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# CENTAUR

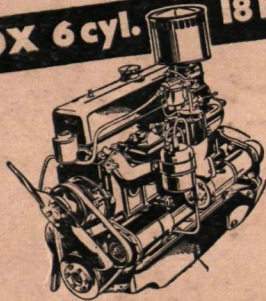
## 1950

Number Twelve



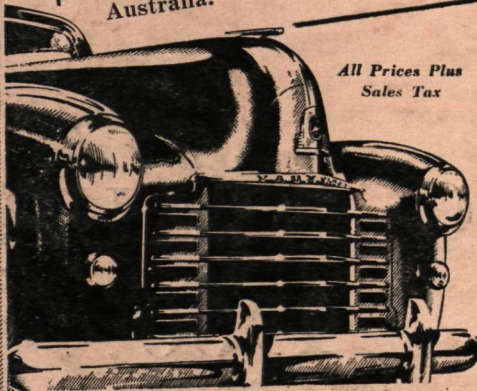
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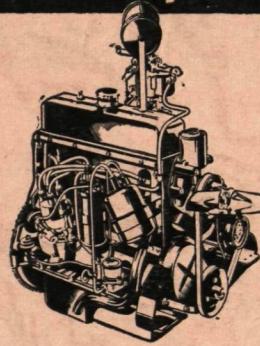
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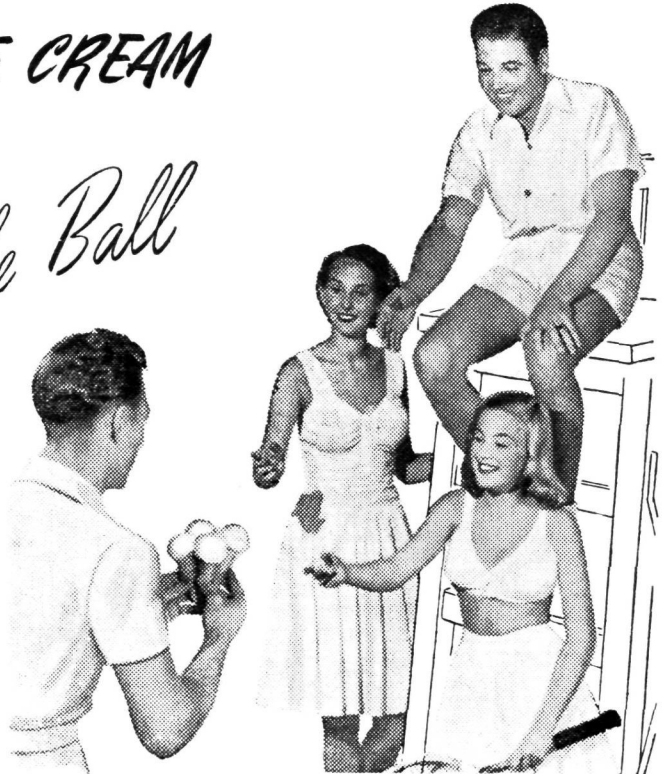
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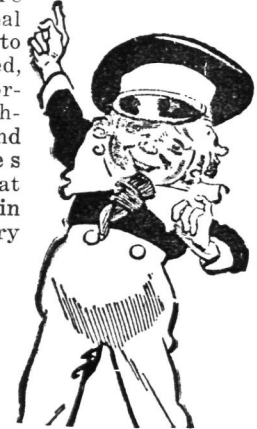
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The Journal  
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CENTAUR  
1950



Editors:

L. C. LLOYD

J. V. HARGREAVES

Assistant Editor:

P. F. LEWIS

NUMBER TWELVE





### ACKNOWLEDGMENT.

We offer our sincere thanks to all who assisted us with the production of "Centaur," 1950.

Our special thanks go to the Dean for his keen interest and help in this project. This can also be said of the President of the S.U.V.S., Mr. Symons.

Others worthy of special mention are Dr. Emmens, Mr. Webb, Mr. Gordon, for their articles, and Mr. Max Henry for his constructive ideas on business matters.

To those who came forward under pressure we extend our sympathy; to those who came unasked, our thanks.

Finally we would like to thank the Society for entrusting this enterprise to us, and we sincerely hope we we have not lowered any standards set in previous Centaurs.

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As the world has increased in complexity there has been an increased need for co-operation but concomitant with this necessity there has been a decrease in the tendency of the individual to this end. This is of great importance to us since we are a small profession in this country so that to achieve a status co-operation is essential. Considering there are only two Schools in Australia it should not be difficult to attain but unfortunately the passage of time has proved that it will not exist without a renewed vigorous effort.

Perhaps the advantages of this co-operative spirit are not all obvious. Undergraduates should be able to realise its importance in the School but the most important aspect is after our graduation and we are members of the veterinary profession.

Primarily full co-operation of all members of the profession would help materially in developing a fine standing in the community.

A co-operative spirit would lead to far more personal contact between veterinarians which in turn would result in a considerable interchange of knowledge relating to veterinary subjects.

Much of this information is never seen in print because it either applies only to local conditions or because the possessor of such information does not consider it merits the time he would have to spend disseminating it. On more important subjects of a general nature this does not apply but in the long run it is the various minor techniques and the multitude of snippets of information which make for a more successful practice or a more efficient laboratory.

Lately the butter factory- veterinarian relationships have come to the fore. Some members are quite prepared to enter into doubtful contracts without consideration of the effect on the profession, while others, more thoughtful, would not entertain the idea. A section of the profession cannot carry on a



fight against bad conditions under such circumstances. It requires a unified effort to achieve a satisfactory end.

Let us analyse why it is people do not co-operate. This is with particular reference to our calling. One of the principal factors in this regard is that many of the graduates gain no overwhelming advantage in supporting their graduate Association. The blame for this by no means rests entirely on the Australian Veterinary Association, although it is in part responsible. This is not meant to be derogatory to those men who have put all they could into it and to whose credit it is not a dying organisation but rather a living and growing one.

To attract people to an organisation it requires to have some definite value greater than the tangible advantages gained by not adhering to such bodies and abusing the professional status. It is considered such an advantage would be provided by strict disciplinary powers in that it would prevent some encroaching on the rights of others.

Lack of personal contact is another factor contributing to anaemic co-operative efforts. In recent years a remedying of the position has been difficult within the school because of the large numbers but it is felt the position is not insurmountable. With the decrease in numbers now occurring this position should be still easier to overcome.

After graduation a remedy becomes more difficult because of the dispersed state of our livestock. The majority of people have difficulty in establishing personal contact over distances greater than ten miles and Vets who live within this distance of each other are usually public servants.

Co-operation appears to be largely a habit learnt while young and it is for this reason that we strongly advocate some substantial effort being made within the faculty to educate students so that on graduation they will support graduate organizations and consider their actions not in the light of their own interests but rather in that of the profession. At present no attempt is made in this direction and unfortunately, there are amazingly few examples set in inter-departmental relationships.

Our student society does an excellent job organizing functions which bring students together socially and there is little else to be done in this direction. The rest is up to the students themselves and on their part they should make a conscious and positive effort in the direction of co-operation while at school. Too often we are, all of us, content merely to drift along without making any definite moves towards a given objective and it is considered that this state of affairs pertains to a degree in the school. Hence it is up to the individual to consider the importance of this subject.

To become efficient we must organise and to organise we require the co-operation of all members. Unless this is realised we will advance little as a profession. On butting a cigarette the small fire on one end becomes disorganised so that the pieces lose all relationship to one another so becoming nothing. So it is with us; unless we co-operate and form a well-related organisation we cannot hope to be anything more than nothing in the eyes of the community.

## OFFICE BEARERS

*Patrons:* Hon. E. H. Graham, Minister for Agriculture,  
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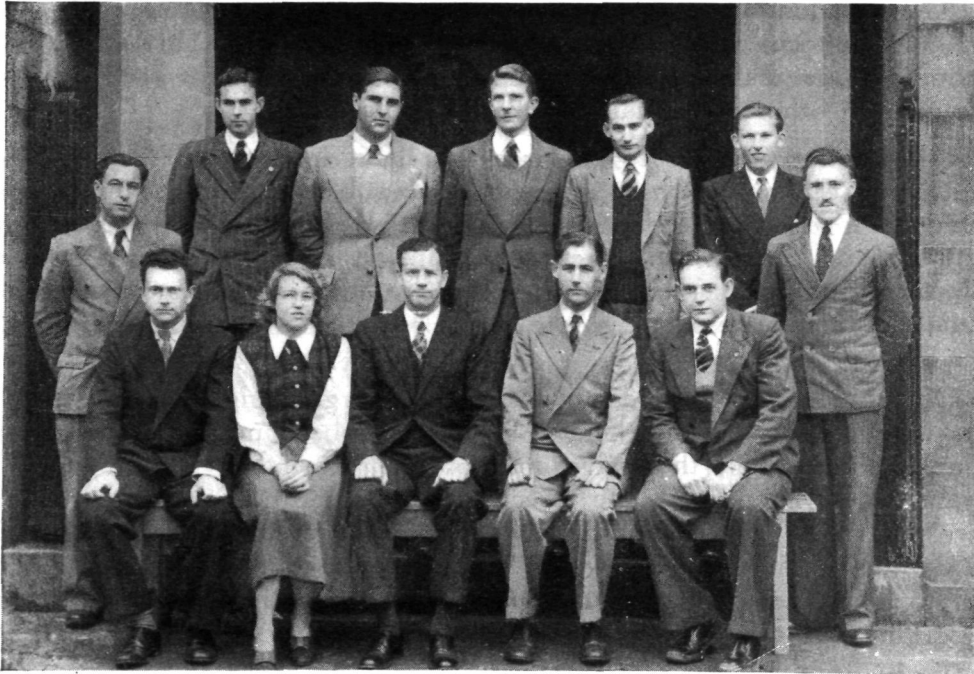
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5th. Year—R. Trounsen.

3rd. Year—J. Collard.



### VETERINARY SOCIETY EXECUTIVE, 1950.

**Back Row.**—C. E. Liefman, N. I. Mortimer, T. Rose, P. R. Knight, R. E. Moore,  
J. M. Holder, B. G. Johnston

**Front Row.**—A. H. Brook, Miss H. E. B. Joyce, Dr. H. R. Carne (Dean), L. E. A.  
Symons (Pres.), B. C. Eastick.

## CHAIR OF VETERINARY PHYSIOLOGY

AS evidence of the general recognition of the importance of the development of Veterinary Physiology, an offer of a special grant from the Australian Wool Industry Fund to establish a Chair of Veterinary Physiology was made to the University this year. The University Senate accepted this offer and decided to establish a new Chair in the Faculty of Veterinary Science and invited Dr. C. W. Emmens to become the first occupant.

It has been a source of great satisfaction to the Faculty not only that a third Chair has been established in the important subject of Veterinary Physiology, but also that it has been possible to occupy it by a man who, since his appointment to the teaching staff, has gained the high esteem of both members of the staff and student body alike.

Dr. Emmens arrived here from England in May, 1948, to take charge of the new Veterinary Physiology laboratories, which were completed towards the latter part of the year. He has had a distinguished academic career, being a Doctor of Science and Doctor of Philosophy (London). Before coming to Australia, Dr. Emmens was well known for his work in Genetics, Endocrinology and Reproductive Physiology, on which he published many scientific papers.

This research work was interrupted during World War II, when he served with the R.A.F. in the Mediterranean and Europe as a Senior Scientific Officer.

Since Dr. Emmens has arrived at Sydney University, he has efficiently organised the Department



of Veterinary Physiology and has commenced an extensive research programme. In addition, he has arranged a comprehensive course of lectures and practical work in Veterinary Physiology, which commenced in 1949.

The Society would like to take this opportunity of congratulating Dr. Emmens on his appointment as Professor of Veterinary Physiology, and wishing him every success in this new department of the Faculty.



### *Visit of Mr. J. H. Whitem to the University of Minnesota*

MR WHITEM has been granted 18 months' study leave to enable him to proceed to the University of Minnesota in the United States, where he will continue his investigations on virus diseases of dogs.

Whilst in Minnesota he will also pay special attention to neuropathology and histochemistry, which are of particular importance in the investigations that he has been engaged in during the past few years.

Mr. Whitem will be leaving by the S.S. "Aorangi" on 3rd August. It is a matter of considerable satisfaction to the Faculty that another member of the staff is able to get experience in the United States.



## ONE THING AT A TIME

By C. W. EMMENS

**S**OMETHING is happening in scientific and industrial research that has its mainspring in the work of R. A. Fisher, initiated a few decades ago and continuing at the present time. Starting in the peculiarly suitable subject of agricultural field trials, and spreading gradually into other biological sciences, now even into the chemical and physical sciences, has occurred a process which still remains unrecognised by many as the outstanding innovation it actually is. I refer to the gradual abandoning of so-called classical methods of experimentation and the substitution of factorial tests in suitable fields of work.

Fisher is in no two minds about the advantages of the system he has fathered. He writes:

"If the investigator, in these circumstances, confines his attention to any single factor, we may infer either that he is the unfortunate victim of a doctrinaire theory as to how experimentation should proceed, or that the time, material or equipment at his disposal is too limited to allow him to give attention to more than one narrow aspect of his problem."\*

To what circumstances does Fisher refer? He refers to a very common, indeed almost universal situation in the laboratory or the field, where a worker has to decide what to do next in investigating his problem, and there are many things that he could do. Past teaching has always emphasised the necessity to hold everything possible constant and then to vary one thing only at a time, so as to be sure that any results which are seen to follow this procedure can, with little doubt, be attributed to the single factor which has been modified.

