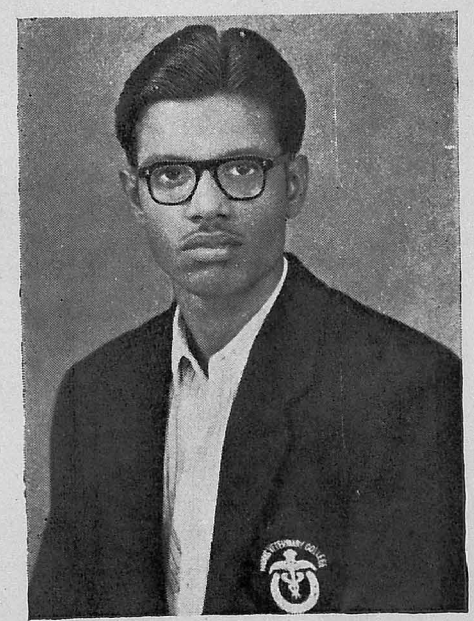
'VARSITY CHUMS



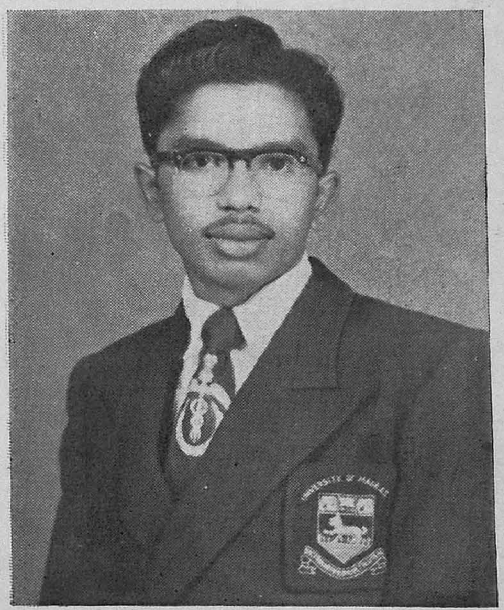
Md. Ghousullah,
Representative for Boxing
" He knows no sparing "



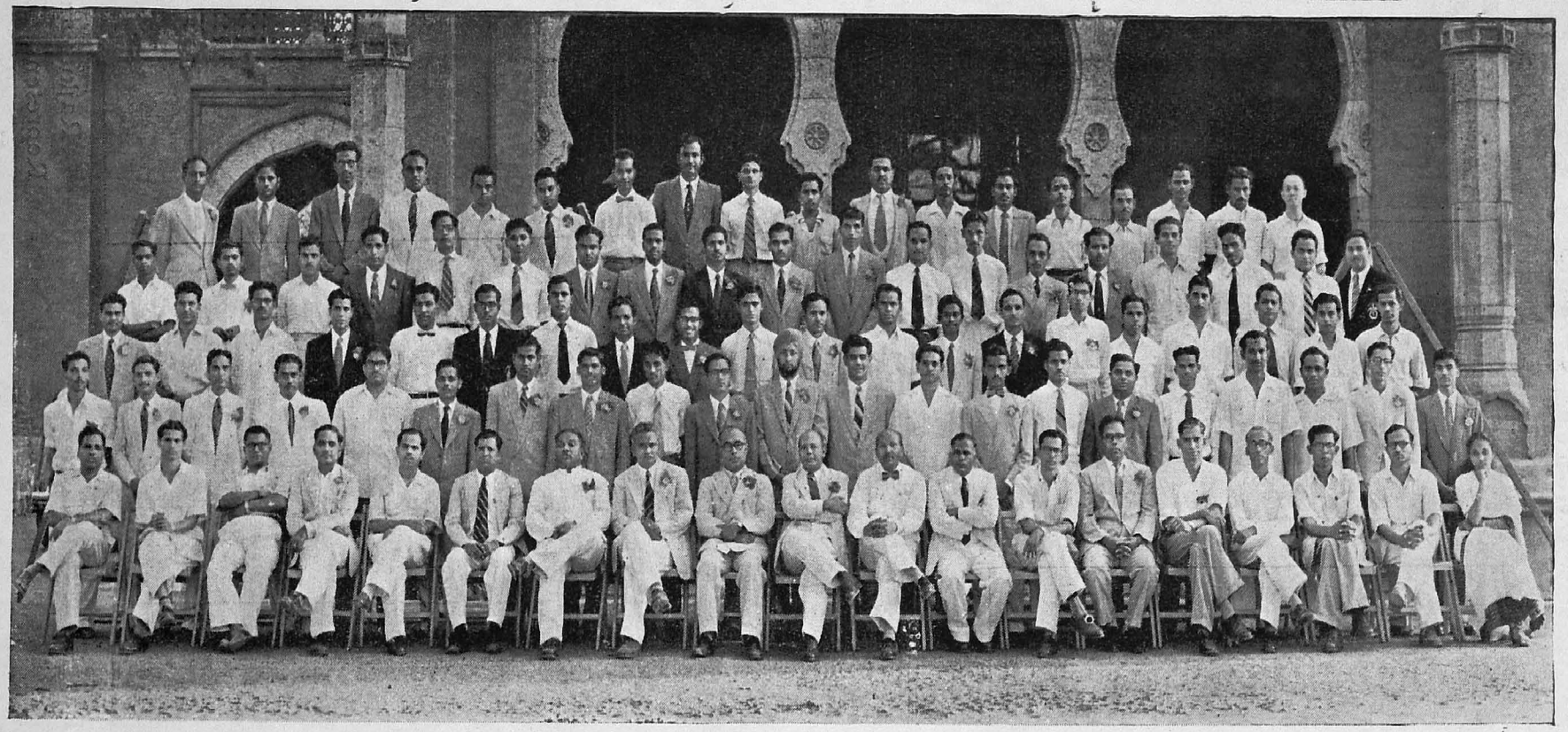
Sridharan, V. P.
Vice Captain for foot-ball
" The all-in-all "



Thomas Amal Das
College Champion
" Third year in Succession "



Rajkumar Solomon
Representative for Hockey
" Miler is very lucky "



Outgoing graduates 1957—'58

27°F—the lowest temperature studied.

Solids not fat decrease by 0.7% when temperature was raised from 40 to 95°F (Rajan and Richardson). Decrease is chiefly due to casein and lactose.

Exercise: Light exercise stimulates milk production with no appreciable change in fat percentage. In cows used as work animals where exercise is severe the volume of milk is reduced with consequent increase in fat percentage.

Health: Systemic diseases reduce the amount of milk accompanied by slight increases in fat and other solid constituents except casein and lactose. The most marked changes are decrease in lactose, increase in chloride content, making the milk slightly alkaline. pH of such milk is about 7.0 as against the normal pH of 6.7.

Mastitis and other udder diseases causes a marked increase in chloride content due to extreme permeablility of udder tissue and decrease in lactose. Inspite of the reduced quantity of milk the fat percentage is also reduced. Proteins other than casein, sodium, non-proteinous nitrogen and total ash increase slightly whereas the potassium, phosphate, magnesium and calcium decrease.

Normal oestrous cycle makes the cow restless and nervous resulting in waste of cow's energy in considerable amounts. The milk is reduced considerably sometimes cows fail to let down the milk even. Strippings

are usually not milked, so fat percentage is reduced. Solids not fat are usually not affected.

Feed: The fat percentage of milk is not altered appreciably by special feeding method. If at all altered it may be very transitory. Quantity of milk is altered by changing diet. Starvation reduces the fat percentage slightly and quantity of milk considerably.

Feeding definitely alters the composition of fat with consequent change in the physical state of butter fat. Feeds as cotton seed and like, will make the butter hard and others as linseed will make butter soft.

Under-feeding causes decrease in lactose content and over-feeding has an opposite effect change being + 0.5% only.

Increase of greens in diet rise the carotene content of milk. Vit. B. level is almost at any time constant.

ACKNOWLEDGMENT

I am grateful to Dr. A. R. Vedanayagam Lecturer in Dairy Science for his valuable suggestions and guidance in preparation of this article.

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24–11–1957. A check X-Ray was taken of the left fore quarter as well as the other three quarters. It revealed the presence of one more wire in the left fore quarter, 3 wires in left hind teat canal (Fig. II) and 2 coiled wires in the sinus of the right hind (Fig. III). The only wire in the left fore quarter was extracted through the incision that was made the previous day without any difficulty. Operation of the hind quarters was adviced. All the four quarters were stripped and infusion of $\frac{1}{4}$" grm steptopencilin in 20 c.c. of distilled water, was given to all the quarters.

25–11–1957. Stenson's operation was performed on the hind quarter and the wires present were extracted. After extraction and stripping protegan for each of the quarters was infused. Further antibiotic treatment was left in the hands of the local practitioner.

After 10 days the owner informed that the animal was normal except for a slight decrease in the milk yield.

(Fig. III)

Conclusion : 1. The encouragement of quackery is detrimental to the livestock as exemplified by the case.

2. Surgical interference of the teat and galactoferous sinus does not ordinarily produce complications.

ACKNOWLEDGMENT

My thanks are due to Sri E. Rajendran, Sri V. Umamaheswaran, Assistant Lecturers in Surgery and Sri M. Ranganathan, Assistant Lecturer in Medicine, for their guidance in the preparation of this report. My thanks are also due to the Principal, Madras Veterinary College for the permission accorded to use the data from the case records.

The Kid came naked to meet his visiting parent straight from the swimming pool.

" Were there girls " asked the astonished mother.

" O, yes mum " replied the Kid.

" Were they also naked ? "

" How can they be mum. They were wearing caps."

Mohd. Fadzil and
Abdul Rafiq Buth,
Final B.V.Sc.

Cardiac Dropsy (?)

This is an interesting case which was suspected to have Tuberculosis but was negative to tuberculin test. Later when it died clinical post mortum showed extensive tuberculous lesions in lung.

AN Alsation dog aged 5 years was admitted as an inpatient in the Madras Veterinary College Hospital on 2-8-1957 (D.W.I.P. 3608) with the following history :

The animal was treated for epistaxis in July last. The animal was brought with the complaint that it was not feeding, disinclined to move and not passing motion regularly.

Observation

2–8–'57–T. 101.4°F. Resp. 60/min. and laboured. Animal is dull, no inclination to move about and not feeding.

3–8–'57–T. 101.0° F. Not feeding and not drinking milk. Percussion of abdomen reveals fluid. On percussion of chest there is complete dulness on the left side and a slight dullness on the lower third of the right side. On auscultation heart sound is obscure. Oedema is seen in the ventral part of the thoracic region, hind and fore limbs and at the prepuce. About 5 cc. of fluid was aspirated with a syringe under proper aseptic precaution for bacteriological examination. Fluid was clear.

Materials sent for examination :

1 Citrated blood for total cell count and Hb. estimation

2 Blood for blood urea estimation

3 Citrated blood for erythrocyte sedimentation rate

Treatment

R/

Mist. carminative 3i Tr. belladonna m.x. ft. haust sig. now.

Rpt. Mixture.

Results

R.B.C. 5·95 m/c.m.m.
W.B.C. 8800/c.m.m.
Hb. 8·5 gm.%
35 mgm.% (Normal 10–20 mgm.%)
0·0 m.m. hour.
0·1 m.m. 0·2 hour

Materials sent for examination :	*Results*
4 Blood smear for diff. count	Polymorphs 60% Lymphocytes 36% Eosinophiles 4%
5 Urine for biochemical examination	Nothing abnormal
6 Faeces for microscopical examination for ova of Parasites	Negative
7 Pleuritic fluid for acid-fast organism	Negative

Observation	*Treatment*
4–8–'57—T. 100·8°F. Pulse 86, hard and regular, Resp. 44. laboured and abdominal, Percussion and auscultation : same as before	R/ Pot. acetas Pot. citras aa gr. xv Tr. digitalis m. x Tr. nuxvomica m. iv Aqua chloroformi ad. oz. ii Ft. mist. sig. ½ B.I.D.

DIFFERENTIAL DIAGNOSIS

1 *Tuberculosis :* (a) The dog was subjected to intradermal tuberculin test on 6–8–57 with negative result.

(b) The aspirated fluid was more of the nature of a transudate (clear) than an exudate.

(c) Microscopal examination of aspirated fluid was negative for the acid-fast organisms.

2 *Anaemic dropsy :* Except for the slight fall in the number of leucocytes, the blood picture and count were normal.

3 *Chronic Nephritis :* Clinical examination of urine revealed no abnormality. However the high urea level in the blood suggested retention of metabolites.

4 *Dropsy of cardiac origin :* The condition was diagnosed as such from the obscure heart sounds on auscultation—Generalised anasarca and responce to digitalis therapy.

5–8–'57—T. 101.0° F. Pulse 80 regular, small and hard. Resp. 56, laboured and abdominal M.M. pale. Odema is still present.	Rpt. mist. Given 40 c.c. 5% glucose saline S.C. in the morning and 20 c.c. in the evening.
6–8–'57—T. 101.0° F. P: 88 feeble and low in volume. Resp. 52 laboured and abdominal.	Rpt. Mist and glucose saline.