Suppose I am staining sections of muscle, and the results are not up to requirements. I may be fixing for too long or too short a period, or even using a bad fixative. I may be staining for too long or short a period, or using the wrong concentration of stain for this particular tissue; or I may be doing many other undesirable things. How am I to decide which is at fault? If I am a classical scientist, I shall try out batch after batch, altering one thing only on each successive occasion until I hit upon the fault. If I am a good classical scientist, I shall also run a batch of controls with each of these variants in technique. It may take me weeks to discover the flaw in the method; indeed, if I do not investigate all the possible variables I can reasonably suppose

may affect the issue I may miss a worthwhile improvement although I find perhaps one fault in technique in the earlier tests. If I am a good scientist, all of these tests will be made with many pieces of tissue so that I can judge the reliability and uniformity of my results.

If I adopt factorial methods, I shall replace such a scheme by one in which all possible variations in technique and all possible combinations of them are tried simultaneously on my material. The scope of a single test will be limited only by the number of replicates that I can handle at the same time. If I can imbed and cut, say, twenty pieces of muscle in a single test, I shall not put on ten controls, stained by my unsatisfactory method, and ten stained by one possible improvement in technique. I shall, instead include some of the seemingly most important sources of trouble all at once, in addition to maintaining the old conditions as a check. If necessary, each possible combination of factors may be included once only in a single set-up, and any points at doubt cleared up by a repetition of the test. Thus, I may fix for  $\frac{1}{2}$ , 1 and 2 times the standard period, stain for  $\frac{1}{2}$ , 1 and 2 times the standard period and use in addition perhaps twice the previous concentration of stain. This would give me 18 possible combinations of independent treatments ( $3 \times 3 \times 2$ ) and would be as far as I could go in one single test under the limitations imposed by my maximum of 20.

Each of the 18 pieces of tissue in the test will be treated differently, so what can I expect to learn? Taking the stain concentration first, we see that each strength of stain has been applied to 9 pieces. These 9 pieces have each received a different combination of other treatments; but for every such combination on the lower strength of stain, there exists a partner for comparison, differing from it only in that it has been treated with the higher strength. I therefore have a comparison of staining strengths which includes all of the test-objects—each one of which gives information relevant to the question of which concentration is best. Furthermore, I rest any decision at which I may arrive on a broader logical basis, knowing that I have seen the effect of altering the concentration of stain under a variety of other conditions, not merely under a single set of perhaps unusual and misleading circumstances.

Exactly the same argument applies to my triplets on differing periods of fixation. There are 6 such triplets, each member of which differs from its part-

\* "The Design of Experiments by R. A. Fisher."  
Oliver & Boyd, London.

ners only in the fixation period to which it has been submitted; and again, all pieces of tissue supply information in respect of this question. And simultaneously, each triplet of staining times supplies similar, independent, information. I have thus asked several simultaneous questions, each of which has been answered with as full, and fuller, information than would have been obtained had the whole test been devoted to that question alone. The more questions I can pile into a single test, the greater my saving in time and the wider my basis of knowledge about the effects of any one modification.

The analysis of such results may, and usually does require the application of statistics. This is the great drawback in the opinion of some scientists—usually because they are not familiar with the necessary mathematics. It is no argument against the method, however, that not all of us are equipped to apply it. The necessary knowledge should be part of our training, and is becoming so to an increasing degree. In the case of a relatively simple test of the type just described, the answer may be apparent by inspection of the results. If, however, we are dealing with such problems as the improvement or otherwise following the administration of different

types and combinations of drugs in clinical trials, it will most commonly be necessary to submit the results to statistical analysis before we are sure of the exact nature and validity of our conclusions. There are all sorts of safeguards which must be applied to help guarantee the truth of these conclusions, both in the setting-up and in the analysis of factorial tests, but when these are adhered to it is often a source of wonder to the uninitiated how much can be learned with apparently so restricted a series of tests.

These methods for the laboratory and the field, although they represent a great advance in experimental technique, do not replace intelligence and foresight in the planning and conduct of research, and are not to be blindly applied as though they were a new kind of magic guaranteed to produce results. Instead, they are ways in which certain common types of question can be put by the research worker with greater economy and usually with more precise results than have hitherto been seen or expected. They are tools, resembling logarithms of the differential calculus in making it possible to reach scientific decisions with greater assurance and minimal waste of effort.

### *Badgery's Creek at Three Pounds a Week*

*We comes to the blinkin' school 'ere to learn the works on farms,  
And things wot run about, such as the 'orse,  
We 'as our cells allotted, then reports to Jimmy Barnes,  
To get our blinkin' drummin' on the course.*

*"Now look 'ere blokes," 'e says to us, "I'll tell you wot to do,  
So's you can keep the cooks and me all 'appy;  
You'll report on time for all your meals alean of face and shoe,  
An' when I calls, you must be quick an' snappy."*

*An' then 'e says, afriendly like, "You'll rise before the sun,  
To help wee Jock an' others with their works,  
You'll learn the art of feedin' pigs, an' you'll weigh 'em one by one  
An' i'll teach you 'ow to tell the Whites from Berks.,*

*We'll feed you well with spuds an' meat, but can't guarantee your greens  
For the essence of this contract is obscure.  
But when this course is over you'll provide the way's an' means,  
To foot a great big whopin' bill, I'm sure;  
Besides we want a brand new 'erd, wot's goin' to cost a packet,  
And we need some modern drugs to fight infections—  
I s'pose youse guys would like a word to rhyme 'ere, such as "Racket"  
But it's no use bitchin boys—are there any questions?"*

(Signed) NO STERCOBILIN

KIWI

## VETERINARY SERVICES IN NEW ZEALAND

*During the post-war years the student body and the Australian Veterinary Association have endeavoured to raise money for a War Memorial to those of our ranks who fell in the 1939-45 War. Altogether with a contribution of £47 from the A.V.A., £100 was raised. Wisely, the Society decided to endow a practical memorial by providing a prize of a book of Veterinary interest, chosen by the winner, purchased with the interest from the above money invested in Commonwealth stocks. As this is a comparatively new decision the money is not immediately available so this year the Society is generously donating the prize.*

*The judges, namely, the Dean, the President of the Society, and the Editor of Centaur, this year decided to award the prize to one of our New Zealand friends—Mr. N. M. Wallace, for his article dealing with the "Veterinary Clubs in New Zealand."*

*In our opinion, Mr. Wallace has handled a controversial subject in a very competent manner. He has supplied us with a comprehensive, unbiased account of the scheme and has then gone on to suggest thoughts to us without forcing his views on us in any way, so that we are left almost entirely to form our own opinions. Further, an account of this scheme is extremely valuable to us here in Australia, where we are rapidly moving towards a time when a similar scheme or an adaptation of it will be necessary in our country.*

*To you Mr. Wallace, we extend our congratulations!*

This article aims to provide some information on the development and present position of the Veterinary Club Movement in New Zealand.

### *History.*

Up to 1937 in New Zealand there was a limited number of private practitioners and only five clubs which were employing four veterinarians (one vacancy). The field for unqualified men who "knew a bit about cows or horses or sheep" was wide open. This may be illustrated by one story concerning such a man who, having completed a P.R. examination, presumably accompanied by considerable ovarian palpation, on a cow, told the ever-trusting farmer that he had been "breaking up the egg shells round the eggs" and further that his cow would probably be right."

Prior to the date mentioned a few clubs had operated sporadically in various parts of N.Z. but to a large extent the farmer was left to his own devices. About this time, a group of dairy companies in Taranaki engaged a veterinarian whose salary and overhead expenses were met by a butterfat levy on all members, with a correspondingly reduced visit charge to each client to cover transport and other costs. This venture was so successful that expansion

on the same pattern occurred rapidly. Some of the pioneer clubs, e.g., Eltham, Rata and Clutha have always been very stable and run very smoothly.

Due to the rapid increase in the number of clubs, in 1943 a farmer-controlled organisation, the Dominion Federation of Farmers' Veterinary Services (Inc.) was established to ensure, among other things, a uniform basis of remuneration of veterinarians—at this stage a bit of piracy of good men by clubs in the process of formation was to be reckoned with. This organisation also aimed to standardise as far as possible conditions of membership throughout the country. Twenty-three qualified veterinary surgeons were brought to New Zealand from overseas, mainly from England, but some from Canada arrived about this time.

In 1943-44 the (then Labour) Government became rather suddenly interested in the club movement and a Ministerial Committee investigated the subject. Its recommendations were the basis of the "Act to Make Provisions for the Establishment and Maintenance of Veterinary Services for Farmers and for that Purpose to Constitute a Veterinary Services Council and Define its Functions and Powers."

The Council was constituted thus:—

Representatives of the N.Z. Govt. . . . .	3
„ of N.Z. Meat Producers Board . . . . .	1
„ of N.Z. Wool Board . . . . .	1
„ of N.Z. Dairy Board . . . . .	2
„ N.Z. Veterinary Association . . . . .	1
„ Dominion Federation of Farmers . . . . .	2

I think it is correct to state that the Council employs the Chief Veterinary Executive Officer, the Secretary and Assistant-Secretary.

The dissolving of the D.F.F.V.S. (Inc.) when the Act was passed resulted in an amendment providing among other things for these latter two members of the Council to be elected, for a three year term, at an Annual Veterinary Services Council Conference which delegates from veterinary clubs, in the proportion of two farmers: one veterinarian, may attend.

Thus at present, these two representatives, are from "Farmers' Veterinary Clubs and Associations and Other Like Bodies." It is agreed that one of these shall be a veterinarian and one a farmer. Only two veterinarians are on the Council as such (N.Z.V.A. and this latter) but at present two of the Government representatives (the Directors of the Research and Livestock Divisions of the Department of Agriculture) are veterinarians.

At the Annual Veterinary Services Council Conference, problems, and remits forwarded by Clubs and the N.Z.V.A., are discussed.

#### *How the Veterinary Services Council Works.—*

The function of the Council is to provide an efficient service to farmers with a view to:—

- (a) Maintaining the health of N.Z. livestock and improving the quality of produce derived from them.
- (b) Increasing the production from livestock and the efficiency of farming in N.Z.
- (c) Promoting the training and employment of veterinarians. The methods of attaining these ends have been:—
  - (a) To encourage the formation of Clubs by the following subsidies:
    - (1) £400 towards the salary of the veterinarian.
    - (2) £600 towards the building of each house provided by Clubs for veterinarians (1950).
    - (3) £200 per veterinarian employed by a club for the provision of pharmacy/surgery (1949).

(Subsidy (2), an interest-free loan, and (3), a straight out grant, are fairly recent, as the dates indicate.)

It may be stated here that the major contributor to the Veterinary Services Council is the N.Z. Government which subsidises pound for pound the contributions of the Dairy, Wool and Meat Producers Boards. The total annual income of the V.S.C. is approximately £70,000.

- (b) The Council early decided on a policy concerning the formation and administration of clubs, one of the major points of which is that the club shall be farmer-controlled and that the veterinarian shall be a salaried officer.
- (c) To encourage the club veterinarian to advise farmers on matters relating to production; feeding, management, breeding and disease of all livestock, both on the farm and by means of lectures and demonstrations.
- (d) To conduct two refresher courses annually, in collaboration with the N.Z.V.A. for club veterinarians. Recently all registered practitioners have been invited to attend these courses.
- (e) To collaborate with the Animal Research Division, and the Herd Recording Department of the N.Z. Dairy Board, in such research programmes as are feasible.
- (f) The Council has taken out a policy to cover approved clubs and their veterinarians against legal liability for claims up to £1,000 made against them
- (g) Recently a number of journals of veterinary interest have been approved for provision by the clubs for their veterinarians.
- (h) Each year a number of bursaries (total value £840 of which £400 is repayable after graduation) is provided at the Sydney University Veterinary School for N.Z. students.
- (i) A post-graduate research scholarship to the value of £600-£800 per annum for two years, possibly extending to three, tenable at Cambridge is offered. One of the conditions of this scholarship is that the recipient must, on the completion of his studies in England, undertake to work in New Zealand for five years at an approved Research Station.
- (j) Following its policy of making the services of veterinarians readily available to all farmers in N.Z., the Council has established a system of refunds of 7/6d. towards the fee paid to some veterinary surgeons by some livestock owners outside veterinary clubs. This applies only to those private practitioners who were working in a district before a club formed in that district. It does not encourage the setting up of private practice in those districts already possessing a club.



At present there is no legal obligation on clubs to follow the policy of the V.S.C. although the Council can penalise a club by the non-payment of the £400 subsidy. The veterinarian is employed by the club, not the V.S.C. but this body has a stronghold on the salary paid. Clubs in a difficult financial position (and there are some areas in N.Z. where, due to the sparseness of the animal population, no club or private practitioner could make a profit), may apply to the Council for increased subsidies.

*Organisation of the Veterinary Club.*

This is based on one of two principles. Either all members supplying a dairy factory become members automatically, a levy of about 1/3 a cow based on butterfat production being made, or members of a district belong if they wish, paying a set subscription. Whichever system is adopted, the farmer pays an additional fee for each visit and also for any drugs supplied.

Members elect an executive from among their number, which is responsible for local arrangements, i.e., the provision of salary, housing, vehicle and pharmacy, the ordering of drugs and all secretarial and accounting duties. Normally a specific club area is defined by each club, but no over-all agreement has been reached as to the actual number of animals which one veterinarian is efficiently capable of attending.

This matter may be clarified if we examine the following, quoted from "The Rules of the North Canterbury Farmers' Veterinary Club." This Club has its headquarters in Rangiora, about 30 miles north of Christchurch in which district the mixed farm—wheat cropping and sheep and fat lamb farming predominates (see N.Z. Journal of Agriculture, April 1950, p.353).

The objects of the club are:—

(a) To provide a Veterinary Service in the district (definite boundary lines given) for members of the society. Where not detrimental to the interests of members, this service shall be available to non-members, non-farmers, owners of registered racing blood-stock in the area, and owners of small animals.

(b) To levy and collect fees from members:

	£	s.	d.	
Subscription . . . . .	1	0	0	per annum
Charges, mileage (one way basis) . . . . .		1	0	per mile
Maximum . . . . .	1	0	0	
Minimum . . . . .	10	0		

Visit . . . . .	5	0	per hour's attendance
Telephone conversation . . . . .	2	6	
Drugs and dressings. Cost plus dispensing expenses.			

- (c) To purchase in bulk and sell to members, such stock medicines, drugs and veterinary equipment as are deemed necessary by the executive.
- (d) To promote and hold lectures, field days and demonstrations for purposes of instruction.
- (e) To establish and maintain a laboratory for the benefit of the Society and employ necessary staff.
- (f) To employ veterinary cadets, field inspectors and other staff to assist the qualified staff in the performance of their duties if considered necessary by the executive.

Several other worthy objects of local interest are included.

Membership is open to bona fide farmers in the area and the application for membership commences, "I hereby apply to become and remain for three years a member . . ." thus conferring some stability on the membership from year to year.

The management is an executive of eight members elected from six groups in the area, its duties and powers being laid down in the rules and is fairly comprehensive.

*The Club Veterinarian.*

Consider first the number of veterinarians working in N.Z. There are about 130 members of the N.Z.V.A., of whom 70 are employed by 40 clubs. About 24 members are in private practice, full or part-time, 4 are employed by the University of N.Z. at the two Agricultural Colleges—Massey and Lincoln—while the remaining 33 are on the staff of the N.Z. Department of Agriculture. The largest club employs 10 veterinarians while there are 20 one-man clubs. At present it is estimated that the service could absorb immediately 30 veterinarians.

The salary scale is as follows:—

First year after graduation . . . . .	585
Second year after graduation . . . . .	635
Third year after graduation . . . . .	735
Fourth year after graduation . . . . .	835

Subsequent to fourth year the salary is by agreement. The salary of a Chief Regional Veterinarian is £1,035, while the highest salary to date is £1,235. Within the last few months however, the Prime Minister in N.Z. has greatly curtailed the activity of the Stabilisation Committee and has lifted many

subsidies and price controls. The Government at present is encouraging the payment of higher wages by all employers and the above scale may be outdated.

In addition, an instrument allowance of £40 the first year and £15 each subsequent year is paid by the Club.

#### *Duties of the Club Veterinarian.*

These are the normal duties of practice, bearing in mind that "livestock" i.e., the productive animals, belonging to club members get preference over "livestock" of non-club members and over "luxury" animals. This leads to some geographical complications, making the planning of a day's work more difficult.

In a dairying district one veterinarian looks after from 10,000 to 20,000 cows, the minimum recommended number being 8,000 plus all other animals, while in sheep country a club usually consists of 250-500 or more farmers depending on the size of their holdings and roading facilities. Some clubs provide a vehicle, but usually the Vet. owns his own car and receives 6d. a mile running expenses. He may cover 12,000-20,000 miles per year, the number of visits varying from 900-1800 while the number of animals treated exceeds by about 1/3rd the number of visits made.

Since 1937, few farmers, for whose benefit the scheme was inaugurated, have dropped out. For veterinarians the details up to April this year are as follows:—

Six Club Vets. have entered private practice.  
Four have joined the Department of Agriculture.  
Two private practitioners have joined clubs.

Sixteen club veterinarians have left the movement because of ill-health, over-work, did not like the scheme, district or club committee, and several obtained different or better positions abroad.

Two club vets who left clubs in N.Z. have re-joined after a short period abroad.

This fairly high turnover number is in a large degree due to the "newness" of the movement, to the profession and also to farmers.

#### *Problems of Club Practice.*

In view of the large amount of time and effort of a large number of people it is rather surprising perhaps that such a well-organised movement should still have any problems. It may also be stated that there are a great many clubs at present which run very smoothly and have no such worries.

One outstanding fact, which may almost be elevated to the position of a natural law, has

emerged. This is that when a veterinarian is placed in a district for the first time the amount of work available steadily increases until sooner or later there is enough for two men in the same area. Due to the policy of the V.S.C. of training N.Z. veterinary students rather than importing overseas graduates, a lag has arisen which, as has been noted above, has not yet been overcome. This means that one man has at times more work than he can efficiently handle. The provision of lay assistance—as has been suggested above in the Rules of the North Canterbury Club—may alleviate the position, but would be fairly expensive.

The low visiting fee charged by all clubs, which has advantages discussed in the next paragraph, is another point of debate. Farmers are willing to pay more for the services of a water-diviner or doctor than they are required to pay the veterinarian and this may be reflected in their estimation of the profession.

Most criticism by practitioners is directed, however, at the method and amount of remuneration. The fixed salary is said to encourage averageness or mediocrity. Again, the Club Vet. works about twice as long—nearer an eighty than a forty-hour week—as a man in an equivalent salaried position in the Government service. Against this, the V.S.C. has at least three good reasons for retaining this system, viz.,

- (1) The Club Vet. has nothing to lose and much to gain by instructing the farmer in every branch of animal biology associated with farming. It pays him to have a well-educated clientele.
- (2) The apparent cost to the farmer, (c) below, is kept low—he pays in three stages:
  - (a) Levy on produce via the Board concerned.
  - (b) Membership fee.
  - (c) Visit fee and mileage charge.
 This leads to more frequent calls for veterinary attention, and, it follows, greater farming efficiency.
- (3) The veterinarian is tied down to productive livestock primarily and in most clubs is able to attend "luxury" animals only at such times as he is free from this main duty.

The fact that the V.S.C. controls the salaries paid to all club vets. has led to some dissatisfaction, e.g., a club, well satisfied with their man, wishes to pay him a bonus of say £200. Mainly because of its policy of standardising salaries the V.S.C. may reduce this to £100, which makes nobody particularly happy, but does perhaps tend to prevent the good clubs expanding at the expense of others.

The fact that it appears quite impossible to define a "normal amount of work" makes it very difficult under the present set-up to offer any inducement which may overcome the above-mentioned tendency to mediocrity.

#### *Future of the Veterinary Services.*

The many changes in position suggest that club practice as at present organised does not suit every veterinary surgeon. It would appear that a large majority of the changes occur in a few clubs, there being one club which gets through its veterinarians at the rate of one per annum, suggesting a degree of variation between club executives.

The N.Z.V.A. and the V.S.C. are making every effort to sort out the difficulties which have arisen in the over-all situation.

There appear to be three schools of thought.

- (1) Continue the *status quo*, gradually providing more and more veterinarians.
- (2) A similar system to the present arrangement but including some method of incentive payment. At present there is no reward for greater ability. The difficulties of this have been mentioned.

(3) The most recent suggestion, is a system of subsidised private practice—the payment of a certain sum for a recognised minimum quota of work in a fixed territory with minimal fixed fees per visit payable directly to the veterinarian. The present cost to the farmer of the club, i.e., membership, travelling expenses, visit charge, drugs is almost identical with the cost of such a practitioner. The V.S.C. because of the other reasons mentioned above in the discussion on remuneration, is unlikely to support this suggestion.

Considering the very great advantages which it has brought to the farmer, that is, the provision of an almost overall veterinary service, the Veterinary Services Act may be said to have been a major factor in maintaining and increasing the primary production of New Zealand.

#### *Acknowledgments.*

The data used in this article was provided by Mr. Leslie, the Chief Veterinary Executive Officer of the V.S.C.; and Mr. Roach, the Secretary of the N.Z.V.A. The first, second and third annual reports of the V.S.C. have been drawn upon, as has the "Rules of the North Canterbury Farmers' Veterinary Club (Inc.)".

## AN OPEN LETTER TO SOCIETY MEMBERS

THE privilege of writing this letter is mine this year, but I feel that I cannot write without referring to the very grave threat of war which unhappily is before almost the whole of mankind. The dangers of a war now or in the near future, are I believe, beyond the imaginations of most of us, they go far beyond the disruption of the lives of the members of this Society, and if we can believe the warnings of many responsible scientists, may threaten the existence of life itself. Several students have spoken to me of our apparent helplessness before this threat, of our wish for peace, and yet our inability to prevent chaos. Personally, I wonder whether this helplessness is as real as it appears. One has no need to go beyond our own day to see what can be achieved by minority groups acting with vigour and purposefulness for good or evil. My point is that if so much can be done by vigorous minorities, may not we all, by acting with equal determination and energy instead of with more or less passive action from the sidelines, reach the avowed aim of at least 90 per cent. of mankind?

Before writing of the activities of the Society I must also refer to the good I believe that we, as fully fledged graduates can do in this country and else-

where. Apart from our general responsibilities as individuals, I believe we have a special responsibility as veterinarians to assist in increasing the production of the primary industries of Australia and New Zealand. First we must help relieve the increased demand within our countries brought about by the current immigration policy, and secondly do something to make more food available to people not as well fed as ourselves. In promoting the second we will I think, be helping by positive action to relieve the dangers I've spoken of in the first part of this letter. My personal belief is that on graduation we should seriously consider whether our choice of employment will assist us towards this goal.

It has been the fashion in these post-war years to refer to the large numbers within the Faculty and to the difficulty of maintaining an active interest amongst the members in Society affairs. I think that if I am completely honest, I will have to admit that part of the blame must this year fall upon myself, but on the other hand there is a small group who cannot be persuaded to take part in Society activities, even when the fate of their money is to be discussed at a business meeting!

On the other hand is the fact that both the Freshers Informal dance in the Union and the Annual Vet. Ball at Paddington were well attended and successful. Here I want to record our thanks to the enthusiastic Committee and helpers who worked so hard on our behalf. This is a good example of what can be achieved by an energetic committee.

The student representation at the Annual Dinner was disappointing. The Staff was proportionately much better represented and therefore an example to many of us. Anything I say here about attendance, however, does not reflect upon a hard-working committee to whom our thanks are due.

I suggest to the incoming President and Executive that they consider that formal dress be worn at next year's Dinner. In the past the Dinner meant much to the final year students as it was held right at the end of the year. Perhaps the new Executive could also explore the practicability of the Society supporting a second dinner of a less formal nature to give the final year students an opportunity of meeting again for the last time and the other members and staff an opportunity to wish them good fortune in the future.

I'm pleased to be able to say that a decision has been made about the use of the War Memorial Fund. I want to thank the N.S.W. Division of the A.V.A. and all others who have assisted us in this regard, although the final plans differ somewhat from that proposed by the War Memorial Committee of 1947 it is, I hope, an appropriate and workable one.

During the year I have tried to work to a plan with regard to addresses to the Society. We have

heard something of the research work being done within the Faculty, and, as you are aware, I've attempted to arrange speakers on post-graduate employment. I hope that the new Executive will be able to conclude this plan.

Again this year, the lunch hour films proved popular. Our thanks must be given to the Committee.

I want also to congratulate the Editor and his assistant upon their energetic and business-like approach to their problem, which is probably the most difficult and time-consuming job to be tackled by members of the Society.

During my term as President, nearly all the members of the Executive and Committees have been ex-servicemen. For perhaps obvious reasons the younger members have held relatively few positions. Now that the numbers of ex-servicemen are falling rapidly I want to suggest to our younger members that they nominate and support their fellows as officers of the Society so that within a year or two they will have had experience in the management of student affairs and will be able to fill the senior posts within the Society—a situation which in many respects is rightly theirs.

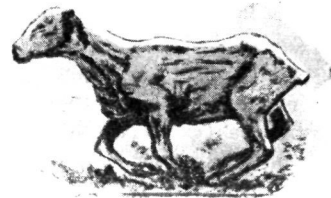
Finally, I wish to thank all those officers of the Society, members, and Staff who have assisted me in the past year. Especially I want to thank the Dean, Professor Carne, for making himself available to me on so many occasions when I wanted advice or help.

Yours sincerely,

L. E. A. SYMONS, President, S.U.V.S., 1950.

## *Sheep Sleep*

*I always thought that counting sheep,  
Was a proven way to get to sleep.  
But now I am much sadder far  
Since learning of Boonoke and Bundemar.  
My sheep that frolicked in fancy free  
Are weighed down with pedigree  
Only wrinklies will jump my fence  
And those whose wool brings eighteen pence.  
The aristocrats from Haddon Rig  
Refuse to dance my nightly jig  
Merryvilles are not merry at all  
I have to lift them over the wall.  
As Wanganellas pass me by  
I scan them with experienced eye.  
I can't, for the life of me, get to sleep  
Oh! Why do we have to study sheep.*





# THE PECULIARITIES OF REPRODUCTION IN MARSUPIALS

By RICHARD M. WEBB, B.V.Sc.

**T**HE process of reproduction in the marsupial was one of nature's greatest mysteries from the time when this class of animal was first described in 1698 by Tyson until only fifty years ago, when the first gleam of a solution of the problem came from Professor J. P. Hill working in the Sydney University on the bandicoot.