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INTRA DERMAL TEST

Date	Method Employed	Tuberculin used.	Measurement of skin before injection	After 24 hours.	After 36 hours.	Nature of reaction
6-8-'57	Intra-dermal (Into the skin) inside of left thigh.	conc. tuberculin, Br. 1 Indian Veterinary Research Institute. 0.1 c.c.	7.7 m.m	10.0. m.m	11.4 m.m	There is warmth at the site of injection but no swelling observed. No pain evinced.

Result : Negative for Tuberculosis

7-8-'57	T. 101. 6° P: 72/min R: 52 M. M. Pale. Animal passes loose motions, dark in colour, frothy and offensive in smell.	Rpt. Mist. and glucose saline.
8-8-'57	T. 102° F. P : 76 regular and slightly full in volume R : 58 abdominal and laboured. M. M. Pale. Heart sound is still obscure.	Rpt. Mist. and glucose saline.
9-8-'57	T. 101. 8° F. P : 72 slightly full in volume and regular. R : 40 Less laboured but still abdominal. Passing loose motion, dark brown and frothy.	Rpt. Mist. and glucose saline.
10-8-'57	T. 101. 6° F. P : 72/min. R : 30 M. M. Pale.	Rpt. Mist. and glucose saline.
11-8-'57	T. 100. 4° F. P: 80 Regular, hard and slightly full in volume. R. 52.	Continued the mist. with digitalis. Rpt. glucose saline. Applied Mag. sulph glycerine paste to the oedematous parts.
12-8-'57	T. 100. 8 Resp: 58 very much improved, thoracoabdominal. Pulse : 80 regular and full in volume. There is an improvement in the general condition of	Rpt. Mist. and glucose saline Rpt. Mag. sulph

the animal. Passes urine and faeces normally. Faeces normal in consistency. Oedema on fore-limbs has almost disappeared. Swelling is now seen on the scrotum also. There is a slight improvement in the resonance in the anterior third of the thorax.	glycerine paste application.
13-8-'57—T. 101° F. P: 88 full in volume Resp. 34 Oedema on the fore-limbs has completely disappeared. There is still a slight oedema in the hind limbs.	Rpt. Mist. and glucose saline. Rpt. Mag. sulph glycerine paste.
14-8-'57—T. 100. 6° F., R: 56 P: 64 M. M. pale pink. Oedema has completely disappeared except at the scrotum.	Rpt. the mist-without digitalis Rpt. glucose saline and Mag. sulph glycerine paste.
15-8-'57—T. 101° F., R: 30 P. 78 Scrotal swelling has decreased considerably.	R/ Pot. acetas Pot. citras aagr. xv Pot. bicarb gr. x Aqua chloroformi. ad. oz. ii M. Ft. Mist. Sig $\frac{1}{2}$ B.I.D.
16-8-'57—T. 101. 2° F., P: 70 regular full in volume. Resp. 40-Passes slightly loose frothy stools.	Rpt. glucose saline Rpt. Mist. with Pot. iodidi gr. v.
17-8-'57—T. 100. 8° F. The animal is active.	Rpt. mist. glucose saline and applied Mag. Sulph glycerine paste to the scrotum.
18-8-'57—T. 100. 6° F. R: 56	Rpt. Mist. saline and paste.
19-8-'57—T. 101. 2° F. P: 120. R: 44 M. M. pale pink. Scrotal swelling is very much reduced. Animal looks brighter.	Rpt. Mist. and glucose saline.
20-8-'57—T. 102° F. P: 130 rapid, regular and full. R. 50. Scrotal swelling has subsided completely.	Rpt. Mist. and glucose saline.

21-8-'57—T. 100. 8° F. M. M. pink. Feeding and drinking normally. Very great improvement in the general condition of the animal as a whole.	Rpt. Mist. and glucose saline.
22-8-'57—T. 101° F. R. 52. Thoracoabdominal	Rpt. Mist *Diet.* Include barley water to diet.
23-8-'57—T. 101.6 P: 100 R: 60 M. M. pink.	Rpt. Mist. and glucose saline.
24-8-'57—T. 101. 8° F. P. 96. M. M. pink R: 56.	Rpt. Mist. and glucose saline.

General condition of the animal is considerably improved though no indication of pleuritic fluid getting completely absorbed.

Evening: The animal was discharged.

Conclusion: The dog was again examined on 16-11-57. It was found to be apparently normal. He had put on condition. Percussion and auscultation of the thorax revealed no abnormality. Heart sounds were normal and quite distinctly audible.

Post script: The dog was again admitted on 28th Dec. 1957 in I.P. with the same complaint as before. Oedema of the limbs and the distension of abdomen was noticed. Percussion and auscultation revealed the condition was same as it was first admitted. Hydatid cyst was suspected as the probable cause of the deviation of heart. Allergy test was conducted. 1 cc hydatid fluid was injected I/D in the medial aspect of thigh. No reaction was noticed. The dog was put on a course of diuretics as before for few days. Apart from this it was also given six injections of Mericyle I/M for six days. Treatment for oedema was carried on as before. Blood smear revealed no organisms. No ova could be detected from the faeces. Radiography revealed fluid in the chest cavity, but ausculation revealed no fluid sounds. Aspirated fluid from chest cavity was sent for bacteriological examination. Nothing could be detected. Administration of 'Diamox' was resorted to, but the dog was put again on digitalis course with caffeine citras. Continued this until 30th of January. Oedema has completely subsided but the dog showed no inclination for food. Animal died on 31st January 1958.

Post-mortem results—Tuberculous pleurisy.

ACKNOWLEDGMENT

Our thanks are due to Dr. M. S. Ganapathy, Professor of Medicine for his guidance in the preparation of the report and the Principal, Madras Veterinary College for permission accorded for the use of the data from the case records.

Ramachandran, S.,
Third year B.V.Sc.

Veterinary Surgeon

I have looked into the minds of Veterinary Surgeons
And through their thoughts beheld yawning vistas of frustraction ;
I have looked into their hearts,
And known their condition, dig holes into them to bury inside all
hopes of prosperity and amelioration ;
I have looked into their patients and the condition at their arrival
And found it scatter the least hope they have in their medicine ;
I have looked into their kitchen and the hospital
And clearly seen their entrailes writhe in utter scarcity ;
I have looked into the bosom of the Government Treasury
And found that make them lose all their strength, the impulse to put
forward their fair case ;
If there be a clause, as the people say
There is somewhere in the Declaration of Human Rights ensuring
equal pay for equal work,
I wonder if the author of that clause does weep
Until his face grows wet with his own and the Veterinary Surgeons' tears
And bulge and bloat like a water carrier's bladder bag.

(Based on the poem " Time is Sick " by Sri Harindranath Chattopadyaya)

Dewan Muthu Mohammed, M. S.,
Final B. V. Sc.

Conjoined Twins

ON 31st October 1957, a local bred and aged she-buffalo in very poor condition was brought to the large animal Clinic of the Madras Veterinary College Hospital with the history that she was having severe pains and was straining badly since 8 p.m. of the previous day. The animal was in full term pregnancy and was said to have had no history of dystokia in the previous for calvings.

The vaginal examination, a foetal head and a fore limp were found in the vaginal passage. On further exploration one more head was detected and this was found to be fused with its counterpart. Further examination could not be made as the passage was completely blocked. As the animal was very weak she was given 300 cc of 10% glucose saline intravenously to keep up her condition.

After giving 20 cc of 2% Novocaine solution epidurally and observing all aseptic precautions embryotomy was resorted to and both the heads and one of the fore limbs were removed with the use of Thygeson's embryotome. On further examination two more forelimbs were detected and they were also removed with the help of the embryotome. Evisceration of abdominal contents was thought of and done to facilitate extraction of the foetus. On still further examination four hindlimbs were detected. By this time the animal was completely exhausted and another 200 cc. of 10% glucose saline was given intravenously. As the foetus was decomposed and bloated it was not possible to remove it and the animal died before any other method of removel of the foetus could be attempted. Autopsy on the mother revealed the nature of the foetus. As the foetus was highly decomposed it was not possible to preserve it.

The foetuses (male) were found to be conjoined, fusion being partial at the neck and complete at the thorax. Thus there were two heads, a partially fused neck and completely fused thorax, with four fore limbs and four hind limbs and two abdominal cavities.

DESCRIPTION :

Head : Two separate heads each one of which was complete in itself.

Neck : Necks were partially fused with the two heads diverging out at the anterior end.

Thorax : There was extensive fusion of both thoraces laterally. The conjoined thoracic cavity contained one heart and a pair of lungs.

Diaphragm : There was only one diaphragm.

Abdomen : There were two separate abdominal cavities with independent viscera complete in each.

Umbilical Cord : There were two umbilical cords.

External Genetalia : Independent external genitalia were present in both the calves.

Limbs and Tails : There were four fore limbs and four hind limbs and two tails.

These are monovular twins (true twins)

(Continued on page 94)

Viswanathan, V.,
Third B. V. Sc.

Aarey Milk Colony

Mr. Viswanathan, V., has visited the Colony recently; here he has given his impressions of it.

HAVING visited the Aarey Milk Colony at Bombay during the last summer I wish to describe the working of the Colony, which I hope, will be useful for persons interested in Dairy Farming.

The Aarey Colony as it is called is at a distance of about 32 miles from Bombay and is easily accessible by road or rail. It is situated on an extensive area of 1,100 acres it has the advantage of vast grazing lands for the cattle to move about. This Colony was the outcome of the desire on the part of the Government of Bombay to arrange for supply of milk for the population of the city and also to put an end to the insanitary stables located inside the city. Here about 13,000 cattle heads are kept in 26 units of 500 each. This scheme was initiated early in the year 1948 and by March 1949, the first farm unit was occupied. From the various parts of the city the cattle were rounded up and brought to the Colony. The cattle are properly looked after here and veterinary aid to them is given free of charge. Concentrates and roughages are brought in large quantities and stored. Out of this stock regulated feed is issued to the milk suppliers on "no loss no profit basis". With advantage of better feeding and comfort for the cattle the milk yield per animal is estimated to have gone up by 20%. The dairy farm have the most modern equipment for pasteurising bottleing 500 mds, of milk per hour. It has got a modern pasteurising, plant and there is equipped with a section for preparing "Toned milk".

The dairy is divided into several sections and they are :—

1. Raw milk receiving section
2. Washing of empty cans
3. Clarification of milk
4. Pasteurising department
5. Storage section
6. Cleaning of plant
7. Plant control laboratory
8. Bottle-filling section
9. Cold storage

Apart from the milk of the cattle stationed at the farm more milk is also received from Anand; Great care is taken to see that the milk received satisfies the standards fixed, ie. 7% fat, 9% solid non-fat and this is done by the Plant Control laboratory.

The Dairy receives raw milk from the Colony from about 7 a.m. to 7 p.m. The arrangement for milking of the animals is such that different lots of milk arrive at the farm at a rate of 500 mds. per hour. As soon as the raw milk is received it is weighed and is sent to clarifiers to remove dirt and other foreign matters that might have gained entrance during milking and transportation. After clarification the milk is subjected to pasteurisation where heat and cold treatment under controlled conditions are applied. By this process the milk is rendered safe of all disease producing organisms.

There are two pasteurising plants in the dairy and they are made of special grade stainless steel and have the capacity to paste-

(Continued on page 97)

Samuel, D.,
Second B.V.Sc.

Sputnik - III

This is a nice short skit which Mr. Samuel, D., has really experienced Where and how of it can be had by its perusal.

SEE THE crowd, how they are shouting, looking at the clouds ; old, young, children, etc. even the dumb animals. Some have special glasses over their eyes. Some place their palms on their brows. Some use various other means. There a little fellow shouts, " there comes the baby moon ! How bright it is ! look towards the south eastern small dark cloud ! " The shouting is stopped. The crowd is running towards the little boy, looking towards the sky. The fat lady, who couldn't even walk ; the old man with the squint eye ; a rosy teen aged girl with gold framed spectacles, holding her nylon saree by the left hand and some books in the right ; some students are giving her a " guard of honour " ; on the other corner, an elderly man is crying " Such hooliganism should not be allowed in our country, ' Girl chasers ' should be suitably punished ". The reason, you can understand. On the opposite corner, one fellow is selling ground-nuts and other things. A village rustic is weeping, some pickpocketeers have knocked off his purse. All these are a few things among the crowd. Only after a long time, they came to understand that the small boy is playing a joke on them. Then the crowd began to disperse, cursing the boy. The scene was on the beach opposite to our examination hall.

So during this season, it would be a better thing for you to hear my personal experiences, in the sputnik.

II

It is a well known fact, that the Russians are very much advanced in the World of Science. After the death of Laika, they tried to go one step further. In the Sputnik, III they wanted to send a human-being into the outerspace. So they dropped an advertisement in the dailies and I promptly responded to it.

Physically I am a well known chap to all of you. But what about my " upstairs ". Always I will be thinking, thinking and thinking about some ' thesis '. During these philosophical moments, I will neglect my normal brain and automatically it will lead to a " reversion " (the loss of an year) I got an application form in the city office, duly filled and returned it. A week later, I was asked to be present at a place, with the required certificates. I know, medically I am fit for nothing. So I approached my uncle who is a doctor (not a Veterinarian) and got the medical certificate. But the main point was recommendation. For every work and movement the world requires ' Rec. ' I am ignorant in the art of ' crow catching '. So with great difficulty and with the help of my friend who is a well known ' catcher ' I got about ten letters from the biggest bosses and three personal ' Recs '.

With all these, I faced the interviewing committee and it was not a wonder for me to be the only candidate selected from India and even from Russia. In Russia I was taught

the mechanism of my new job. After a month, I was taken to 'Red Square' where the sputnik was. They sealed me inside a sphere and took me to the launching place, 40 miles west of Moscow.

At 5 a. m. (Moscow time) they fixed the 'baby moon' with a rocket which stood 100' above the ground. Everything was adjusted Comrade Kruschev and Comrade Bulganin took their hats off and waved towards me.

It was pitch dark at the launching site. Only the faintest rim of light blue on top of the gaunt Kremlin building to the east hinted that dawn was near. "Fifteen seconds to zero time" the speakers untoned.

The place waited for the blast.

The count down began, an exact and inevitable march of seconds back to the unspoken zero when the great explosion would come. "Ten, nine, eight, seven....." Five thousand men, scientists, astronomers, meterologists etc. listened to the precise recorded voice. "Six, five, four....." Soon now Soon. "Three, two one....." Zero Boom!

Abba! What a big noise! the rocket started its travel with a speed of 15600 kilometers hour leaving behind a thick mass of fire and smoke. My goodness, there also I saw the traffic jams (like evening times at Round Tana and Central). The passing planets with their own speeds made me to recall the proverb, "a lot of friction on the roads is caused by half the drivers trying to go fast enough to thrill their 'loves' and the other half trying to go slow enough to placate their wives". Suddenly, a fellow without light crossed me and I couldn't avoid the accident.

III

When I awoke, I was in a bed. After ten minutes, a young pretty lady came. Her lean, slim and supple body in the full glory of her teen age made me feel exhilirated. Her small face, strong white teeth did not enhance her charms but the contrast of her wide blue eyes and thick black hair made her fascinating. On seeing her cool face, my memories went back to the behaviour of our "girls". How a few girls think high of themselves. Obedience is rare in them. They have even the power of dividing atoms (India can borrow these people for producing atomic energy.)

We led about four happy weeks. My fate began to play a game against me. The smile in the other "sex" makes the world mad. This living theory is found to be true even from the Old Testament days. Many kings and emperors bowed their heads before them. Take the example of Samson (who was a Victim of Delitatis wiles or the great orator and warrior Mark Antony who slept in the nest of the 'Serpent of Nile'. It is all due to the weakness in the human flesh which easily falls into the Satan's net.

I am not an exception. One day when we were sitting closely in a sofa, having some fun, I held her in my arms and kissed her. Alas! Her eyes widened and burned. I saw only her smooth right hand going up. The next moment, I remember well, the iron blow fell on my left cheek. I was thrown back to the unfortunate world like a block.

It was 4 p.m. on a Sunday, I found my self on the floor of my room. My murmuring was all about the 'lovely lady' (of the planet). My room-mates put ice-bricks on my head. They rang up, got the ambulance and admitted me in the Kilpauk (Mental) Hospital.

Please don't dismiss this as a fairy tale. I can show you the result of the blow—the absence of ahtero-inferior portion of my left superio-lateral canine tooth!

Joseph, S. A.,
General Secretary,
Madras Veterinary College Association

The All India Veterinary Students' Association 4th Session

BEFORE I give a brief report of 4th Session of the "All India Veterinary Students Association", I thank the President, the Vice-President and all the members of the Madras Veterinary College Association for giving to me and to the student chairman an opportunity to represent our college in the "All India Veterinary Students Association" (A. I. V. S. A.) conference at Patna (Bihar State).

The 4th Annual Conference of the "All India Veterinary Students Association" was held from 7th to 9th January 1958 at Patna in the State Veterinary College premises.

The conference was attended by delegates numbering about 25 from Assam, Andhra, Bengal, Bihar, Hyderabad, Jammu and Kashmir, Madras, Mathura and Orissa.

Messages were received from the Vice-President Dr. S. Radhakrishnan, Prime-Minister Sri Nehru and also from the Ministers, Directors and Principals of the various State Veterinary and Animal Husbandry Departments.

The 4th Annual Conference of the All India Veterinary Students Association was inaugurated by the Hon'ble Sri Jagat Narayan Lal, Minister for Veterinary and Animal Husbandry, Bihar State, Shrimathi Rampeari Devi, M.L.C., was the Chief guest.

Mr. Jagat Narayan Lal while inaugurating the conference said that service towards mute animals was being done from time immorial in this country. Buddha and others preached kindness towards animals. It was also evident from the cultural heritage that Indians treated their livestock as part of their family.

Mr. Lal expressed the hope that the students of Veterinary would rise upto the occasion and, when in service, would work for the success of the Five-Year Plan.

Mr. S. K. Sen, Director of Animal Husbandry, Bihar State said that 30 years ago Veterinarians were not given the due respect and the future was gloomy for them, but with the march of time the Veterinarians have proved their efficiency and with all these Five Year Plans, the prospect and future of the science is enhancing by leaps and bounds every day.

A number of resolutions were also adopted on the 2nd and 3rd day session urging better prospects and service conditions. The following are some of the important resolutions amongst many others that were taken in the delegates conference.

A. *General Problems :*

1 Recognition of All India Veterinary Students Association as an organisation and association of students by the Government of India.

2 The General Secretaries of the Students union of all the Veterinary Colleges must be members of the local unit of All India Veterinary Students Association and send Quarterly reports to

the President.

3 Formation of Local Units of All India Veterinary Students' Association in all Veterinary Colleges.

4 To request the different States and Central Government to standardise the pay-scale of all Veterinary graduates. (Rs. 200–25–700 is the recommended pay scale)

5 Immediate formation of the respective State Veterinary Councils by the help of the respective Governments.

6 Need for the registration of qualified Veterinary Surgeons was urged by the house.

7 The authority of inspection and checking of meat and milk should be given only to Veterinary Surgeons and not to Sanitary Inspectors as it is done now.

8 The Uttar Pradesh State Veterinary College should admit B.V.Sc. graduates from other states who wish to join in that College to take the M.V.Sc. Degree.

B. *Common Local Problems :—*

1 N.C.C. Unit should be formed in the Veterinary Colleges of Andhra, Bengal, Bihar, Osmania, Orissa and Madras.

2 M.V.Sc. Course should be started in all State Veterinary Colleges.

In the executive committee meeting on the 9th January 1958 Office bearers were declared elected for the session of 1958–59 and it gives me great pleasure to mention here that Mr. Basheer Ahmed Syed of our College was declared elected as the Vice-President for the 5th Session which will be held at Mathura Veterinary College.

On the last day the local reception Committee arranged a picnic for delegates to the famous health resort Raj Girr and to Nallanda where the ruins of the oldest University in the world remains.

I shall be failing in my duties if I do not thank the staff, students and the reception committee members of the Bihar Veterinary College for the hospitality they have shown to the delegates who were overhelmed with kindness and courtesy.

Before I conclude my report I appeal to each and every member of the Madras Veterinary College Association to enroll themselves as a member of the All India Veterinary Students' Association.

Long Live the All India Veterinary Students' Association.

(Continued from page 89)

having two heads, one thorax and separate abdominal cavities as a result of an unsuccessful attempt at complete twinning.

A simiiar condition has been reported in a Buffalo by Jothi (1956) with a breach presentation. He has described that the two calves were fused at the thorax only, with a single heart and a diaphragm.

ACKNOWLEDGMENTS :

I heartily thank the Regional Sterility Officer and his staff and Dr. Lakshminarasimhan, Dr. Samanna of Anatomy Department for their guidance in the preparation of this article and the Principal, Madras Veterinary College for the permission accorded for the use of case records.

Reference :

1. Jothy, R. S., (1956) Ind. Vet. J. 32·304.

The Madras Students' Adult Education Council

Subramaniam, K. M.,
General Secretary

Patrons :
Sri D. Balasundaram, B.A., I.A.S.,
Sri Rajam Ramaswamy, M.L.A., M.C.,
Srimathi Rajammal Anantharaman, J.P.,
President :
Sri M. G. Narasimhachari, B.SC.,
(Madras Veterinary College)
Vice-Presidents :
Kumari P. E. Subashini, (Presidency College)
Sri M. K. Sudharsan, (Govt. Arts College)
General Secretary :
Sri K. M. Subramaniam, B.SC.,
(Madras Veterinary College)
Joint Secretaries :
Kumari T. Saroja, (Madras Medical College)
Sri C. Chakrapani, (A. M. Jain College)
Treasurer :
Sri R. Palaniappan, B.A., (Loyola College)
Editor :
Sri G. S. Mani, B.A., (Law College)

I HAVE great pleasure in presenting the annual report of the Madras Students' Adult Education Council for the academic year 1957-'58. This council was started in the year 1951-52 to co-ordinate the efforts of the students' organisations in the city and to enable the student body as a whole to play an effective role in the eradication of illiteracy. Since 1954 the Governments Adult Education effort is confined only to the areas covered by the Community Projects and the National Extension Service. Consequently ours is the prominent organisation in Madras which tries to root out illiteracy by its well concerted and sustained efforts.

Adult Literacy Centres : This year's activities began early in August with the adoption of the Adult School in Rotary Nagar by the council. Since then volunteers are being sent to the School to handle classes for the Adults. In addition to this we have also opened another Adult Literacy Centre at Swathanthra Nagar, Triplicane, Madras, 5. As most of the residents of this slum are Telugu speaking people the classes are conducted in Telugu. Arrangements are also being made to teach Tamil for the small number of Tamil speaking people of this locality. The residents of Gokulam Nagar, a slum near Queen Mary's College, are very desirous to have an adult literacy centre at their place and they have requested us to open the centre as early as possible. The executive committee will shortly consider this matter and if it accords sanction for this, necessary action will be taken up immediately.

The council provides every facility for the people attending classes in our Adult Schools i.e., by providing slates, books, pencils etc. In order to assure the people of these slums that we are interested in their personal welfare, milk is distributed to the children every week. Besides this we have also distributed note-books and pencils to the poor School going children

of Swathanthra Nagar.

Magazines and Books : We are well aware of the fact that Adult Education is not mere literacy and that literacy is only the first and the essential step as it helps the individual to gain competency for self-education. As this competeney for self-education would remain a mere myth if the individual is not trained in the reading habit—we have been supplying old magazines and other books to those people who have learned to read and write. We intend opening a reading room also for this purpose when our financial position improves. In this connection I wish to thank those who have been supplying old books and magazines.

Audio Visual Education : With the aid of the film projector left at our disposal by the kind courtesy of The United States Information Service we were able to give audio visual education to the people in slums. We have screened films on Adult Education at the Adult Education and Adult Literacy Centres. The films of health importance were shown at the places where the Social Education Propaganda meetings were held and also at the slums Guruswamy Nagar, Varadarajapuram, Gokulam Nagar.

Film Show : In order to augment the funds of our council which was very unsatisfactory, a benefit film show was arranged at Kamadhenu Theatre, Mylapore, on 1st February '58. The film that was screened was M.G.M's "YOUNG BESS". The entire collection of this film show was utilised for the Social Education Campaign.

Social Education Campaign : This year the council organised a Social Education Campaign to enable the slum dwellers to understand and realise the importance of certain social problems facing them in their day to day life. Hon'ble Sri P. Kakkan, Minister for public Works, Madras, could not inaugurate the compaign as scheduled before, (owing to the demise of Hon'ble Sri Abul Kalam Azad, Minister for Education, Govt. of India). Instead, Srimathi Rajammal Anantharaman, Vice-President, All India Council for Child Welfare, inaugurated the Social Education Campaign on 28th February '58. In connection with this campaign a number of Social Education Propaganda meetings were held in different slums in the city and the students from various city colleges delivered lectures on the following subjects.

Child welfare : Kumari Sulochana (Stanley Medical College)

Importance of Family Planning . Kumari Rajakumari B.A., (Stella Mary's College)

Contagious Diseases and Preventive Measures : Sri Ramanujam, (Stanley Medical College)

Personal Hygiene & Environmental sanitation: Sri Ethirajan (Stanley Medical College)

Rules and Public : Sri Periaswamy, B.A., (Law College)

Diseases communicable to human beings from animals : Sri Dewan Muthu Mohamad (Veterinary college)

Besides the above meetings in Madras a Social Education Propaganda meeting was held at Thiruvothiyur on 9th March '58 at the request of "Thiruvothiyur Madhar Sangham". Sri T. P. Elumalai M.L.A., presided over the meeting. A demonstration regarding how to prepare cheap nutritive food stuffs was also shown to the ladies of the Sangham.