Much work has been done since that time, and now, the main story is apparent though by no means complete. But, in Australia, where the marsupial is by far the most important and widespread of the fauna, the average man knows little of the true story, and still clings to old and fantastic theories despite the scientific advances of the last half century. This is particularly the case in country districts, where a man's claim to authority on the subject seems mostly to depend upon the number of these animals which he has destroyed for their pelts. Perhaps, therefore, it is wise that the veterinarian should know something of the story.

There have been many definitions of just what we mean by the term marsupial animal. Popularly, a marsupial is regarded as a mammal which has a skin pouch (marsupium) in which the young are nursed to maturity on a mammary gland after having been born in the normal way at a relatively immature stage. Strictly speaking, this is not a good definition because some of the more primitive types have no pouch at all, simply carrying or dragging the young around attached to the teat but freely exposed.

A more precise and accurate definition is given by Wood Jones (1923) who defines it as a mammal in which the ureters pass between the genital ducts. This is the essential factor which determines the reproductive peculiarities of these animals, as will be demonstrated below. The pouch, though a marsupial development, is in no way a marsupial hall-mark.

The marsupials include the kangaroos, wallabies, native cats, opossums, bandicoots, and many less well-known native or pouched animals. They occur only in Australasia (excepting New Zealand) and in certain parts of North and South America, but Australasia can claim to be the stronghold of the marsupials to-day, wherein live an amazing variety of types. After having spread here when this continent was connected to Asia, probably having been driven by the more highly developed mammals, they have settled down and adapted themselves to the Australian environment in a truly remarkable way. One finds a

range of types almost as great as in the higher mammals, where we have such extremes of specialisation as the bat and the elephant, and in many cases they resemble so closely in appearance and habit the animals of other countries that the early observers gave names to them, still in use, which, though apt, were somewhat confusing, for example, Tasmanian Wolf, Native Cat, Pouched Mouse, and so on.

There is the burrowing wombat, the jumping wallaby and kangaroo, the tree-dwelling koala, the parachuted flying 'Possum, the blind marsupial mole, the prehensile-tailed 'possum, and the extremely dog-like Tasmanian Tiger, to show the variety of adaptations, but, without going into details of scientific classification, we can divide them all into two main groups, the more cunning and intelligent carnivorous marsupials with their characteristic teeth, and the less intelligent herbivorous types with their special dental adaptations.

It is obvious then, that no more than a general account can be given, in a small space, of the reproductive processes in such a diversity of types. The general scheme, however, is essentially the same throughout, and specific cases of animals which have been fairly thoroughly investigated, such as the bandicoot and the 'possum, may be used as examples without committing their peculiarities to other types any more than a description of a sow's uterus would commit the cow to a uterus capable of holding a litter of twenty young.

Although secondary sex characters (horns, beards, crested necks, etc.) are by no means as well marked as in the higher mammals, the male and female being remarkably alike, the sexes are easy enough to distinguish because of the pouch and the well marked scrotum.

Strangely enough, however, there lies under the tail only one orifice in both sexes; this is a cloacal opening common to both alimentary and urogenital systems, and it is located upon a raised eminence called the cloacal hillock. This is caused mainly by a collection of well circumscribed rounded glandular masses, two of which are scent glands, and two of unknown function. Bolliger (1947) thinks that these latter are sex glands and are androgenic in character, because males, from which they have been removed, become completely sterile, showing absence of spermatogenesis and atrophy of testes and prostate.

### The Male.

The male marsupial, whose genital organs appeared, superficially, to be arranged along more or less orthodox lines, has been rather overshadowed by the female because of her more novel and intriguing genitalia, and, consequently, he has not attracted the attention of investigators to any great degree.

McKenzie (1919), describes in some detail the anatomy of the system in the 'Possum, Wombat, Koala, Tasmanian Devil, and Kangaroo, but Bolliger, who has used the 'possum extensively as an experimental animal, records sexual peculiarities of considerable physiological interest.

From the animals so far examined, the marsupial male is seen to have scrotum, testes and epididymes, vasa deferentia, prostate gland and penis. (Fig. 1).

The rather orthodox *scrotum*, lodging two large testes and epididymes, is pendulous and lies in the inguinal region, and, according to Bolliger and Tow (1947), is the homologue of the pouch of the female. By administering oestrogens, over a period, to a castrated adolescent male 'possum, they actually transformed the scrotum into a permanent pouch; this conversion of a male organ into a female one is probably the first of its kind amongst the mammals. Embryologically, the lips of the pouch of marsupials represent the lips of the vulva of the higher mammals, according to the accepted claim that scrotum and lips of vulva are homologous.

The *prostate* is the only orthodox accessory sex gland present; it is a remarkably large organ, being second in size only to the liver in the male 'possum. It is seen as a carrot-shaped body, which surrounds the urethra from bladder to penis. This prostatic urethra is extremely dilated, and a constant stream of viscous prostatic secretion and sperms from the vasa deferentia pours into it to be washed away by the urine; in the male 'possum, at least, normal motile sperms may always be recovered from the urine (Bolliger 1942 (a)). This, of course, is quite unlike the higher mammals, in which sperms are ejaculated in definite short periods and separated from the urine.

The *penis*, in most types lies hidden within the cloacal orifice, and whilst there is a variety of types of glans penis reminiscent of the higher mammals, the more primitive marsupials have a bifid glans and divided urethra. This conforms with the double vagina of the female soon to be described.

### The Female.

The marsupium or *pouch* is certainly a most striking feature of these animals, being responsible for their more popular name. As seen from drawings and

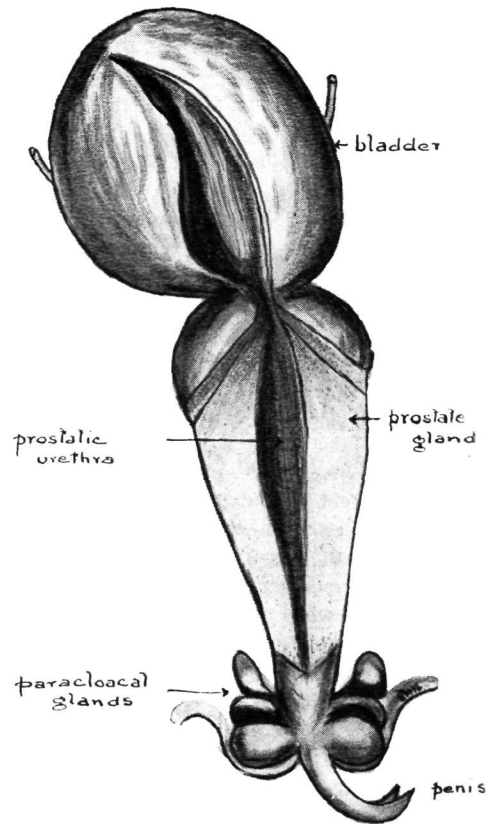


FIGURE 1.  
Diagrammatic representation of the internal genitalia of a male marsupial.

writings, it has appealed to the human imagination since prehistoric days, and even now the joey peeping from the pouch is a great attraction in any zoo. Fantastic stories of the function of the pouch were held and are still believed by some people in Australia; for example, the fertilised eggs are put into the pouch, where they develop, the pouch really being the uterus, or the foetus is born into the pouch through the mammary gland, or the young are blown into it from the nostrils of the mother.

The pouch is not present in all marsupials, and, in those which do possess it, there is a variety of forms. In some, it opens forwards, (e.g. Kangaroo, Koala, etc.) and in others backwards (e.g. Bandicoot), this being determined, no doubt, by the habits of the animal. In all, however, it is formed simply by an insinking of the teat bearing mammary skin through a gap in the underlying cutaneous muscle and a spreading out thereunder.

The teats, inside, vary in number in the different types, and sometimes too many foetuses are born for

the available teats, the supernumerary young simply perishing.

An interesting point with respect to the hormonal control of the 'possum's pouch was demonstrated by Bolliger (1942 (b)). He found that "immediately after the administration of oestrogens, the pouch becomes swollen as particularly evidenced by a thickening of the lips. Within a few days this swelling is followed by a severe contraction, which may almost eliminate the marsupium. The contraction, however, is not permanent, and within a few weeks the pouch expands again to its original size. In the natural process of reproduction, a somewhat similar contraction of the pouch is noted after the young has left the pouch and the mother prepares herself for the next breeding season."

### The Internal Genitalia.

The arrangement of the internal genital system is unique and was as much a puzzle to the early observers as the birth process itself. The whole business was solved first by Hill (1899) in the common bandicoot, since when much has been discovered about other marsupials, and, in all, the story is much the same with only minor changes and progressions from the more primitive to the more highly developed types.

The internal genitalia consist of two ovaries, two uterine tubes, two uteri, three vaginae (a median and two lateral ones) and the urogenital sinus.

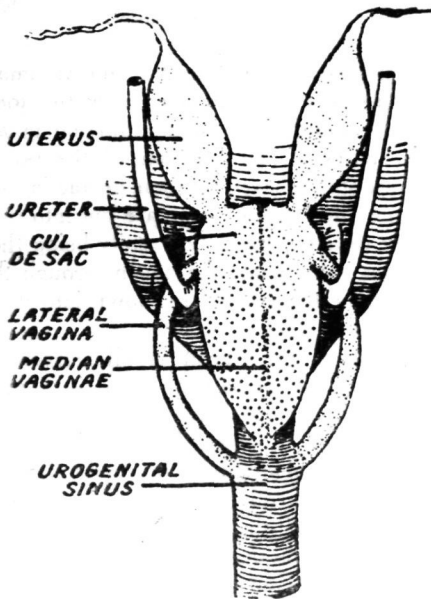


FIGURE 2 (After Wood Jones.)  
Internal reproductive system of adult female possum.

Taking the 'possum as an example (Fig. 2), there are two uteri entering a median vagina, a capacious sac, somewhat triangular in outline, in which there is a median septum until it is broken down during the first pregnancy. The apex of the median vagina is attached to the wall of the urogenital sinus, *but does not open into it.*

Close to the uterine entrances, two narrow tubes called the lateral vaginae lead from the median vagina to open into the urogenital sinus; the ureters pass between them and the median vagina and enter the bladder by curving around in a sling-like manner.

The urogenital sinus then leads to the exterior via the cloaca.

The formation of this characteristic median vagina is a fascinating story. It is bound up with the fundamental factor mentioned in the definition of a marsupial, namely that in these animals the ureters pass medial to the genital ducts instead of lateral to them as in the higher mammals.

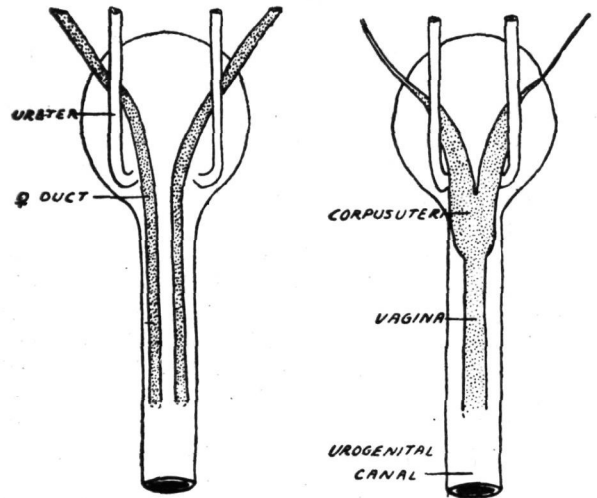


FIGURE 3 (After Wood Jones)  
Showing fusion of Mullerian ducts to form uterus and vagina in the higher mammal.

The accompanying figures show roughly what occurs. Figure 3 shows, for comparison, the development of the uterine tubes, uterus and vagina from the Mullerian ducts in the higher mammals, and it will be seen that the laterally placed ureters offer no bar to the fusion of the two ducts in the mid-line to form the body of the uterus and the vagina.

In the marsupials, on the other hand (Fig. 4), the ureters separate the genital ducts and so make it impossible for them to unite in the mid-line to form a single median passage comparable to the uterus and vagina of the higher animals.

Thus the females of the primitive marsupials possess two separate uteri and vaginae, opening independently into the urogenital sinus and so to the surface of the body at the cloacal orifice.

Insemination into both lateral vaginae is effected in these primitive marsupials by the forked glans penis; but these lateral vaginae are apparently unsuitable for the passage of living foetuses, so, after conception, the portions of the female ducts lying cranial to the point where the ureters enter the bladder begin to sag inwards towards the mid-line, and to become somewhat baggy. These two cul-de-sacs then come to accommodate the embryos and their foetal membranes, and

the septum which separates them breaks down. There is thus formed a single median vagina or brood chamber, which, becoming larger as gestation proceeds, comes to lie close to the urogenital sinus, but still having no opening to the exterior.

Now an amazing thing happens. At birth, the tissue separating the median vagina and the urogenital sinus ruptures, and with extravasation of blood, the young are born through the wound. The umbilical cord and the membranes are left behind in the passage through which the young have passed, and these embryonic structures then become incorporated into the scar tissue which rapidly repairs this temporary birth canal.

This happens after a gestation period of only eight days in the bandicoot, and the young are born at a singularly immature stage, comparable roughly to the five months human foetus.

Having thus escaped to the exterior through the urogenital sinus and cloacal opening, they proceed by active crawling movements, using their strong forelimbs, into the pouch where they grasp a teat and there complete their development.