Publication of Pamphlets : The council has published pamphlets on the commonly prevalent diseases Tuberculosis, small-pox, and cholera wherein the symtoms of these diseases and the prophylactic measurers that public should adopt to prevent the occurrence of such

diseases were dealt with. These pamphlets were distributed to the public, during the Social Education Campaign.

Socio-Economic Survey : During this academic year the council conducted a Socio-Economic survey of Swathanthra Nagar and the particulars are being consolidated and will be sent to the Corporation of Madras requesting them to make the necessary improvements for the slum. While visiting the slum for the purpose of taking the survey our volunteers emphasised over and again the importance of personal hygiene and environmental sanitation and made them feel their responsibility in keeping their surroundings clean and healthy.

In concluding my report I wish to record my thanks to our patrons, Sri D. Balasundaram, I.A.S., Sri Rajam Ramaswamy M.L.A., and Srimathi Rajammal Anantharaman, for their valuable advice and guidance. I also thank the volunteers who participated in the Social Education Campaign, particularly those who delivered lectures during the propaganda meetings. Finally I tender my heart-felt thanks to my colleagues for their co-operation in executing the various programmes of the council.

In short, our work has been well appreciated by the public and the co-operation given by the slum dwellers is very satisfactory. The enthusiasm evinced by the students of city colleges in volunteering themselves for literacy drive is also very encouraging. And so, I hope that the council will certainly grow from strength to strength in the years to come and continue to do its useful service to the needy people of our Mother Land.

(Continued from page 90)

urise 2000 gallons of milk per hour. The pasteurised milk then goes to the storage tanks made of stainless steel which are 6 in number each with a capacity of 2000 gallons. The storage tanks are flushed with water and thoroughly cleaned after each flow of milk and are subjected to steam sterilisation to create asceptic condition.

There is a bottle washing section which sterilises about 12,000 bottles per hour. The cleaned bottles are mechanically conveyed to the bottle.filling machines each machine is capable of filling 100 bottles per minute. The bottle-filling machines will fill exactly to the required quantity and are vacum operated. The large cold store and an airlock installation at the dairy is intended for keeping the pasteurised milk at a lower temperature before it is taken out for distribution.

The whole scheme has been carried out by the Government of Bombay at the cost of Rs. 3.5 Crores. By this scheme they have overcome several disadvantages of milk supply. It helps in supplying cheap, plentiful and realiable milk for the consumers and in removing all the insanitary cattle sheds from inside the city. Since public milk supply schemes rarely occupy any place in the nation-building activity, the Civil Supplies Department of Bombay Government has taken much efforts to make the scheme grand success.

I hope and wish that this scheme is taken up by our Corporation in the present Five Year Plan to solve our milk supply problem which would be a welcome step towards the amelioration of the city dwellers.

Narasimhachari, M. G., B.Sc.,
Secretary,

Social Service League

IT gives me a great pleasure in presenting the activities of the "Madras Veterinary College Social Service League" for the year 1957–58.

Our College Social Service League is affiliated to the Madras Students Social Service League and "Madras Adult Education Council". This year two of our members of the League namely M. G. Narasimhachari, B.SC., and K. M. Subramaniam, B.SC., were elected to the two posts President and Secrerary respectively in the Executive Committee of the "Madras Students' Adult Education Council". This is really an unique opportunity for the League.

The "Madras Students Social Service League" is an inter-collagiate body to federate the Social Service activities of the different Colleges of the City and to coordinate to enable the Social Workers of the Leagues as a whole to play a more effective role in the work of Social amolioration. A few members of our League attended the certificate course early in the month of October conducted by the above parent League. I strongly hope that will surely keep the tradition of the League by getting cent percent results.

Another batch of students underwent training in the First Aid, Hygiene and Sanitary conducted in Government Arts College by the Red Cross Society.

Though the League has been doing its service to the poor and needy for the past seven years, no separate funds were available for our Social Service League and it was a great handicap for further activities. To overcome this we conducted a Benefit Film show in aid of the Social Service League of our College. We could manage to conduct it successfully even though it was for the first time in the history of our league and collected nearly seven hundred rupees (Rs. 700). This money will be utilised purely on the future activities of the League.

Under the auspicious of the "Madras Students' Adult Education Council" a batch of 19 students volunteers from our College have taken part in "Adult Education Campaign" at Swathantra Nagar, a slum area Lloyds Road, Mylapore. Our Students gave valuable advice to the comparatively less fortunate people of the above slum area on various aspects and some helped in the distribution of milk and nutritionus foods to the children of the area.

In addition to these activities, useful work as sales of Red Cross flags and S.P.C.A. flags were done by our enthusiastic Social workers.

My sincere thanks for the staff and students without whose co-operation we could not have conducted our Film show successfully.

My heart felt thanks to our President of the Association Dr. Bertie, A. D'Souza for his valuable advice.

(Continued on page 103)

Joseph, S. A.,
General Secretary

The Madras Veterinary College Association

OFFICE BEARERS

President :
Dr. Bertie A. D'Souza, G.M.V.C., B.V.SC.,
Vice-President
Dr. K. P. Chandrasekharan Nair,
G.M.V.C., B.V.SC.
Student Chairman :
Sri Basheer Ahmed Syed
Secretary :
Sri S. A. Joseph
Editor :
Sri Syed Hameed Hasan
Treasurer :
Sri A. Somasundaram
Assistant Secretary :
Sri M. G. Narasimhachari B.SE.,
Assistant Editor :
Sri K. J. John

CLASS REPRESENTATIVES

I B. V. Sc.,	1. Sri Jayaraman B.SC.
	2. Sri Srinivasan
II B. V. Sc.,	1. Sri K. M. Medappa
	2. Sri M. S. Desigan
III B. V. Sc.,	1. Sri V. Nagarajan
	2. Sri K. Madhusudana Rao
IV B. V. Sc.,	1. Sri K. Kumaraswami
	2. Sri D. Mastan Reddy.

LADY REPRESENTATIVE

Kumari P. Vijayalakshmi

ADVISERS

1. Sri M. Anantharaman, M.A., M.SC., F.Z.S.,
2. Dr. D. Mariappa, G.M.V.C.,
3. Dr. C. K. Velayudhan Nayar, G.M.V.C.,

BEFORE I present the Annual Report of the Madras Veterinary College Association for the year 1957-58 let me first thank all my brethern who gave me the opportunity to serve in this well organised Association which is an organisation of the students and by the students.

We the office bearers of the 22nd Sessions of the Madras Veterinary College Association took over the charge from the out-going executive committee on 20th of July 1957.

There has been an increase in the number of members of the Association consequent to the increased admission this year.

It gives me great pleasure to mention here that this year, under the auspices of the Madras Veterinary College Association some of the eminent people of various profession addressed our meetings.

As usual we took part in the Quiz programme conducted by the All-India Radio, Madras and I am very happy to mention here that we have done excellently well. Our students have also taken part in the inter-colligiate oratorical contests in various South Indian languages conducted by the University of Madras and other city colleges. We also took part in the inter-collegiate music competitions conducted by the professional and non-professional colleges of Madras city.

Our college Association is affiliated to the Madras College Students Council, Madras Students' Adult Educational Council, Madras

College Social Service League, All-India Veterinary Students' Association and to the World University Service.

Above all, it is no exaggeration to state that our college is gaining increased popularity among the city colleges and this is shown by our college students holding responsible position in various organisation as shown below :

1. Sri Basheer Ahamed Syed —
   Vice-President, All India Veterinary Students' Association.
2. Sri R. Ganesh —
   Joint Secretary, World University Service.
3. Sri George Joseph —
   President Malayan Students Association.
4. Sri K. M. Subramaninam, B.Sc ,—
   Secretary, Madras Students' Adult Education Council.
5. Sri M. G. Narasimhachari B.Sc.,—
   President, Madras Students' Adult Education Council.
6. Sri S.S. Rama Rao —
   Secretary--Chinnapuri Andhra Vidyarthi Samithi.

For the first time in the annals of the Madras Veterinary College Association we conducted a benefit film show at Ashok Theatre, Madras in aid of the Madras Veterinary College Social Service League. The show was a grand success because of the co-operation I obtained from all the members of the Association.

It has become a common practice for us to sell flags, tickets etc., and collect donations in aid of S.P.C.A., Red Cross.. T. B. Seal Campaign, Friend in Need Society and other such organisations.

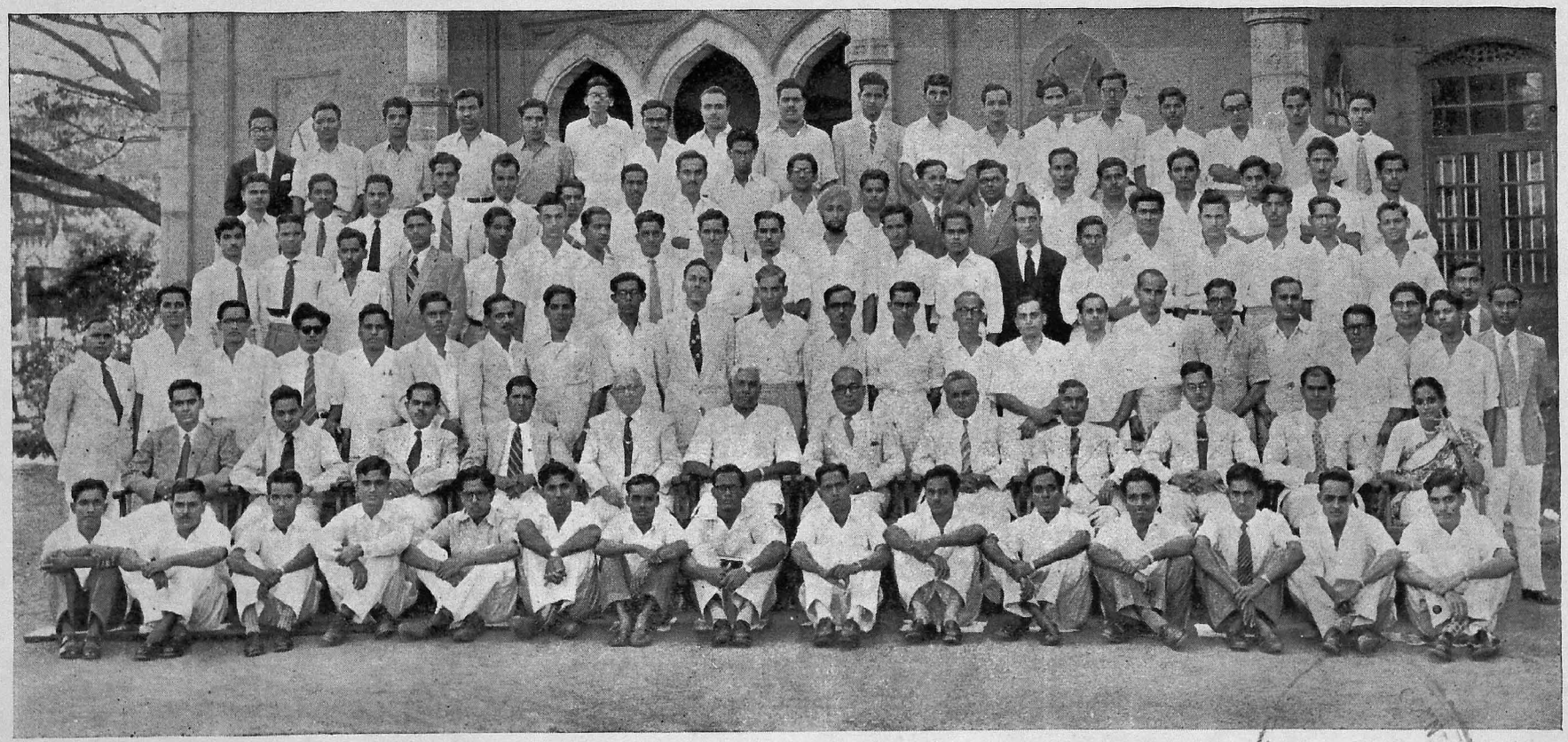
It is a well established fact that excursion to places of historical and professional interest is a part of education and it is with that idea we were able to get the "Blue Lady" (the Newly purchased College Bus) through the Animal Husbandry Department of the Madras State Government.

I want to bring to the notice of the authorities the need for an office room for the Association. It is quite imposible to run the day to day function of the Association without an office room. In all other colleges one good room is allotted for this purpose to the office bearers. Hence, I earnestly request the authorities of the Association to look into this matter and allot a room in future when the new college buildings are completed.

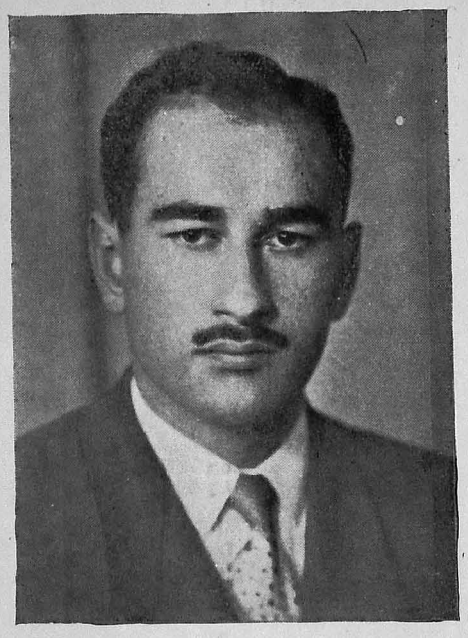
By the kind courtesy of the Uuited States Infcrmation Service we were able to screen a large number of films of professional and non-professional interests. On behalf of the Association I thank the United States Information Service for the interest taken.

The following is a detailed account of the meetings held in the year 1957-58.

18— 1—57	General Body Meeting was held under the presidentship of Dr. Bertie A.D'Souza, our Principal and the day for the election of office bearers was fixed.
1— 8—57	The Inaugural Address : Delivered by Rev. Fr Arulsami Principal of Loyola College, Madras, Dr. Bertie A.D' Souza, Principal of our college, presided.
15— 8—57	Independence Day : 10th Anniversary of our Independence was celebrated. Mr. S.K. Chettur I.C.S., Secretary to P. W. Department and Chairman of the Madras Electricity Board, addressed the gathering. Dr.



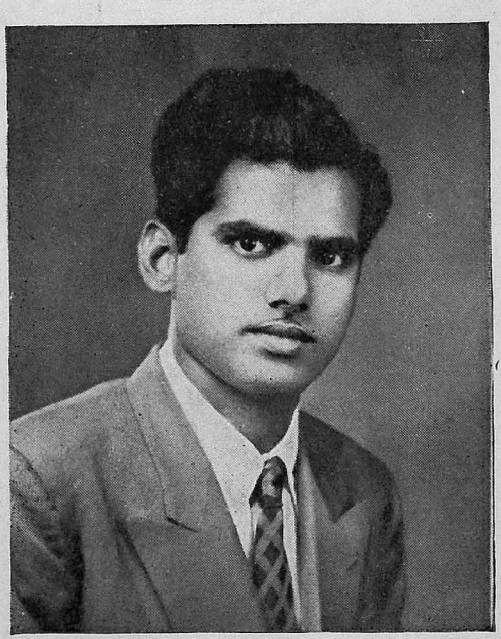
Madras Veterinary College Clinical Club 1957—'58



Dr. Mustafa Farahangfar,
D.V.M. (Iran)
Research Scholar, Dept. of
Animal Nutrition
" What's fat and what's fibre "

Dr. Prabhakaran, T., B.V. Sc.
Genetics and Surgery medallist
" It is not in Rice nor in Dollar "

Basheer Ahmed Syed,
Chairman, M.V.C. Assn.
Vice President, A.I.V.S. Assn.
" Big men seldom smile "



Narasimhachari, M. G., B. Sc.
Asst. Secy., M. V. C. Assn.
President, Madras Students' Adult
Education Council
" You know what's sail "

Bertie A.D'Souza, Principal of our college presided.

20— 8—57 Reception to American Students: A grand reception was given to the Californian University students who visited our college. They were entertained with music after tea.

24— 8—57 Graduates' Reception: The Reception to the New Graduates was held in the college premises at the open air theatre. Sri K. N. Srinivasan, B.A.B.L., the then Mayor of Madras addressed the graduates and Dr. Bertie A. D'Souza presided. The graduates were entertained with dramas and dances after tea.

15—10—57 Wild Life Week: Wild life week was celeberated in our college. Mr. M. A. Badshah D. F. O. Chingelput, spoke on wild life preservation. Dr. Bertie A.D'Souza, Principal of our college presided.

6—11—57 Film Show—1: By the kind courtesy of the United States Information Service, films of professional interest were screened.

11—11—57 Reminiscence of Germany: Dr. Umamaheswaran, G.M.V.C., B.V.Sc., D.V.M. (Germany) spoke on "Reminiscence of Germany". The Vice-President Dr. K. P. Chandrasekharan Nayar was in the chair.

25—11—57 Film Show—2. By the kind courtesy of the United States Information Service, films on non-professional interest were screened.

12—12—57 Condolence Meeting: A Condolence meeting was held at 4.30 p.m. to condole the death of Sri L. S. Parameswara Aiyer Retired Assistant Lecturer of the College, Dr. V. S. Alwar, spoke about late Parameswara Ayyar.

12—12—57 Human Rights Day: Human Rights Day was celebrated in our college Dr. Bertie A. D'Souza, Principal of our college presided. Mr. George Joseph, Mr. Antony Doss, Mr. Ramachandran and Mr. Suryaprakasa Rao spoke.

24— 1—58 Film show No. 4: By the kind courtesy of United States information Service films on veterinary subject were screened.

18— 1—58 Benefit Film Show: A benefit film show was conducted at Ashok Theatre, Madras, in aid of the Madras Veterinary College Social Service League.

26— 1—58 Republic Day: Republic Day celebration—Mrs. Mona Hensman, M.A., (Oxford) Principal, of Ethiraj College, addressed the gathering. Dr. D. Mariappa Vice Principal of our college was in the chair.

4— 2— 58 Valedictory address: The Valedictory Address of our Association was delivered by Mr. Howard E. Houston, Minister—Director, United States Technical Co-operation Mission in India. Dr. Bertie

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Sudarshan Sahu,
Secretary

Madras Veterinary College Clinical Club

WHEN I put my pen to offer a brief account of the activities of our Club to my colleagues, I see vividly in my mind's eye an atmosphere of great enthusiasm and spirit of great competition among the members to elect the office bearers for the year 1957—'58. My beloved members elected the following students to mend the activities of the Club for the year 1957—'58.

Student Chairman :

Mr. G. Subramanayam, IVth year

Treasurer :

Mr. Sudarshan Sahu, IVth year

Treasurer :

Mr. K. Shanmuganathan, IIIrd year

Class representatives :

Mr. K. Venkataramiah, IVth year

Mr. M. Bellie, IIIrd year

We started our meeting in midst of great enthusiasm among the members. In this year for the first time in the history of the club, a committee consisting of the Presidents, elected in various meetings of the club was established to choose the best speaker of the year, under the guidance of our Professors Dr. M. N. Menon, Dr. C. K. V. Nair and Dr. M. S. Ganapathy. The committee has declared Mr. Sudarshan Sahu, for his talk on the subject "Coxofemoral dislocation in the dag" and Mr. R. Jothi Ranganathan, for his talk on the subject "Rabies" as the best speakers of the year.

Seven meetings were held during the year and all the meetings were attended by almost all the members. The keen interest of the members towards the activities of the club is praise-worthy and I am sure if the club will receive the same amount of interest in the subsequent years it will lead our profession *a long* way ahead. It is a pleasure on my part to note that the present third year students showed a keen interest in the activities of the club and I am proud to leave the club in their hands in the future. I cannot forget my class-mates for their kind co-operation to the office bearers in carrying out the activities of the club smoothly. The activities of the club for the year 1957—'58 came to an end with the valedictory address delivered by Dr. D. Pattabhiraman, Director of Animal Husbandary, Madras and a group photo of the members with staff and Director. A review of the meetings held under the auspicious of the club is furnished below.

1. 5TH SEPTEMBER, 1957

President :

Mr. G. Subramanyam, IVth year.

Speaker :

Mr. R. Jothi Ranganathan, IVth year.

Subject :

Rabies.

2. 29TH SEPTEMBER, 1957

President :

Mr. P. A. Balu, IVth year.

Speaker :

Mr. D. B. P. Chandrasekhar Rao, IVth year.

Subject :
Bovine Mastitis

3. 19TH NOVEMBER, 1957

President :
Mr. S. Syamasundaram, IVth year.
Speaker :
Mr. Sudarshan Sahu, IVth year.
Subject :
Coxofemoral dislocation in the dog.

4. 27TH NOVEMBER, 1957

President :
Mr. Inderjit Singh, IVth year.
Speaker :
Mr. A. Ramakrishnan, IVth year.
Subject :
Bovine Pasteurellosis.

5. 9TH DECEMBER, 1957

President :
Mr. Tata Subhas, IVth year.
Speaker :
Mr. R. Krishna Murthy, IVth year.
Subject :
Torsion of uterus.

6. 23RD JANUARY, 1958

President :
Miss. Thankam Bastain, IVth year.
Speaker :
Mr. A. Sethumadhavan, IVth year.
Subject :
Ranikhet disease.

7. 30TH JANUARY 1958

President :
Mr. R. Jothi Ranganathan IVth year.
Speaker :
Mr. Syed Hameed Hasan IVth year.
Subject :
Shock.

8. 27TH FEBRUARY 1958

VALEDICTORY ADDRESS

President :
Dr. Bertie A D'Souza, Principal.
Speaker :
Dr. D. Pattabhiraman, Director of Animal Husbandry, Madras.

We extend our sincere thanks to our Principal for his kind co-operation and valuable advice and guidance.

We thank our Professor of Surgery Dr. M. N. Menon, whole heartedly for his keen interest, enthusiastic encouragement and kind co-operations towards the organisation of the club. He has been a fountain of inspiration behind the activities of the club.

We thank our Professor Dr. M. S. Ganapathy, Dr. C. K. V. Nair, and Dr. M. O. Chellam for helping in the arrangements of the meetings which made it possible for the club to achieve all that it had during this year. We extend our thanks to Professors, Lecturers and Assistant lecturers of clinical and Preclinical subjects for their co-operations and suggestions in making the club a live platform for discussion of clinical subjects from students angle.

We thank our principal and clinical staff of the college for having got up two prizes for the best speakers.

We hope that the club will receive keener interest in future and we are confident that Principal and staff of the college will continue to extend their goodwill as in the past.

I wish all success for the future.

(Continued from page 98)

I will be failing in my duties if I do not thank the Vice-President of the Association Dr. K. P. Chandrasekaran Nair for his kind guidance and ready encouragement at every stage of our activities.

Before winding up my report let me wish all best luck to my successor in the coming year and I hope he will do more useful service with the help of the funds now available.

Palaniswamy, N. K.,
General Secretary

Madras Veterinary College Hostel

Annual Report read during the Hostel Day celebration 13th Dec. 1957.

IT gives me great pleasure to present the brief report of the activities of our hostel during the year 1957-58.

The hostel reopened on the 1st of July 1957 and rooms were allotted to the members. Many members were unable to get seats in the Hostel and they had to hunt for one in the city of Madras. We were leading a little dull life until the day, when the election of different office bearers was announced. Then the whole Hostel burst into activities and the contesting candidates started their active propaganda work. The election by secret ballot system was held on 28th July 1957 and the following members were elected.

BLOCK SECRETARIES

General Secretary :
N. K. Palaniswamy,
C. J. Purushotham

Sports Secretary :
T. N. Varadarajan
M. Prabhakara Rao

Radio Secretary :
K. H. Jilani,
D. Subramania Reddy

Garden Secretary :
G. M. Abdur Razak,
S. Basheer Ahmed, B.SC.,

All the office bearers worked actively, with interest to provide increased facilities for the members in the fields of recreation, sports etc. All efforts were taken to give best food in our private messes and the members were given medical facilities through the help of our visiting Doctor, Thomas Gnanamuthu, from whom we could get the best of medical help throughout the year. We are having almost all the indoor games and some of the out door games in the hostel itself. Dailies and magazines are provided regularly to members. The well kept lawn of the hostel with the Radio switched on at 6 p.m., is the paradise of our evening of course, during the days when there is no anxiety and fear of approaching examinations. Periodical spraying and disinfection of water closets are attended to regularly. In short, the life is just fine and pleasant in our hostel, but we never forget to keep ourselves to books too.

We owe our enviable life herein the hostel to the unselfish efforts and able administration of our benevolent Principal, kind Warden and active Assistant Warden. They richly deserve all our praise and gratitude for the great interest they have shown for the welfare of the members of the hostel. The huge developments which are going around us are enough marks to show the active interest taken by the staff of the hostel in its welfare.

Two new temporary blocks were prepared in the Military barracks to receive the first year students. The new double storied block is coming up rapidly and I am sure it will be ready for occupation during the next Academic year. The vegetarian mess dining hall has been extended to receive all the members

in one batch for dinner. Some improvement will be done to the dining hall of the non-vegetarian mess. Here I wish to express my sincere thanks on behalf of all the members, to the Government of Madras and the staff of the State Public Works Department for giving us the new building and other facilities.

Further, from the hostel funds, we have provided uniforms to all the servants in the messes of the hostel and the wooden stair cases in both the blocks have been covered with coir mats.