In these more primitive marsupials this whole process is repeated at each pregnancy.

In the higher marsupials the median vagina does not form with each pregnancy, but is present as a permanent organ in the female at birth, being developed, however, in the embryo in the same way as described above.

In the female 'possum, the bilateral origin of the median vagina is indicated by a septum which, however, breaks down with the first pregnancy and never reforms. The gestation period in these animals is 16-18 days, when the foetuses are born by a similar rupturing of the tissues between the median vagina and the urogenital sinus. The healing of the wound is accomplished very quickly, and this part of the birth process is repeated at each subsequent pregnancy. The young remain in the pouch for a further four months, by which time they are capable of fending for themselves.

In kangaroos and wallabies, a further step forward is taken in development. The same process as in the 'possum occurs up to and including the first birth, but the healing of the ruptured birth canal is delayed, and it may even remain as a permanent opening (Fig. 5), with the epithelium of the long tubelike median vagina becoming continuous with that of the urogenital sinus. The lateral vaginae still remain, and act simply as passages for the transport of semen.

The passage of the foetus up into the pouch has been observed on numerous occasions, and a good

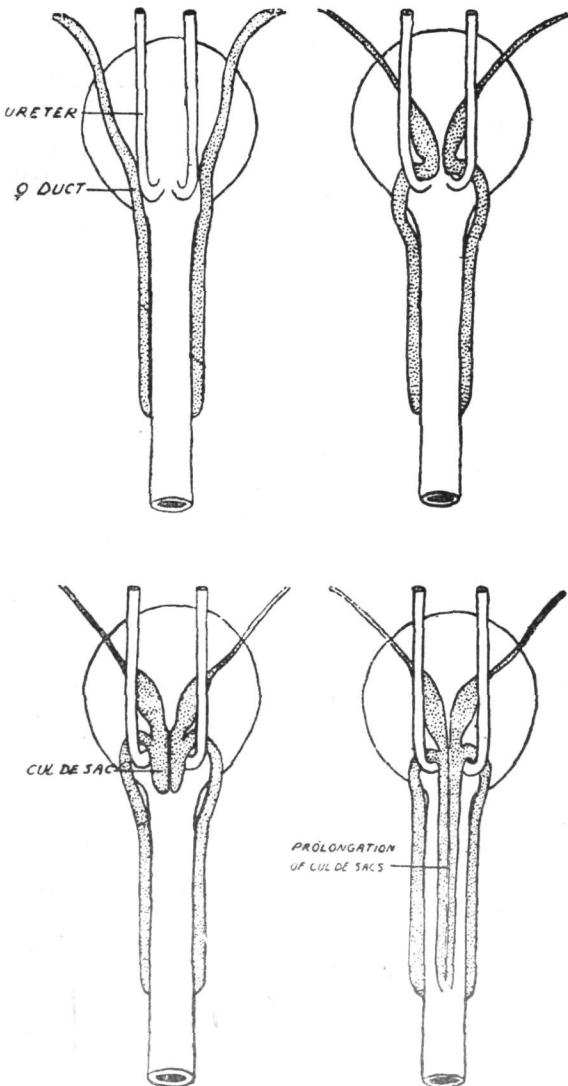


FIGURE 4 (After Wood Jones).  
Showing formation of vaginal cul-de-sacs, then median and lateral vaginae from the Mullerian ducts in the marsupial.

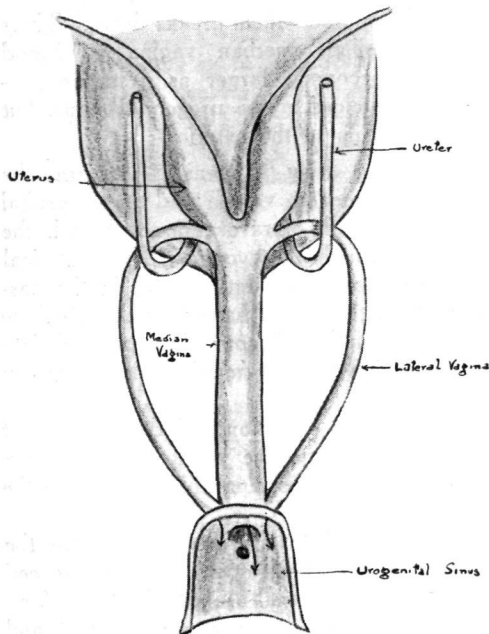


FIGURE 5 (After Wood Jones.)  
Internal reproductive system of adult female wallaby.

account is given by Troughton in his book, "Furred Animals of Australia."

Thus, it is seen that the marsupials have overcome, in a very ingenious way, a problem of how to bear viable young with a genital apparatus which started off by not being particularly suitable for the purpose.

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## S.R.C. REPORT

ON being elected your representative, I was warned by my predecessor, Bruce Eastick, that I could expect an ear bashing and much wrangling due to the personal feelings, both political and religious, of fellow councillors. Unfortunately, this was only too true. It would be a great day for this University if it could elect an energetic and capable body of Councillors, who could get things done quickly and without any biased feelings.

With the present Council, meetings were drawn out and the amount of work done was relatively small compared with the time spent.

As President, Jim Brassil has done his job well and has shown his critics just what can be done if one wishes to forget one's personal feelings and do the work in hand.

This year, as in the past, Honi Soit had been the cause of a lot of strife. Last year, Mike Lazar was on the mat, but he lived out the remaining issues. Then we began the year with a financial deficiency and so Honi Soit had its size reduced. When the Cruickshanks affair was on, everyone had to have a say. The outcome of it all was a very well attended S.R.C. Meeting at which the Editor, the Director of Student Publications and Brassil seemed to have

all the say and the latter all the kicks. The result—a waste of two good swotting hours.

The S.R.C. fee has been returned to its old level of sixteen shillings. It took time, but got there with the sanction of less than five per cent. of the students. A lot of interest for four bob!

Last year the Study Vac. was extended to two weeks due to the coal crisis. The Council expressed the wish that it might be the same again this year and this will probably be granted provided the overall exam. time is not shortened? The abolition of deferred exams. in the Arts Faculty caused a stir. Council's opinion was that it should not occur in the professional faculties.

The X-Ray T.B. Scheme got away to a good start last year but has not functioned well this year for some unknown reason.

Commem. Week was held in the second last week of first term as requested by the Senate. Song Book was absent due to lack of Editors. Later, it was due out to coincide with the University Centenary Celebrations. Perhaps it was washed away!

I wish to thank those who took an interest in last year's elections and I sincerely hope they will continue to keep an interest in student affairs.



## YEAR NOTES

### FIRST YEAR

**T**HE culmination of Orientation Week saw a team of 51 eager types hit the collar to bring the work for the year under control. Of this number there are six women members; not many by comparison but still a formidable force.

Through the efforts of senior students during Orientation Week, a great deal of valuable information was garnered. In this short space of time we were given many a clue as to how to pick up the threads and to find, with minimum effort and delay, our way round what, at first, appeared quite a maze. To those who gave a helping hand we say thank you!

We have been to two really fine social functions within the Vet. School this year. The "Informal" has given us a rousing welcome to the fraternity of embryonic veterinarians, and the Ball was a pretty fair demonstration of "heating it up" on the big night out of the year. Those who attended from 1st Year acclaimed both as really good "dos". Although the relatively small number representing us at each outing was somewhat disappointing. At this juncture we look forward to the Society Dinner.

Despite having plenty to do many were able to make visits to the Yearling Sales at Newmarket, the R.A.S. Sydney, and the Sheep Show in the hope of learning a little by the simple expedient of looking at and listening to what went on during these occasions.

Representing the Vet. School in inter-faculty sport we have John Gallagher in the XV. and Jeff. Prell and Jean Weston in the Athletics team.

Among us are two who hail from abroad. Hans Lindner, prior to taking up veterinary Science in this country, spent ten years on dairy farms in the coastal area of Israel. Desmond Kennard recently arrived from the U.K., is greatly attached to the work in hand and at the same time allows himself to be fascinated by Entomology—the order Rhoplocera in particular—and motor boats. The rest of the year wish you both some good hunting and hope you like it here. The remainder of the complement represents the cities, the towns and the land and includes three ex-servicemen, rather rare specimens among freshers these days.

We conclude we can't have been bored and hope not altogether idle.

Lastly, in the space of time existing between now and the examinations, we hope the efforts we make will prove fruitful.

### SECOND YEAR

**L**ENT term began one month early for those 13 members of first year, 1949, who made the grade. For these, life at "The Farm" supervised by Mr. J. Barnes, after numerous surprising and interesting events, terminated with a Grand Gymkhana, in which no less than 12 horses and riders took part. Prizes, suitably selected by Bruce Dunkley, were presented on the night of the event by Mr. Geddes. Casualty list for the day showed a total of three, but only one was seriously injured. Jock, despite broken wrist, voted the day a success.

The balance of 2nd year, 44 to wit, were a trifle collar proud early in the year, but one Bio.-chem. lecture was sufficient to settle them down in the traces.

Once again, successful post entries are to be congratulated and the sporting New Zealanders plus other homeland interstaters are heartily welcomed. For those repeating the year, I quote:—"Bear with us, and we shall PRESS ON REGARDLESS."

In the sporting field 2nd year is well represented. Ex All Black Keith Gudsell and 165-not-out-type John Hollywood, being our stars. Jack Thompson, Pat McCormack, Phil Mattner and John Peach follow closely, all being members of the 'Varsity Australian Rules XVIII. Sniper John Holt, in the recent Inter-varsity Match at Brisbane top-scored for Sydney, and was placed third in the aggregate, and thus warrants inclusion in this paragraph about "Top-liners." Isobel Gant, with her effort in the Women's High Jump cannot be left out either.

Amongst the Inter-Faculty Competitions, there are Rugby representatives Russel Dreadon, Phil Knight, Julian Mullins and Colin Thompson. Phil Street restricts his football wisely to University and Collegiate. Rowing enthusiasts Jill Clout and Elaine Edmonstone rowed a good 4th place in the Women's Tub pairs. Phil Knight rowing seven in the Vet. VIII and Edward Jowette in the Paul's VIII, were the other followers of the art. George Pulver surprised both himself and others to jump second in the Novice H/Step, it being his first attempt.

Interstaters Ted Grundy, Ron Hyne, Pat McCormack, biochemically inspired, and managed by Bill Dunbar, vented their spleen on Med., in the Inter-Faculty Tug O' War, but slipped on poor ground when on the point of annihilating Engineering.

During Royal Show week, 2nd year disintegrated and was found scattered amongst the larger stock

at the Royal. Rumours suggested that Peter Lewis was mistakenly awarded the Junior Champion A.A. Ribbon one day. A mistake which was rectified by the judge when he realised that the herdsman was always to be found on the near side of the beast.

The Vet. Informal was attended by some fifteen couples from 2nd Year, all of whom were evidently full of good spirits and at the Vet. Ball, to which nearly all 2nd year went, it was even more evident that good spirits were the order of the night.

Outside the Vet. School, we hear of San Hopcroft and his successful amputation of a cat's leg, and the appearance of numerous 4-inch brims seems to indicate much extra-mural work this Christmas. S.R.C. Rep. Neil Mortimer can be heard proudly boasting about "My son Malcolm," and veteran campaigner of some six months' standing, Ian Parsons has been seen "digging in" at Pennant Hills.

In any case, whether blackouts, gas rationing or wet weather be the order of the year, it is hoped that 1950 may prove both a happy and successful one to all of the 57 members we now possess.

### THIRD YEAR

**W**E entered 1950 with 62 students and 7 heads (horses) learning to our dismay that our predecessors had purloined several intended for us, thus necessitating rather cumbersome dissection groups; however for this we forgive them. We extend our congratulations to Prof. Emmens on his appointment to the new chair of Veterinary Physiology and trust that his association with the Vet. School will be a long and happy one.

For the edification of Second Year, we would say that rumours they may hear of the tremendous amount of work in third year are true, nevertheless our "whips" find time for extra-curricular activities, being prominent in most sports. We notice that several of our members, renowned for their prowess in the aerial ping pong game have recently been giving the mobile wrestling fans a lesson in Union.

Our members outstanding in sport are too numerous to name individually, suffice to say we are well presented in Soccer, Union, 'Rules, Tennis, Cricket, Rowing, Hockey, Athletics, in fact, all sports.

We learned with considerable pleasure that the foundation laid for a pass in Histology last year has since been consolidated (Centaur No. 11, 1949, p. 25), consequently we extend to Mary and Jack Hurst and also to Mr. and Mrs. "Cyanide" Bootes our congratulations and wish them every possible happiness. While on this theme our congratulations

also must go to our illustrious R. J. Knowles who announced his engagement at the Vet. Ball.

We welcome Val. Archer back to the fold from her sojourn in the land of the banana benders. Were they "too hot" for you up there, Val? Our year is graced by 10 per cent. of females and we are forever marvelling at the collection of jumpers and scarves displayed by a certain trio, we particularly liked that scarf and dissection coat ensemble, girls.

Amid members making outstanding contributions to our activities during the year were Margo Plicatus of Dance Committee and grass skirt fame and Kneeshaker Neasey, Capt. University 'Rules Team and Dance Committee, both of whom helped to make the Vet. Informal and Vet. Ball the exceptionally good shows they were. However, in the field of science one of our members will be remembered for his outstanding experiment on the inhibition of carbonic anhydrase by cyanide in vivo, during the A.V.A. inspection of the physiology laboratory.