The first official celebration, we had in our hostel was The Independence Day and the National Flag was hoisted in the morning by our Principal, Dr. Bertie A. D'Souza, at the hostel premises. This was the day when the first year students of the hostel were given a colourful welcome by ducking in the sacred tub of our hostel. They were also introduced to the senior students of the hostel. In the night we had our most luxurious open air dinner, when our Principal was the Chief Guest. Soon after this the members of the hostel got immersed in their studies (for the supplementary examinations). Life was dull again at the hostel, most of the members having anxious time during the last week of October when they were expecting the results. Soon after the publication of the results, the hostel once more boomed into activity when the Hostel Day tournaments in various games were conducted. Thanks are due to our Sports Secretary for conducting all the games ably and other secretaries for their co-operation. Our talented dramatic artistes also were busy preparing the various plays for the Hostel Day. Thus we spent the whole year with our little moments happiness, worry and anxiety alternating. On the whole the life in our hostel was cheerful and careful.

Before I finish the report, let me bring to the notice of the authorities, that some more facilities if given to us, will make our stay here more pleasant and more conducive for the hard work expected of us.

More electric lights are to be provided in in our hostel compound, along the compound walls and two fluorescent lamps at the gate near the sign board. This will help our open air reading during the warm, stuffy nights of summer months, when we will be preparing for the University Examination, better watch of the Hostel premises. Separate library if opened in our hostel will encourage us in the studies. The present dining halls are to be provided with mosaic floor and glazed wall up to a height of 4 feet from the floor for their hygienic, maintenance. Set of modern washing rooms with plates sterlizing plants, for the messes, is one of the long felt need of our hostel.

(Continued from page 101)

A. D'Souza, Principal of our college, presided.

It is with great pleasure we record our sincere thanks to our President, Dr. Bertie A. D'Souza for his fatherly advice and valuable guidance. He was very keenly interested in the activities of the Association.

The Vice President, Dr. K. P. Chandrasekharan Nayar was guiding us throughout the year. We thank our Vice President and the advisers Dr. D. Mariappa, Dr. C. K. Velayudhan Nayar and Sri M. Anantaraman for their valuable guidance.

Lastly I wish to thank all the members of the Association including the staff and the office bearers for their splendid co-operation extended to us without which we could not have accomplished anything.

As the out going Secretary I wish my successor and the Association the best of luck.

Long Live the M. V. C. Association.

Narayanan, P. U.,
Physical Director

Madras Veterinary College Atheletic Association

THE inaugural meeting of the association took place on 16–7–1957. The captains for the various teams were elected during this meeting as follows :—

Games	*Captains*
Foot Ball	Sri V. V. Rama Raju
Hockey	Sri R. Krishnamurthi
Cricket	S. C. Parthasarathy
Basket Ball	D. Balraj
Volley Ball	P. P. Krishna Iyer
Badminton	S. Dhanabalachandran
Boxing	R. Chandrasekaran

There was not much of a competition for the captaineries. G. P. Chinniah was unanimously elected the General Captain for the Academic Year.

Despite the lack of facilities for training our students evinced a keen interest in the general activities of the association. Among the students admitted this year sportsmen were very few. The construction of the new college buildings took away even the requiring ground facilities. Some how the handicap was slightly overcome by improvising temporary courts.

Inter-collegiate League Matches : As usual our teams entered in the Hockey and Foot ball matches. We were not able to participate the basket ball and volley ball matches due to lack of facilities for practice. The foot ball team was not as good as it was last year, mainly due to lack of new blood from the students admitted this year. One may think that sportsmen should have been admitted. It was a bit depressing to note that there was not enough team spirit in comparison with the last years batch. The set back of in Foot ball team this year was not in anyway due to the sudden fall in the standard of the players, but due to the fact that most of them took things easy and fostered a habit of indifference and so on. Any how our Hockey team did fare well in their encounters and they should have annexed the championship under normal conditions.

Knockout Tournament: As expected our Hockey team did wonderfully in the knock-outs tournament for the Stoke's shield. They were defenitely superior in all respects and it was a pure mishap against the much favoured collegiate team of Loyola, we did score a goal which was not allowed on grounds best known to the Refree. This rather pulled a wet blanket on the spirit of our boys. Despite this they fought out well but in the dying minutes of the extra time when visibility was very poor Loyola scored the only allowed goal of the match.

We took part in the May & Baker tourney and few other tournaments also.

University Selection : As usual we sent our boys for the University selection in Foot ball, Hockey and Boxing. V. P. Sridaran was selected for the third time in succession, and was also nominated to be the Vice captain of the University Foot ball team. After a lapse

of several years Rajkumar Solomon was selected for the Hockey team. Md. Ghousulla as expected was selected for the third time in the University Boxing team.

Inter Class Tournaments : Contrary to the usual practise this time Inter class matches were conducted on a league basis. A very high standard of interest was evinced by the students in these matches as they were conducted on a league basis. Fourth years annexed the Championship.

Staff vs Students : A novel feature of this years staff *versus* students match was the Hockey match. The general standard was very high and despite the fact that the staff members were handicapped by their age and lack of practice, they did very well and secured three goals against five scored by the students. The cricket match was won by the staff with ease under the efficient captaincy of Dr. B. N. Rai.

College Day and Annual Sports : The Annual Sports of the college, as usual wasc elebrated along with the College Day on the 28th February 1958, under the immediate presence of Sri P. P. I. Vaidyanathan, Bar-at-Law, I.C.S., Secretary to Government, Food & Agriculture Department. The track and field events were closely fought out and the championship was annexed by Thomas Amaladoss for the third year in succession.

It is reliably learnt that our ground will be improved by the next academic year and it is expected that under better conditions our boys will do better in all events.

BADMINTON

DHANABALACHANDRAN, S.
Captain

The performance of our badminton team. during this year was above expectation and better than the previous years.

As usual this year also our team took part in the Bertram Memorial Tournaments. Our team played above the standard and won against the Teacher's College, Saidapet in the first round. But unluckily we lost against the College of Integrated Medicine.

We also played a practice match against our college staff and won. And also we played another practice match against the Madras Medical College.

Regarding Inter-class tournaments, I am very proud to say that the first year got the Inter-class championship after a tough fight against the third years.

This year there was really very good encouragement as our Venerable Sports Secretary put up a new Badminton Court which is very usuful for our lady students in particular. I hope if they keep on practicing they can well represent our College in the women open tournaments as their standard is not below that of women students of other colleges.

About the individual performance, a word may be mentioned about our first year student, Mr. Sadashiva Shetty, who is a promising young player, who has his own style of play. I hope next year he will definitely be one of the players in the college fives.

As a captain I consider it as my first and foremost duty to thank the respected Sports Secretary and our Physical Director for their encouragement. I thank one and all of the team players for their kind co-operation in all the matches played. With best wishes for my successor, I conclude.

BASKET BALL

BALRAJ, D.
Captain

In the Basket ball history of our College this year was not very significant, as we had to forego our Basket ball ground due to the coming up of our new buildings. We could

not enter the tournaments merely because of the absence of practice fecilitics.

However through the keen efforts of our Sports Secretary and Physical Director, we were lucky enough to set a new ground in the beginning of the third term. The inter-class matches were conducted on the new ground and the Third Year annexed the trophy.

I am highly thankful to the Sports Secretary and the Physical Director for their encouragement and co-operation.

Wishing my successor the best of lucks.

BOXING

CHANDRASECKHAR,
Captain

This year we started the training early in the month of August, Mr. Ramakrishna was appointed as our coach.

The college boxing team has been substantially strengthened due to inclusion of quite a number of keenly interested young men from among the new comes. The gap created by the exit of Samuel Kamalesan, the winner in his weight last year in the inter-collegiate boxing competition has been effectively filled up by Stanley, a well built boxer.

Kesavan Nair, Shari, and Ramaswamy are good fighters who I hope can do certainly more in the years to follow. Prabhakar Rao, George, and Govinda Reddy are the new talents springing from the fresh students. G. Koil Pillai, C. V. Govindarajan and Rajkumar Solomon deserve special mention for their creditable performance during the last two years, in the inter-collegiate boxing. Md. Ghousulla the seasoned boxer, has deservedly been selected for the University team for the third time in succession.

To the great disappointment of many of us, the Inter-collegiate boxing competitions had to be suspended this year, due to a rather disquieting exhibition of student indiscipline.

Due to circumstances beyond our control the inter class boxing competitions could not be held this year. We hope that the new boxing ring will be put up at an early date and we request the sports secretary to get the same done for us by executing his influence.

I take this opportunity to thank the sports secretary, the physical director and the coach for all the help rendered and for their ecouragement. My grateful thanks are also due to every member of the boxing team for the kind co-operation extended to me.

With a little more effort, my successor, I am sure, will be able to put up a good team next year.

CRICKET

PARTHASARATHY, S. C.
Captain

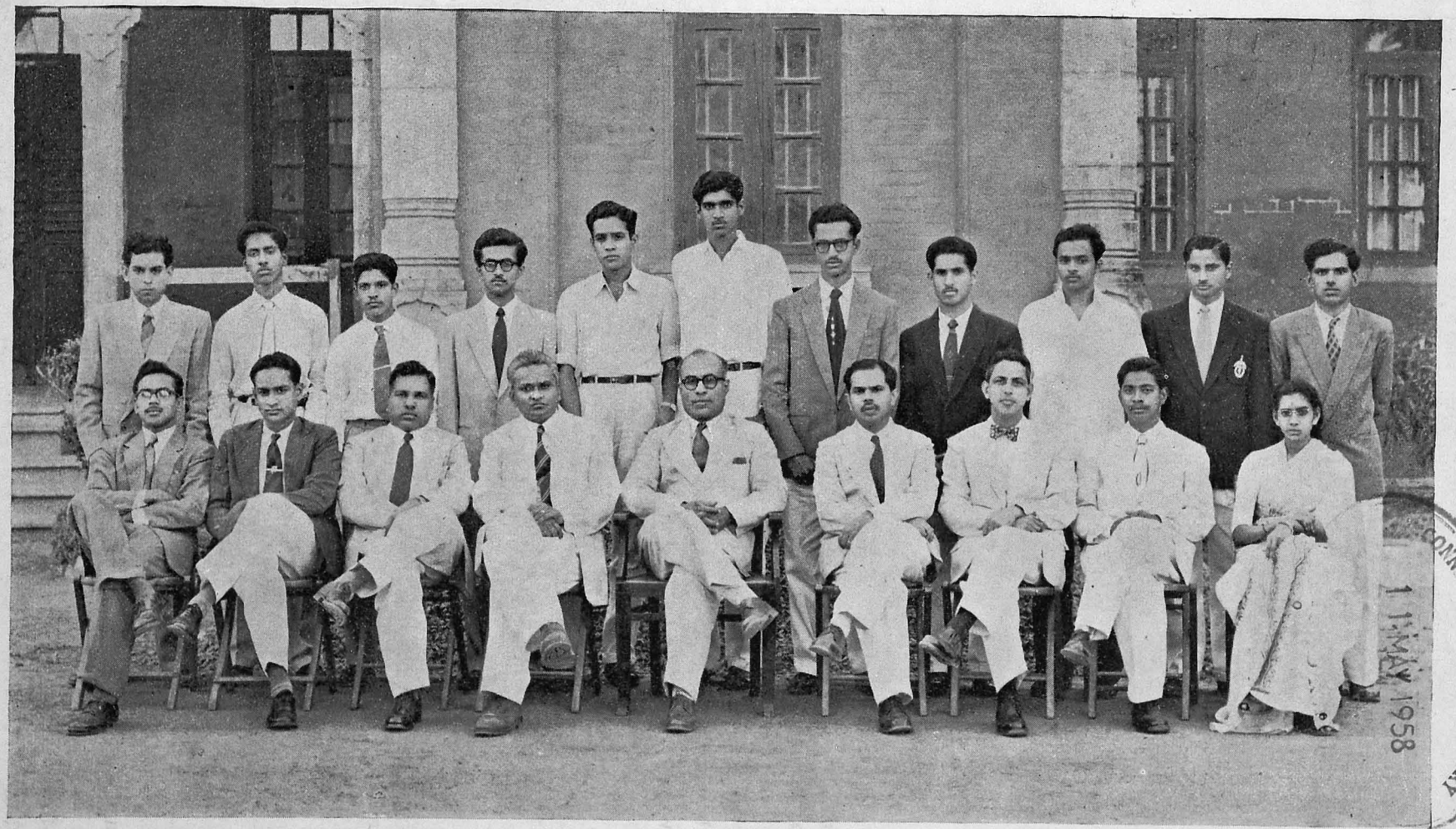
Inspite of our College team not entering into Inter-Collegiate Cricket tournaments, we played a good number of practice matches, with various teams.

This year there was a marked improvement of our cricketers due to putting up of a regular cricket practice net. The keen interest at the nets shown, assures me that with certain amount of practice and some more enthusiasm our team will be competent with some of the best City College teams.

An exciting full day cricket match was played between the past and present Students. Present Students gave a tough fight, but unfortunately lost the match by 4 runs. The final years knocked off the inter-class tournament cricket cup without much difficulty from Juniors.