At this stage we had intended including a treatise by R. J. Knowles on the inheritance of undesirable characteristics but unfortunately P(photo) Malone reclaimed his polyphoto 48 poses.

We read with interest in a text on "The Study of Anatomy" this short verse referring to lectures:

"Whenever the way grew weary  
Or ever the road seemed long,  
He would tell a more wonderful story  
Or sing a more wonderful song."

and so we are interestedly awaiting a vocal solo from Mr. Webb.

Our Year Rep. has been harassed in trying to find the answers to two vital questions recently posed and would appreciate suggestions "before you all go."

- (1) What makes students use the wrong solutions in Biochemistry?
- (2) What price R. J. Knowles for a Biochem. prac. exam.?

In conclusion we wish one and all the best of luck in approaching exams.



## FOURTH YEAR

I am on the "horns of a dilemma." Should I write on behalf of the top 10 per cent. or confine my remarks to the rest. Regardless of the split I trust that these notes will indicate that all eighty of us, though heterogeneous in origin, are homogeneous as a year.

We can welcome only one "outsider" this year—Peter Mylrea from the banana country. We trust that both he and we benefit from his stay. It is gratifying to know that at least one of the fairer sex remains in our midst.

Scholastically we congratulate Cliff Gallagher and Bede Morris on taking off the MacIlraith Scholarships. The latter by no means limits his life to swotting and has shown his worth on the hockey field and the dance floor. His handling of the Ball and Informal left no doubt in our minds that he would pass vocation tests with High D.'s in commercial art, musical comedy, as Arthur Murray's right-hand man, and on the stage of the Tivoli. "Professor" Flower and "Maestro" Tammemagi successfully combined with Bede at the Informal, while we saw "Mouse Tamer" Portway and "Call Me Whip-Cracker" Deakin taking their part at the Ball.

The names of Galloway and Gibson come so close together on the alphabetical lists, that it was not a surprise to learn that they considered in the near future one name would suffice. Our congratulations to them and a word from yours truly that the damage effected upon Heather's cranium was not the result of the evil contemplations of a frustrated suitor. Others to receive congratulations for a like reason are John Milne, Jock Tait and Don Mackie. Rumour has it that Bruce Lindsay may well be included before this article appears in print.

Bruce Wilson (long vac.) and Peter Diplock (May vac.) have taken matters one step further, whilst we record a curley-haired colt to the Phil Lewises and a bonny filly to the Alan Fishers. Our congrats. to all these year mates.

In the S.U.V.S. we find Laurie Symons doing an excellent job as President. He is ably supported by Secretary Moore, Vice-President Davies and member of the Executive, Ted Liefman.

Many of our members hold important positions in the various sub-committees and also the Sports Society. Mac. Wallace "calls the tune" for the N.Z. Students Society whilst we find Max Barry, Cliff Gallagher, Mac. Wallace, Laurie Symons and yours truly active in the Genetics Society.

On the various fields of sport we have worthy representation:

*Rugby*: "Ankylosis" Bruce (Capt.) McClymont (Uni. 4ths), Wallace, N. M. Thomas, Austen, Manson, Portway, Spotswood and Marshall.

*Soccer*: Austen, Portway, Buckley, Jubb, Lindsay.

*Aussie Rules*: Jubb, Liefman, Miles, Faulkner, Tomlinson and Spotswood.

*Hockey*: Gibson, Divett, Morris, Portway, Jackson, Marshall.

*Basketball*: Brown, Buckley and Stellingwerff.

*Swimming*: Lane and Liefman.

*Rowing*: Eedy, Carter, Juleff, Jackson and Buckley.

*Rifles*: Thompson and Sorenson.

Many other members could claim that their names should appear in the Rugby list, but then we saw that deciding match.

Paul Gilchrist and Charlie Thompson have pledged their support to the S.U.R. but it's said that a uniform adds glamour. We congratulate in anticipation Len Lloyd, John Hargreaves, Phil Lewis and Hugh Deakin for their work in preparing this journal.

Clinically we think of "Cockatoo" Ryan, "Prostate" Fitzpatrick and "Mopoke" Eedy. There are those who consider Atresia colisynonymous with P.A., but then most of these are rural workers who know no better than how to pluck fowls.

Whether eighty bright faces will shine forth for the next and final round is yet to be decided, but with "shoulders as capable as ours" it is hoped that such will be the case.



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## ADDITIONS AND CHANGES TO STAFF

The following staff changes have taken place this year:

### RESIGNATIONS

Mr. L. R. Grono has resigned to take up private practice in Queensland.

Mr. L. A. H. McKeand has resigned to enter private practice.

Mr. M. G. Foote has been appointed to the staff of Haddon Rig Station, Warren.

Mr. Frecker has resigned to become a private pastoralist.

Mrs. J. D. Biggers has resigned.

Miss M. C. Weston has gone for a trip to England and Europe.

Miss M. Hunt has returned to New Zealand.

Miss P. M. Keller has accepted a position as Librarian at the Kanamatzu Research Institute, Sydney Hospital.

### CHANGES IN STAFF

Mr. J. D. Steel has been appointed Senior Lecturer in Veterinary Medicine.

Mr. J. M. Keep has been appointed Temporary Lecturer in Veterinary Medicine.

Miss P. McGruer has been appointed Junior House Surgeon.

### NEW APPOINTMENTS

Mr. J. E. Barnes has been appointed Temporary Lecturer in Zootechny in place of Mr. L. A. H. McKeand.

Mr. M. J. Edwards has been appointed Junior House Surgeon.

Mr. D. I. Lamond has been appointed Temporary Lecturer in Animal Husbandry at the McGarvie Smith Farm.

Mr. J. A. Springhall has been appointed Lecturer in Surgery.

Miss N. Butler has been appointed Temporary Lecturer in Veterinary Pathology and Bacteriology.

Miss R. Broinowski has been appointed Librarian.

Mrs. O. Cathcart has been appointed Secretary to the Dean.

Miss I. A. Oliver has been appointed Secretary to the Department of Veterinary Pathology and Bacteriology.

Miss H. Hughes has been appointed Secretary to the Department of Veterinary Physiology.

Miss S. Thornton has been appointed Secretary to the McGarvie Smith Farm.

Miss H. Atlee has been appointed Junior Records Clerk at the McGarvie Smith Farm.

## NOTES ON NEW MEMBERS OF THE STAFF

*MR. J. E. BARNES, B.V.Sc.,*

*Lecturer in Zootechny.*

Mr. Barnes commenced his course in 1945, after discharge from the Army, and soon became keenly interested in animal production, management, and Genetics.

As a student, he was awarded three Blues in rowing, being one of the University eight, coxing also the N.S.W. crew in its King's Cup victory and later, the Australian Empire Cup eight which won at Auckland.

At present he is busily occupied in a shuttle service between the Farm, where he delivers an action packed short course on general farming, and the Veterinary School, where he conducts lengthy and

quite intimate sessions of a clandestine nature in the privacy of the feed-shed.

By his energy and patient thoroughness Mr. Barnes has proven an able assistant to Mr. Whitehouse and has helped consolidate the very valuable course in Zootechny.

*MISS N. BUTLER, B.V.Sc.*

**A**NOTHER '49 Graduate, who found the ties of the Vet. School too great to sever and decided on a bacteriological and pathological career. Quiet and unassuming, she may be found working diligently in the P.M. Room, or answering awkward questions in the Bacto. Lab.

In spare moments, she divides her interests between photography and tennis.



MR. M. EDWARDS, B.V.Sc.

AT present one of the Faculty House Surgeons, who manages to fit in his work with his baseball. Although engaged since December last, he manages not to show it.

Marsh is in the fortunate position of graduating at the age of 21. This has its drawbacks, however, for during one vacation in Final Year he was asked by a farmer, whose cow he had just successfully delivered, when he was leaving school.

Marshall is hoping to take off for a rural practice at the end of the year, for which we offer him all our best wishes and are sure that he will make a success of it.

MR. D. R. LAMOND, B.V.Sc.

MR. LAMOND was appointed Teaching Fellow in Animal Husbandry at the McGarvie Smith Animal Husbandry Farm in February, 1950. Because of his lifetime association with the Lamond herds of Friesians in the Nowra district, both his interest and ability equip him well to make worthwhile contributions to knowledge of the dairy cow.

After attending Nowra and Wollongong High Schools, Mr. Lamond started his Veterinary Science course in 1945. He graduated in 1950 with five years of active and successful University life behind

him. As well as being academically successful, he represented the Faculty in football, soccer and hockey.

Now well settled in at the Farm, Mr. Lamond is developing a reputation for quiet efficiency and reliability, for a co-operative nature, for working till 11 p.m. every night, and for a blue Austin utility. He is working on the development of ruminal flora in the calf.

MR. J. A. SPRINGHALL, B.V.Sc., Lecturer in Surgery, entered First Year in 1941. He enlisted in the Army in 1942, and became a Lieutenant of a Commando Unit before returning to the Faculty in 1946. Two years later he became President of the Veterinary Society and graduated in 1949.

His current interests include the S.U.R. — his promotion to Captain is imminent; flying, classical music, photography and of course, modern surgery; and to this he maintains that the radio is an indispensable aid.

There is little doubt that Mr. Springhall's future will be associated closely with thoroughbreds and small animal surgery. He is seriously considering finishing this year's work with a short season at a stud.

## CLINIC FIRE

AT about 3 a.m. on the 8th March, there was a violent explosion from the western end of the Sydney University Veterinary Clinic. No; it wasn't one of those 18 gallon kegs being emptied!

Sergeant Rames, awakened by this, hurried from the Lodge to find flames shooting into the sky accompanied by loud reports as the bottles in the Dispensary burst, adding further fuel to the fire.

While the Sergeant, assisted by a nurse from the adjoining Nurses' Quarters, struggled to take a horse maddened by the noise and smoke from the slings in the round box, another nurse rang the fire brigade. The firemen were promptly on the job but within the quarter hour from the first explosion the fire had destroyed the Dispensary, Records Room, part of the Examination Room, blistered and blackened the paint in the remainder of the Examination Room as well as cracking the windows in the building.

In that quarter-hour sufficient damage had been done to put those portions of the Clinic out of commission for two terms as well as destroying case records, instrument case, instruments and medicines.

For the following few days until some re-organisation could be carried out the Clinic was carried on in the Feed Shed, but gradually order arose from the chaos and with the temporary walling off of the end of the Examination Room, work continued as usual.

Both anatomical and ethical questions were raised recently when prominent city hardware store advertised "Keys Cut" in large red letters.

\* \* \*

Fishermen may soon be welcoming a new bait which is packed in a tube like tooth paste. When squeezed out it looks and acts like worm and tastes better.



**G. I. ALEXANDER:** A Queenslander, Alex hails from Charters Towers, noted for the number and variety of the township goats. He can see more without his glasses than most men without a telescope, and discerns feminine artifices with unerring skill. He has an amazing fund of knowledge and no inhibitions about dishing it out.

**MARY R. BARDSLEY:** Mary is our closest approach to a blond. For ulterior motives men wearing hats are preferred. Her interest in the course has at times approached the barbaric. To summarise, future unknown, present interesting, past not for publication.

**N.C.I. BARR, D.F.C.:** Proud father of two upstanding daughters, Chas. can also boast a wife. Has many another claim to fame however, viz. "Batsman, bowler, golfer (par), bridge-player, froth-blower, ear-basher Barr." Although affectionately known to Queenslanders as "The Old Man," he deceived the locals by his perennially youthful spirit.

**I. D. BAYNES:** Another Queenslander, Ian hides a friendly heart behind that fearsome growth on the upper lip. Of examiners he says, "Lord, forgive them, for they know not what they do." He has an eye for the scenery on the beach at Manly, and indulges in amazing gymnastics on the tennis court.



**PRISCILLA M. BENNETT:** Priscilla came to us from New Zealand in 1947 and has since shown herself to be a student of no mean ability, producing consistently good results each year. Has represented the Faculty in swimming. Married to David Walker in 1949, Prissy hopes to go into private practice and in this we wish her the very best of luck.

**J. T. BIGNALL:** Before entering the University of Tasmania in 1946, Jeff was in the R.A.A.F. After joining us he quickly shone by winning a McIlrath Scholarship. He has played an active part in Faculty activities. These include being Hon. Treasurer of the Society in 1948 and a member of the Faculty Eight in 1948 and 1949.

**D. T. BRACKENRIDGE:** From N.Z., Don is another quiet worker, so much so that we could find no indiscretions fit for publication. A keen sport, he has played for the Faculty in Soccer and Tennis. From what we hear, he seems intent on cementing an international relationship.

**J. H. BRAY:** Hugh is a South Australian. He attended the Roseworthy Agricultural College before entering this Faculty. Played with University Australian Rules football team in 1946-7. He was Editor of Centaur in 1948, Treasurer of the Animal Genetics Society and also a member of the S.U.V.S. Memorial Committee.



**A. N. BRUERE:** A Canterbury lamb, and one of the babies of the year, Neil refused to accept the advice of his N.Z. elders, and even got himself engaged. Considers Aussie beer conducive to conviviality, though we have trouble fitting his muzzle after 4 schooners.



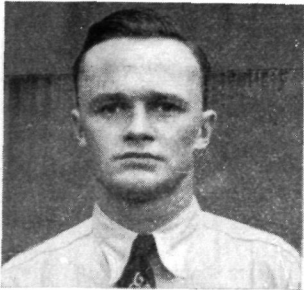
**E. P. BURKE:** Eddy is a resident of Chatswood and noted for his pipe sucking habits and for his profound reticence with regard to matrimonial affairs. Eddy thinks private practice is the goods in the S.W. of N.S.W.