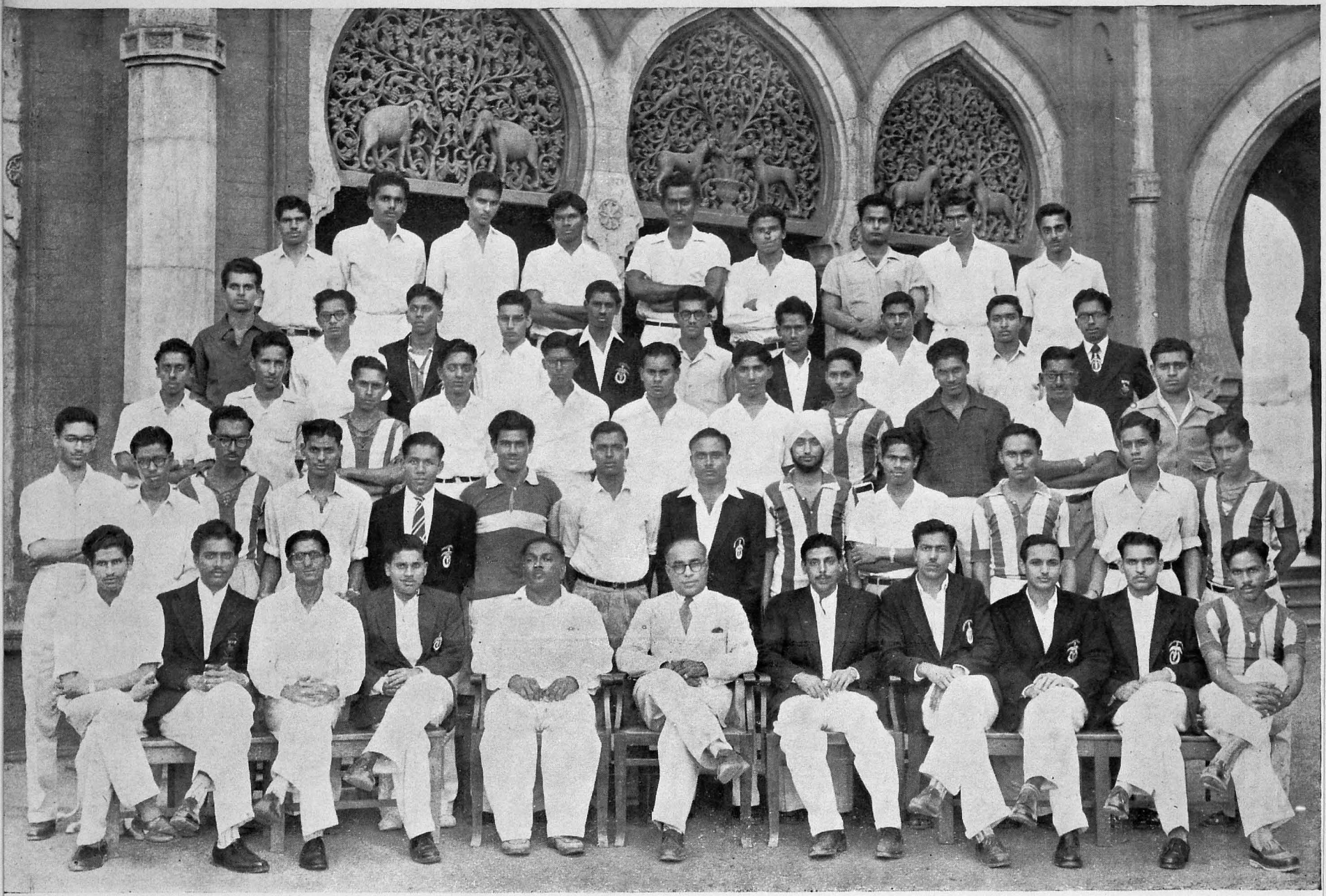
I take this opportunity to thank our Sports Secretary, Dr. F. D. Wilson and Physical Director for the guidance given and for making us possible to play a number of

Madras Veterinary College Association 1957—'58

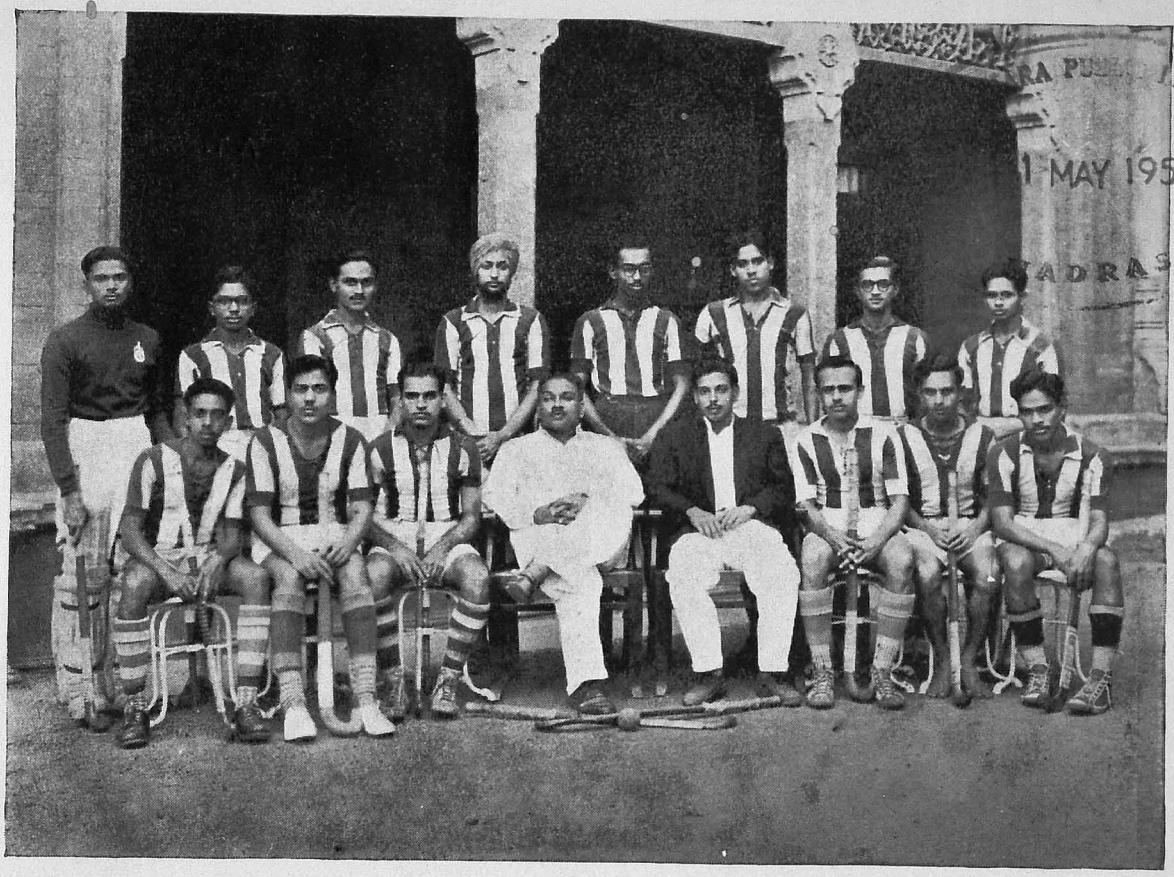


Sitting Left to Right :—Hasan, S. H., *Editor* ; Joseph, S. A., *Secretary* ; Dr. Velayudhan Nair, G. K., *Adviser* ; Dr. Mariappa, D., *Adviser* ; Dr. Bertie A. D'Souza, *President* ; Chandrasekharan Nair, K. P., *Vice-President* ; Sri Anantharaman, M., *Adviser* ; Basheer Ahmed Syed, *Student-Chairman* ; Vijayalakshmi, P., *Lady Rep.*

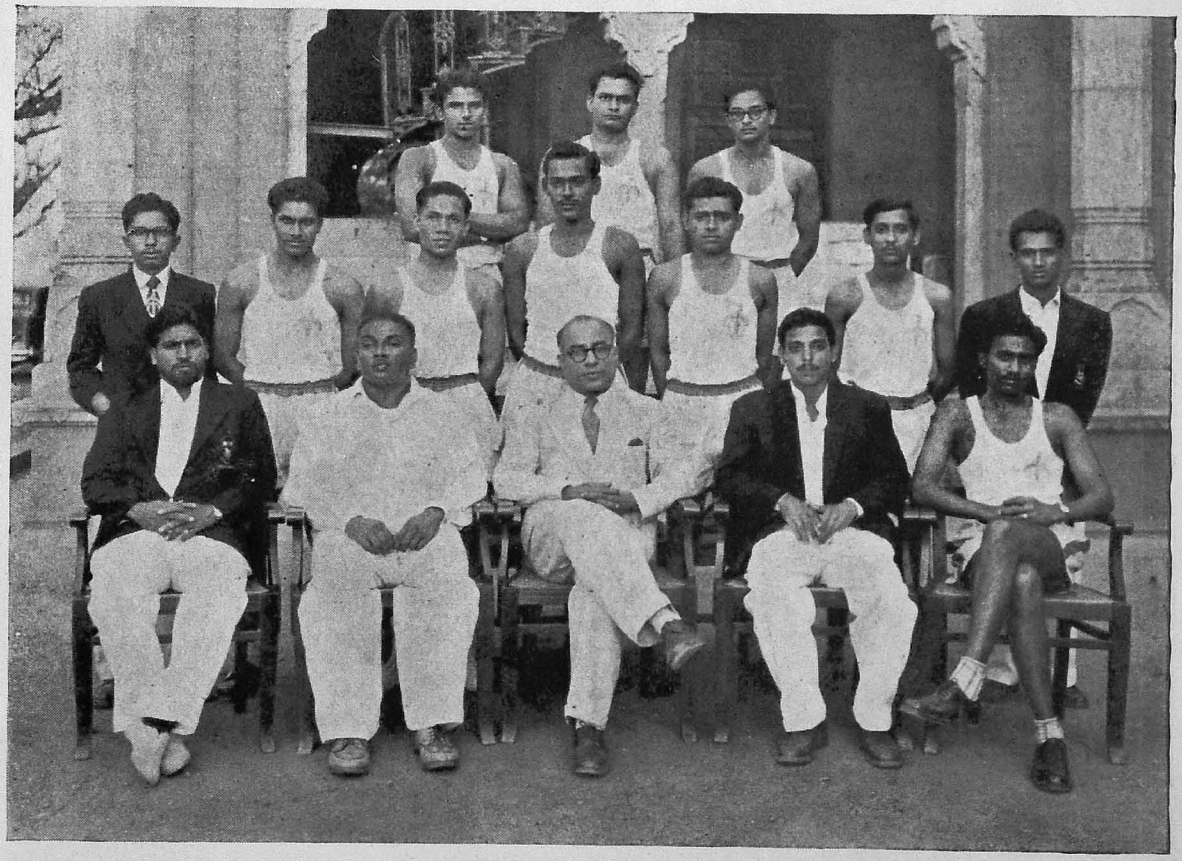
Standing Left to Right :—Somasundaran, A., *Treasurer* ; Nagarajan, K. V., *Rep. 3rd Yr.*; Jayaraman, *Rep. 1st Yr.*; Medappa, K. M., *Rep. 2nd Yr.*; Desigan, M. S., *Rep. 2nd Yr.*; Srinivasan, *Rep. 1st Yr.*; Kumaraswamy, K., *Rep. 4th Yr*; John, K. J., *Associate Editor*; Madhusudana Rao, K., *Rep. 3rd Yr.*; Mastan Reddy, M., *Rep. 4th Yr.*; Narasimhachari, M.G., *Asst. Secretary*



Madras Veterinary College Athletic Association 1957—'58



Hockey team 1957—'58 Runners-up Stokes Shield



Boxing team 1957—'58

Govindarajan, C. V.

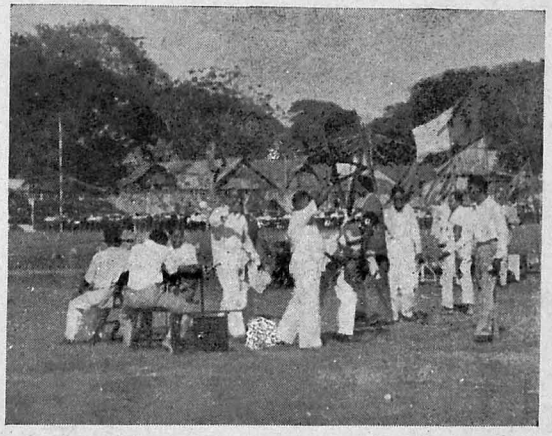
Needle and thread race
"Eyeless needles & Needless eyes"

Krishna Reddy, K.

Mr. Vaidyanathan, I.C.S. giving away the prizes

Krishna Reddy, K.

Staff versus Students—Hockey
"Take it easy"



Govindarajan, C. V.

Musical Chairs
"Staff don't fight"

practice matches. I also thank Mr. Jothi-Ranganathan the Vice-Captain for his valuable suggestions during the course of play. My thanks are due to all the players for their kind co-operation throughout the year.

I wish the best of luck to my successor.