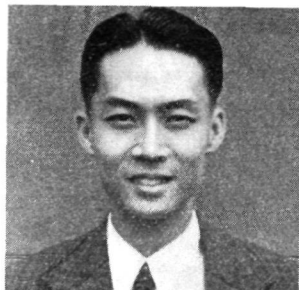
**R. M. BUTTERFIELD:** Rex is a South Australian. Attended Roseworthy Agricultural College before joining up. He commenced his course in this Faculty in 1946, and got married at the end of 2nd year. Rex played Australian Rules football in the 1946 and 1947 seasons.



**R. J. H. CARRUTHERS, N.S.W.:** Finds the disposal of the odd lamb an excellent supplement. Joe has not been successful in establishing an Australian Piccadilly and concludes it must have been the uniform which helped him whilst on Bomber Command. Joe is set on private practice.



**C. G. CARTER:** From Quirindi; the youngest member of the year, always passes and likes his lunch hour retreat to "Blood & Guts" to watch the half-pennies on the wall. Bent towards polo and country cricket clubs, should prove an asset to his district when he returns.



**CHO, CHAK NAM:** Known as Chuck, hailed from Kuala Lumpur four years late because of the Japanese occupation.

He has continued his basketball and table tennis in Australia, gaining a Basketball Blue in 1949 and "best and fairest" at Inter-varsity Basketball Carnival at Melbourne.

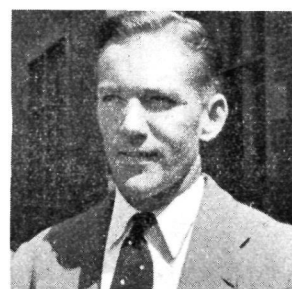
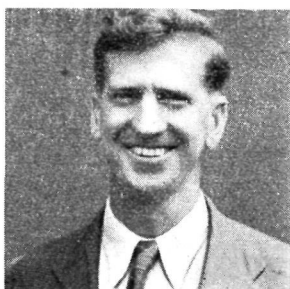
Academically, he has gained a few distinctions.



**P. J. CLARINGBOLD:** Peter is a whip, reeling off H.D's, D's and C's with sickening regularity. His extra-curricular interests include modern classics and philosophy. He has represented both Faculty and Wesley College with success in table-tennis and basket-ball. A bright future in matters pathological is predicted for him.



**A. E. COLE, D.F.M., N.S.W.:** Alan saw life with the R.A.A.F. in the islands. He feels that a change of government is needed but despite this has been a very able worker for the Veterinary Society at all times. Favours private practice.



**W. A. COULTHARD:** A former graduate of Hawksbury Agricultural College, Bill is one of the quieter members who hopes to set up in private practice. Things to his credit include life with the R.A.A.F. and a progeny, but these are unrelated.

**M. D. CRAWSHAW:** Another Aucklander, Doug. has an apparently detached interest in Polynesian Hyposapdia. Other sporting interests include football, soccer and hockey, in each of which he represented the Faculty.

**D. F. CUMMING:** A Queenslander and ex-A.I.F., Doug took a wife, his own, early in the course, and has spent the rest of the time in a sort of dreamy idyllic bliss. The variety and delicacy of his lunches have been a source of envy throughout. Faculty tennis champion, and dashing cricketer, he is a genial character.

**J. R. DEER, N.S.W.:** A man who realised the value of Vet. Science, he switched over from Agriculture to join us after having a fly around with the R.A.A.F. in England and Burma. A steady worker with strong leaning towards a rural practice.

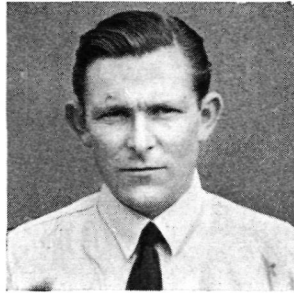
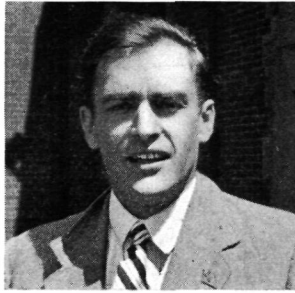


**G. DERRICOTT:** In 1948 and '49 young George was the mainstay of the 1st XV., and at the same time he contrived to achieve much success with exams., ale and gee gees. He is reputed to hold radical ideas in Genetics and that may be why he smiles so much.

**H. F. DEWES:** From Napier N.Z., and married with one small daughter. With a wealth of practical experience behind him, and a voracious thirst for knowledge, Harry is recognised as the authority of the year on Veterinary matters. We think he has a bright future in research. Wields a crafty bat, but we hear he bowls bumpers to Peg on the back lawn.

**ENA M. DEXTER:** Ena hails from the wilds of Marouba. She holds the faculty's only swimming title and swam for the University as backstroke champion. At hockey, race horses, tennis, basket ball and cricket she excels and can distinguish Bernborough from Jack Hobbs at a glance. Private life is obscure but there are suspicions regarding a north-west lad.

**G. B. DOWNING, N.S.W.:** Intrepid birdman, has recently flown home to roost. He has hopes of reducing the live weight of all felines. George could possibly recount a few tales about life in the islands, but has generally proved quite reticent.

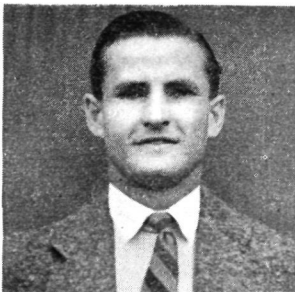


**B.J. DOYLE:** Is a Departmental trainee, won an Exhibition in Veterinary Science and is among the top in the year, although one of the youngest. He has represented the faculty in football. He is a prolific note-taker; his notes being in keen demand by many who either sleep at home or in lectures.

**R. J. B. DOYLE, N.S.W.:** His S.R.C. and College associations have certainly helped him to find his way around P.A. and the nurses quarters constitute no mysteries to Dick. However, his post graduate intentions are still successfully veiled. Dick enlisted from the faculty.

**P. D. DWYER:** After long service with the 2 N.Z.E.F., Pat settled down to married life, and has recently produced a son. Noted for his dry sense of humour, he found it rather overtaxed during the All Blacks' tour of South Africa, and even more dampened by the Australian invasion of N.Z.

**A. N. EGAN:** Nev comes from Narrabri. Staunch member of the Faculty Fifteen 1948 and 1949. He can boast of a fine academic record but don't mention dose rates. A great believer in "bold incisions" even back in the dissecting days. Nev. claims to be unlucky—well with red-heads anyway!



**P. B. ENGLISH:** Peter comes from far North Queensland, and served with the R.A.A.F. His mental interests range from philosophy to politics; in short, he tends to "brood on the empty eggs of thought". A keen tennis player, successful student, and enthusiastic squire of dames, he leads a full life.

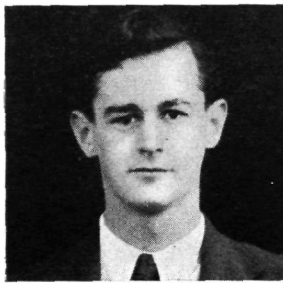
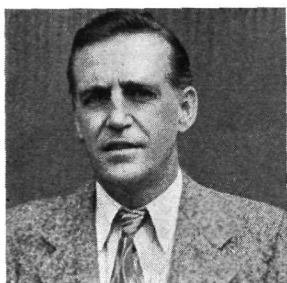
**F. W. EVANS:** Fred has been one of the most versatile and successful sportsmen in the faculty where he has had a monopoly of the tennis championship. One of the three to go to N.Z. in 1950 it is rumoured he wanted to import a comely Maori lass but the N.S.W. Department of Agriculture wouldn't approve.

**E. M. FISHER:** A man of many parts, Ted has been successful in soccer, hockey, and in driving "Veterinary Vengeance" to victory in two successive Billy Cart Derbys, which may be associated with his cab driving activities.

We all wish him success in his future efforts and expect spectacular results.

**J. H. FRANCIS:** From Dunedin, Jack is a cheerful character, a keen swimmer and tennis player, and an advertisement for his own cooking. He has achieved notoriety as a raconteur of doubtful stories. We hope he makes the best use of the advice on various topics which he has so avidly sought from his colleagues.



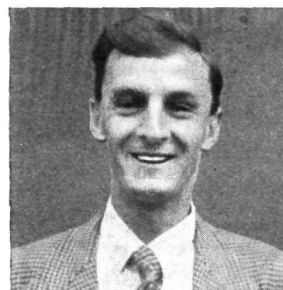
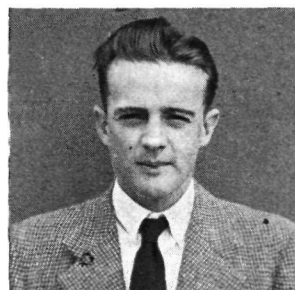


**C. J. GATES:** Cast into the classic mould (face first!), Chas got a nose which keeps him out of trouble. Married, and by the time this goes to press, should be a father. Served in Middle East with 2 N.Z.E.F. —Artillery, of course; though he did condescend to top the scores in the victorious Faculty shooting team.

**C. D. GEE:** Clem is a local lad who hails from Kogarah. Most of his vacations were spent up Singleton way on a cattle station jackerooing and shooting rabbits. He plugs along steadily throughout the year and usually makes the grade in November. As for the future, large animal practice seems to be his goal.

**R. W. GEE:** Proverbially tall, dark and handsome, Bill is a student who has successfully tried to live a full University life. Included in his many achievements are the co-editorship of Centaur 1949, executive positions on the S.U.V.S., Sports Executive and a very successful hurdling career for the University Athletic Club in his early years, culminating in a well-earned Blue.

**R. GILCHRIST, N.S.W.:** The man with the receding hair line and such "big brown eyes." Bob has been known to be on time for a lecture since moving to Castlereagh Street. Rumour has it he can be relied upon to prolong any oral examination. An attribute to our football team: ex-serviceman.



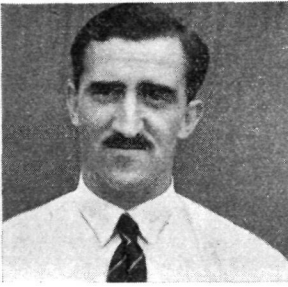
**N. P. GORDON:** A very bad judge of horses, which accounts for her peculiar ideas on a rather obscure trotter named Ajax. Pat is always a willing member for any Faculty sporting team. The future is well guarded, but should be bright for her.

**B. HART:** Barry hails from Tamara, N.S.W., where apparently they breed them tough as he soon made a name for himself and the Vet. School in the Boxing world and Australian Rules. A rather quiet but very popular member of the faculty, whose personality will assure him of success in social and Departmental fields.

**J. B. HEAGNEY, N.S.W.:** Saw life in the raw with the 6th Division and later trained as a pilot. Since taking on married life, Jack has done two noteworthy things: raised a family and given up traffic control. He is keen on horse practice.

**D. P. HENRY:** Peter claims that the Garden of Eden was, and is still, at some place called Emu Plains far out in the Queensland never-never. He intends to betake himself, complete with high ideals, dapper dress, and ready wit, to the Northern Territory on graduation.





**A. E. HUMBLE:** Alf is a South Australian. Joined the R.A.A.F. after completing his course at the Roseworthy Agricultural College. Entered this Faculty in 1946. Apart from playing Aussie Rules for University in the 1946 and 1947 seasons, seems to spend the majority of his spare time dealing in second-hand cars.

**P. JAGANATHAN:** Percy is our only representative in the year from Ceylon. He holds the Diploma of Agriculture of Ceylon. After gaining this he was an instructor and Farm Manager in Ceylon. Since he entered this Faculty in 1946, he has excelled. He played soccer with the University in 1948.

**O. G. JOHNSTON:** All the way from Murrumbidgee, N.S.W. Owen has never been known to disagree with the daily newspapers: comics included. An extremely keen and energetic type; even the females find it impossible to keep abreast of him. He speaks fluently on anything from Veterinary Science to the state of the soap boxes in the Domain.

**T. E. JONES:** Tom hails from Newcastle and speaks well of their abattoirs. Quiet and unassuming, he is considered to have hidden depths as regards the women's angle. He is a keen cricketer and wherever life finds him he is sure to be in the locals.

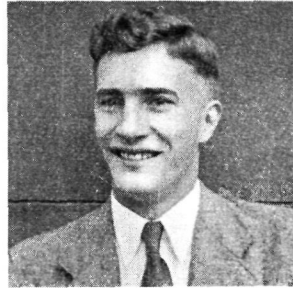
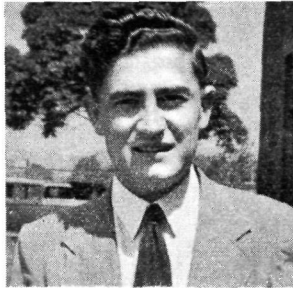


**N. G. JUDGE, N.S.W.:** Norm served with distinction in the R.A.A.F., having won a D.F.C. Family ill health has plagued him of late but he has come through smiling. He has an English bride and is regarded as one of our quieter reliable members.

**J. T. KELLY:** Another Pig-islander, Jim has one son and a brand new daughter. Despite a long break from Academic pursuits as a P.O.W., he has shown a remarkable application to study, which is reflected in the quality of his examination results. Is an entertaining golfer if you have an oblique sense of humour.