FOOT BALL

V. V. RAMA RAJU,
Captain

We started the season with little practise. Our team strength was not reinforced by new inclusions. Nachiappan, Richard and Viswanathan played for the college team this year and exhibited good performance. Nachiappan did good service under the bar. I am proud to report that our player V. P. Sridharan was Vice-Captain of University team this year.

In the first and opening centenary celebrations college tournaments, we made a good start by winning against Presidency and Law. But in the semifinals we lost to Christian College by a last minute goal. In the Inter collegiate league we came up to semifinals by trampling down the much famous Christian college team. But during the end of league matches we could not succeed since we lost K. Krishnan Kutty the back bone of our defence, (who left the college with flying colours).

In the knock-out and M. B. tournaments Rafiq and Johnson were included in the defence position who supported Bhojan in defence. Naidu, Amaladoss Chellkumar and Rama Raju were very prominent among forwards and accredited the team with many goals.

I take this opportunity to thank our enthusiastic Sports Secretary, Dr. F. D. Wilson, and Dr. D. A. Victor who came with us for many matches and encouraged us. My thanks are due to the Physical Director Mr. P. U. Narayanan and to all members of the team for their ready co-operation and unfailing enthusiasm shown. Expecting much from successor, I wish him all luck.

HOCKEY

KRISHNAMURTHY,
Captain

I am proud to be the captain of the team and to write something about it.

We started our league matches with bright prospects, meeting Madras Medical College first we ended in a draw, next, we had a thrilling victory over Christian College. But unfortunately we lost with Loyola and Engineering Colleges by very narow margins. We bounced C. N. T. Institute and New College.

We took part in Professor Krishnamurthy's (Principal of Pachiayappa's College) tournament.

In the knock-out tournament we had a grand victory over Jain College and Md. Mathar, our goal getter took the credit by making a hat-trick. We met Christian College once again and won them. Next, we played against Government Arts College, last year holders and defeated them. We met Loyola in Finals. It was an exciting match. We had many chances to win but due to sheer ill-luck we were not able to make use of those chances. Loyola won us by an odd goal scored in the last two minutes of extra time play. Though we lost, our players deserve high appreciations for their game.

I am very glad to write that one of our players, Rajkumar Solomon represented the Madras University team as centre forward this year and brought credit to both University and to the College. The new comer Johnson is showing all signs of promise. I can boldly say that our glories this year are due mainly to our stubborn defence.

(Continued on page 111)

Announcement

INDIAN COUNCIL OF AGRICULTURAL RESEARCH—THE RAFI AHMED KIDWAI MEMORIAL PRIZES FOR AGRICULTURAL RESEARCH

THE Indian Council of Agricultural Research, has, with a view to creating an incentive for research workers and to recognising outstanding research work done by them in the fields of Agriculture, animal husbandry and allied subjects, decided to institute 11 prizes of the value of Rs. 5,000/- each. These prizes will be known as "The Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research" and one prize will be awarded annually for outstanding research work done in India in each of the following subjects .—

1. Agronomy
2. Agricultural Engineering
3. Agricultural Chemistry
4. Agricultural Botany
5. Agricultural Zoology (including Fisheries).
6. Horticulture
7. Animal Breeding
8. Animal Nutrition (including Physiology and Biochemistry)
9. Animal Diseases
10. Dairying, and
11. Agricultural & Animal Husbandry Economics & Statistics.

2. These prizes will be in the form of gold medals or cash or both and the first prize in each subject will be awarded for outstanding research work done in the country either individually or jointly, during the Calendar year 1957, i.e. 1st January to 31st December 1957, and thereafter for such research work carried out during each subsequent calendar year.

3. The award of each of the prizes shall be based on significant advances in human knowledge in a particular subject as revealed by books, monographs or papers published in the name of the candidate or any other unpublished account of the outstanding research work done or discoveries and inventions made by him. The selection of a candidate for the award of a prize will be made on the recommendations of a Judging Committee consisting of eminent scientists appointed for the purpose by the Indian Council of Agricultural Research. The award of a prize may be made to more than one research worker and the prize money divided amongst them in such proportion and manner as may be decided by the Council.

4. All research workers, engaged in research work in India, in the fields of agriculture, animal husbandry and allied sciences are eligible for competing for these prizes. Applications should be submitted in quintuplicate in the prescribed form, which can be had, free of cost, from the Additional Secretary Indian Council of Agricultural Research, Queen Victoria Road, New Delhi. Candidates working in Research Institutes etc., should submit their applications through the Head of the Institute Department etc. Others may submit their applications direct.

5. All applications should be sent in a

a sealed cover and addressed to the Additional Secretary, Indian Council of Agricultural Research, Queen Victoria Road, New Delhi, so as to reach him not later than the 30th April 1958. The cover of applications should be superscribed as under :

Application for the award of "The Rafi Ahmed Kidwai Memorial Prize for Research in.....

Applications received after the 30th April, 1958, will not be considered.

(Continued from page 109)

Special mention should be made of Medappa, who was a tower of strength in the full-back position. Credit also goes to our goal keeper Md. Habibullah Khan, who never allowed the ball to touch the goal line. V. V. Rama Raju must be congradulated for his beautiful stick work and quick short passes.

I thank all the players for the co-operation extended in making the team to come out in flying colours.

As usual we started our inter-class tournaments and Final Years being the outright winners played an exhibition match with the College Staff XI. They gave us a tough time but we won them by a margin of 5 to 3. It was a red letter day for the students XI.

Finally I thank Dr. F. D. Wilson, our Sports Secretary for his personal encouragement to every player in every match. We feel proud to have Sri P. U. Narayanan as our Physical Director, who has undergone coaching in hockey under olympic star, Babu. I thank him for his good coaching and it is his coaching which made the team to flourish as one of the best teams in the city.

I wish all good luck to my successor.

VOLLEY BALL

P. P. KRISHNA IYER,
Captain

We started the season rather late due to lack of grounds. This prevented us from entering the Inter-collegiate Volley Ball league. But the Sports Secretary was kind enough to give us facilities for practice as soon as he could. We began our season with a practice match against the much fancied Southern Railway Volley Ball Team. We put up a fine performance on that day and they had to face a tough time. Our other two practice matches were with the Government College of Integrated Medicine and the Egmore Friends Union. Our players showed excellant combination and team work.

We entered the Inter-collegiate knock-out tournament, in the first round we had a creditable win over the Presidency College. A Unwin Noah by his smart spikes entertained the crowd and he was appreciated by the press also. In the second round we lost to Christian, the Champions ; after displaying ourselves creditably.

The new joiners to the team this year were Mr. Unwin Noah and Masilladas both of them proved worthy of their inclusion.

I thank my colleagues for the kind co-operation they have extended to me in making this season a grand success. I hope with better practice and interest our College can add a further feather to its cap.

I take this opportunity on behalf of the team to thank the Sports Secretary, Dr. F. D. Wilson and the Physical Director Mr. P. U. Narayanan for the keen interest they have taken in us.

Our Mail

INLAND

MADRAS

1. Agriculture College, Coimbatore.
2. Arts College, Madras.
3. Central Polytechnic, Madras.
4. College of Engineering, Guindy.
5. Connemara Library, Madras.
6. Director of Animal Husbandry Dept.
7. Director, King Institute.
8. Ethiraj College.
9. Government College, Kumbakonam.
10. Indian Veterinary Journal.
11. Institute of Veterinary Preventive Medicine, Ranipet.
12. Jain College.
13. Lady Wellington Training College.
14. Law College.
15. Loyola College.
16. Madras Christian College.
17. Madras Medical College.
18. Meston Training College.
19. Pastuer Institute, Coonoor.
20. Presidency College.
21. Queen Mary's College.
22. Stanley Medical College.
23. St. Christophers' Training College.
24. St. Joseph's College, Trichy.
25. S. I. E. T. Women's College.
26. Teachers' College.
27. University Library.
28. Vivekananda College.
29. Women's Christian College.

ANDHRA

30. Agriculture College, Bapatla.
31. Andhra Medical College, Vishakapatnam
32. Director, Animal Husbandry & Fisheries, Andhra, Hyderabad.
33. Osmania Veterinary College, Hyderabad.

ASSAM

34. Veterinary College, Gauhati.

BENGAL

35. Director, Animal Husbandry, Bengal, Calcutta.
36. Veterinary College, Calcutta.
37. National Library, Calcutta.

BIHAR

38. Veterinary College, Patna.

BOMBAY

39. Bombay Veterinary College, Bombay.
40. Dr. Rockfeller, Virus Research Institute, Bombay.

DELHI

41. Indian Council of Agricultural Research, New Delhi.
42. Pusa Agriculture Research Institute, Delhi.

KASHMIR

43. Director, Animal Husbandry, Kashmir.

KERALA

44. L. M. S. College, Kottayam.
45. Director, Animal Husbandry, Kerala, Trivandurm.
46. Government Bremen College, Tellicherry
47. Guruvayurappan College, Calicut.
48. T. C. Veterinary College, Trichur.

MADHYA BHARAT

49. Director, Animal Husbandry, Madhya Bharat.
50. Veterinary College, Madhya Bharat.

MYSORE

51. Director, Animal Husbandry, Mysore, Bangalore.

52. Indian Diary Research Institute, Bangalore.

ORISSA

53. Director, Animal Husbandry, Orissa.
54. Veterinary College, Orissa.

PUNJAB

55. Indian Veterinary Research Institute.

RAJASTHAN

56. Veterinary College, Rajasthan.

UTTAR PRADESH

57. Animal Husbandry, Commissioner, Lucknow.

FOREIGN

AUSTRALIA

58. Australian Veterinary Journal, Sydney.

BELGIUM

59. Natura en Geneakurdige, Royal Veterinary College, Brussels.

CANADA

60. Ontario Veterinary College.

CEYLON

61. Faculty of Veterinary Medicine, Colombo.

CHINA

62. Chinese Medical Association.

FRANCE

63. Chief of Veterinary Services, Pasteur Institute, Paris.
64. Veterinary College, Paris.

GERMANY

65. Oveker Biochof Buch drukerej verlaff Ausfelf Dutsches Reich.
66. Hannover Veterinary College.
67. Veterinary College, Berlin.

HOLLAND

68. Vlaams Diergineeskunding Tijdshift.

ITALY

69. Spallinzani Institute of Artificial Insemination, Milan.
70. Veterinary School, University of Milon.

JAVA

71. Netherlandsch Indische Bladenvoor, Java.

PAKISTAN

72. Dacca Veterinary College, Dacca.
73. Punjab Veterinary College, Lahore.

PHILLIPINES

74. College of Veterinary Medicine, University of Philipines.

SOUTH AFRICA

75. South African Veterinary Medicine Association, Hony. Librarian.
76. Director of Veterinary Services, Pretoria

SWEDEN

77. Royal Veterinary College, Stockholm.

SWITZERLAND

78. Veterinary College, Berne.
79. Veterinary College, Zurich.
80. Veterinary Pathology Division, Zurich.

UNITED KINGDOM

81. A. V. C. School, England.
82. Foot & Mouth Disease Laboratory, Pisbright, Surrey.
83. Homnal Diary Research Institute, Ayre, Scotland.
84. Imperial Bureau of Animal Husbandry, Vety. Labs, England.
85. Lister Institute of Medicine, London.
86. London School of Hygiene & Tropical Medicine.
87. Medical Library, Liverpool.
88. Molleno Institute, Cambridge.
89. R.A.V.C. Journal, Andershot.
90. R. A. V. C. Journal of the R. A. V. C. Laboratory, England.
91. Rowett Research Institute, Aberdeen.
92. Royal Veterinary College, Dublin.
93. Royal Veterinary College, Edinburgh.
94. Royal Veterinary College, London.
95. Russel Greigi Dr. J. Mohideen, Edinburgh.
96. School of Veterinary Science, Liverpool.
97. Veterinary Education Director, Glasgow.
98. Veterinary Journal, W.C. 2.

99. Director, Veterinary Laboratory, Weybridge.
100. Veterinary Laboratory, Stormont, Belfast.
101. Veterinary Record, London.

UNITED STATES OF AMERICA

102. College of Veterinary Medicine, University of California.
103. College of Veterinary Medicine, St. Pauls, Minnesota.
104. College of Veterinary Medicine, Washington.
105. Cornel Veterinarian, Itheca.
106. Faculty of Veterinary Medicine, Pennsylvania.
107. John Crerar Library, Chicago, Illionis.
108. Journal of American Veterinary Medicine Association, Chicago.
109. Kansas State College, Division of Veterinary Medicine, U.S.A.
110. Lederle Veterinary Bulletin.
111. Michigan State College of Agriculture, Micigan.
112. New York State Veterinarian, Cornell.
113. North American Veterinarian, Evanston, Illinois.
114. Ohio State University, Ohio Columbus
115. Peurtonico Journal of Public Health and Tropical Veterinary Medicine, U.S.A.
116. Poultry Pathologist, New Jersey, N.Y.

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I, SYED HAMEED HASAN, hereby declare that the particulars given above are true to the best of my knowledge and belief.

(Sd.) SYED HAMEED HASAN

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