**R. R. KERSHAW, N.S.W.:** Ron saw service with the A.I.F. in the North, but since commencing here he has observed that a hypodermic is more readily administered to the human than the equine, after this experience he concludes it is safer to go to the dogs.

**R. KILLICK, N.S.W.:** One of the more mature ex-servicemen. He has been following on in the footsteps of his father. A great deal of his spare time has been spent in collecting "swabs" but more recently his attention has been drawn to collecting hoof impressions.



**D. E. KONTZE:** From Auckland, ex-R.N.Z.A.F. Don has a wide range of activities: Secretary of Sports Club, enthusiastic first five-eighths, casanova, conjurer-up of blackmarket beer and candidate for captaincy of our drinking team. Had the bright boys baffled with his hieroglyphics in the medicine case book for tick paralysis

**H. J. LASKEY:** Hails from New Norfolk, Tasmania. He did the first years of his course in the University of Tasmania in 1945, entering this Faculty in 1946. Geo. played Australian Rules football for the University in 1947.

**D. W. LAVERS:** Don has a Grecian profile and rugged torso — typical Queenslander. He has a great passion for classical music and a profound scorn for those who prefer swing. Some of the objects he finds hard to resist are designated by labels; others wear skirts. He swims too — in fact, quite well.

**G. A. LETTS:** If Vet. Science fails, Geoff. could become a cartoonist as he has ably shown while Publicity Officer for the Society; and co-ed for Centaur 1949. His interest in the Enmore district is considered not to be botanical which with rifle shooting and high jumping are his interests.

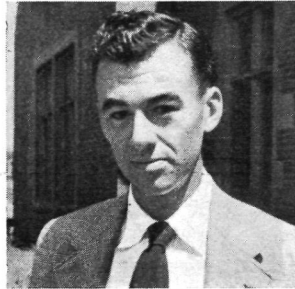


**K. B. LITTLE:** Keith hails from Black Mountain in the New England Tablelands. One of the greatest leg spinners in the faculty, he was picked in the Test Team to go to N.Z. this season. On his return and graduation we trust that Keith will resume his practice in the suburbs — legally. Good luck Keith.

**W. R. McCULLOUGH:** Bill ("I'll be in it") McCullough arrived from Blayney with the reputation of being a good cricketer. He represented the Faculty in football and basket-ball. After going to N.Z. this year, we feel sure Bill will head straight back to the West. All the best Bill.

**A. B. MACLEAN:** Originally a Queensland product, Bruce none the less has battled through on schedule. Has sound views on research workers; also on acute lead poisoning. Keen on shooting and spaniels and with a healthy aversion to cities, hopes for a country practice—when the time comes!

**D. F. MAHONEY:** Dave skips through the dark November days with ease, and invariably trails a flock of distinctions and credits in his wake. He spends a lot of time thinking about two eyes that shine somewhere in Brisbane, and regards Sydney's popsies with an air of calm indifference.



**C. D. MAY:** From Paeroa, New Zealand, John is our huntin', fishin' and shootin' enthusiast. Previously, he served several years with the army and fleet air arm. During his stay here he has played an active part within the Society and has an Australian bride to his credit.

**JULIE V. MILES:** Always cheerful and a good sport, Julie has brightened our lives during the past five years. Reputed to have worked very hard, particularly in Mat. Med. We noted the announcement of your entanglement and wish you both every happiness in the future.

**P. V. MEREWETHER, N.S.W.:** Joined the Navy after joining the Faculty. Pete is interested in all horse practices. Lays claim to the fact that his girth has increased in direct proportion to his knowledge. As a father he claims but two.

**R. C. MILLEN:** From sunny Auckland, Roy has sailed through serenely; there must be something in that reserved seat in the Stewart lecture theatre to which he clings. Never hear much from him, but we understand he is a keen horseman.

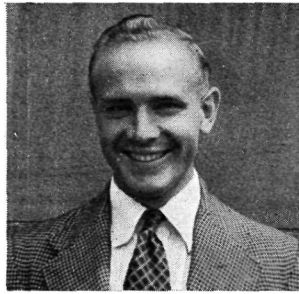


**J. N. MILLS:** From Auckland, "Happy" Jack is never so optimistic as when justifying his own pessimism. His prowess as a fighter pilot is obscure, but he would have the luck to fly through the girders of the Harbour Bridge. Not content with equine surgery he is seeking more intricate techniques and methods of succussing horses.

**C. MULLAVEY, N.S.W.:** Confidentially, Charlie was once heard to remark, "I've said enough." Obviously an ex-Air Force type. He is an old married man now tied down with changing napkins and polishing his car in preparation for his attack on private practice.

**H. S. MORTON:** Quiet and unassuming, Hugh is one of the more reserved members of the year. However, he has apparently talked convincingly enough to get himself engaged to an Australian lass at the beginning of the year. Hugh has been seen to wield a wicked stick at golf on the odd occasion.

**J. O'BRIEN:** Joe hails from Armidale in N.S.W. where he is acclaimed as the best Jazz waltzer of the north coast. His chief pastime in Sydney is depriving female cats of their nocturnal pleasures and displaying psychomotor running seizures at the faculty dances.

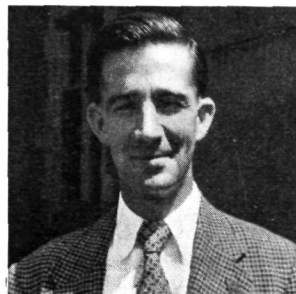
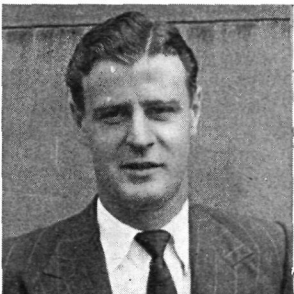


**R. J. OLDS:** Ronnie hails from Sunny Queensland. His courtly manner and genius for saying the right thing make him a great favourite with old ladies. He is a gymnast, a pianist, and can sing better than Tex Morton—he can also ride a horse—indicating an even anatomical distribution of his talents.

**K. F. OPFERKUCH:** A product of St. Stanislaus' College, Bathurst, Fred is well-known for his willingness to oblige and happy disposition. He was always available for football and during the Course has represented "Vet." and "John's." The Faculty in farewelling Fred, loses one, in whom the true Vet. spirit was unceasingly displayed.

**B. M. PAINE:** A Victorian whose happy disposition and expert knowledge of songs suitable for smokos and post-cricket anaesthesia, has yielded him great popularity. Bruce has played Australian Rules and has rowed with St. Paul's College and Faculty. He will be greatly missed as a ray of happiness amongst the rigours of the course.

**W. J. PATON, N.S.W.:** A genial character with an eye for private practice and a bachelor's life. As yet he can't be run to earth although it has probably been attempted. Wal has kept up his association with the R.A.A.F.



**J. K. PITNEY:** A Victorian who is always a starter in the Richmond stakes, Jim is just pining for the day when he can return to his beloved local brew. His windmill-like action in the Final Year cricket matches excited favourable comment and it is believed he refused many offers to play for Australia.

**E. A. PRATT:** Ex-Fleet Air Arm pilot, married, Alan hails from Christchurch. Took Zootechny I Special to 2 stages, but has never looked back since. Under trying conditions, did an excellent job at the last Vet. Ball when the lights failed. Modestly acknowledges himself to be one of the finest duck shooters of our time.

**K. PROCTOR, N.S.W.:** Ken left the Faculty to join up. He is credited with an excellent beer consumption per foot besides being the proud father of a promising young filly. He hopes to go to the West where he considers opportunities abound.

**PRYOR, W. J.:** Another of the Victorians, Bill extends his interests outside the course to the classics, Aussie rules, golf, billiards and bridge. A co-editor of Centaur, 1949, he is a keen writer and not so keen debater representing Wesley and Faculty in both. He claims his best nights were spent with the filly.



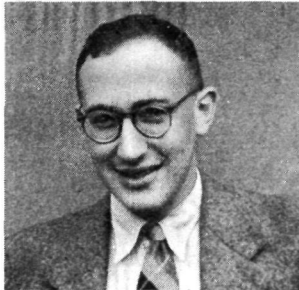


**H. A. RHODES:** From Marton, N.Z., achieved distinction in The Fleet Air Arm where he picked up a couple of D.S.C.'s. Dusty is one of the most active members in the Faculty, and was last year's president of the S.U.V.S. While interested in rowing he retained a lean figure, but his subsequent rate of growth has increased.

**C. J. ROBERTS:** From Auckland, and engaged to be married, Chook is a versatile athlete, who has represented the Faculty at tennis, and was one-time hooker for 'Varsity 1st XV., where he was noted for his placid submission to referees' decisions. An authority on hay-baling, he has harvested his share of posts.

**P. F. ROBINSON:** Commonly known as "Dogsbody" since Anatomy days. Peter is a local lad and very popular with the boys as his father sports a car. Particularly keen on jazz and Surgery but attempts not to mix them. Future unknown.

**J. B. SCROOPE, N.S.W.:** John rates golf as a good sport, Carbon Copy as a good thing and the cab as a good sideline. He served with the army up north and then returned to do Vet. Science. His post graduate intentions are uncertain.

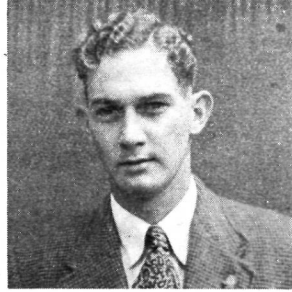


**C. W. SHANNON, N.S.W.:** The unpredictable Cecil, he claims that two is a crowd but is secretly wedded to Morpheus. Remarks that lecturers depress the demand on barbiturates. Bill still sports his R.A.A.F. goon-skins.

**G. SHENMAN:** George did first year in New England and came to Sydney to be disillusioned. In desperation he turned to the turf. Some time later, in deeper desperation, he turned his back on the turf. Off to Tasmania this year, his future, as he would say with his remarkable gift for understatement, is uncertain.

**C. F. SMITH:** Saw long service with the 2 N.Z.E.F., and evidently came through unscathed, as he is now married, with one small daughter. From Auckland, where he intends to practise, Col has a wide variety of extra-curricular interests, from cacti, to hubbly-bubbly, and Ming commodes.

**G. F. SOMMERVILLE:** While in R.N.Z.A.F., Geoff had a Cook's tour of Europe and the seven seas at Hitler's expense, and has since married and produced a small daughter. But for his adeptness at handling the loud-speaking apparatus for Mr. Webb, our knowledge of surface anatomy would be even more superficial than it is.



**R. P. STACK:** Jack is the original panic merchant of the year; but despite his intestinal looseness at exam. time has steadily managed to avoid receipt of the fatal green note. Jack resided at the "Richmond" and Johns College during his stay here.

**F. R. STAUNTON:** "Blue" is one of the quieter members of the year and could usually be found in the library reading pornographic literature such as the A.V.J. He hails from Sydney, but periodically engages in equine excursions to the bush for reasons better left unstated.

**M. S. STEVENS:** A tall young man from Queensland, and the original curly-headed boy, Steve, roars with laughter at any pessimistic utterance, so he spends a mirthful life at the Vet. School. He is about to plunge into holy matrimony and has one priceless asset—he can cook.

**A. G. SWAN, N.S.W.:** Believes in moderation of all evils including swot. Has not had any posts but has known the odd scare. Served with the Air Force and came back to fall prey to a young lass to which he has not objected.



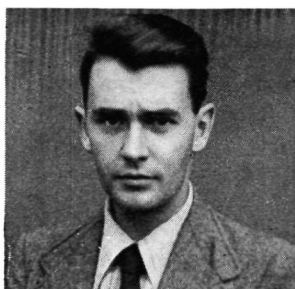
**B. R. THORPE:** A Tamarama boy and most noticeable during the course for his keenness, under-cutting activities and an almost childish obsession for cars. He has ably represented the faculty in sport being in the rifle teams of 1947 and 1948.

**R. D. TROUNSON:** From N.Z., married, and genotypically sound. Got into an argument with an Iti tank and lost an eye, subsequently receiving an M.C. Our most diplomatic representative, Reg. earns the well-merited thanks of the year for his conscientious job as year rep. A keen golfer, he rises to great heights only about every 3rd tee shot.

**K. W. TUCKEY:** "Tuck" is one of the characters of the year, being no mean raconteur of good, and bad, stories. He has wielded the saxophone in the last four Revues. In a futile attempt to reduce his waistline he resorted to sport but to achieve success he should laugh more at his own witticisms.

**A. A. TWADDLE:** From Otago, "the Beak", saw flying service in England from whence he brought home a bride, and now has one son. Seldom volunteers his opinion, but when it comes to scours in Dachshunds, considers himself an authority.





**J. E. WALKER:** From Hamilton, N.Z., Jim is a cheerful character whose versatility range through bacon factories, fiddling, gymnastics, soccer for the Faculty and escort for overseas celebrities. Little is known of his future moves in veterinary fields.

**W. E. WALMSLEY, N.S.W.:** One of those highly successful silent workers both academically and otherwise. He has always been interested in horses, but has recently acquired a sweet young filly. Bill tried out the M.E. and then transferred to the Paratroopers.

**W. L. WHATMORE:** Lee is the original "smoothie" of the year. His love for libraries and librarians has resulted in a wide range of interests not all veterinary.

His future is obscure but whichever branch of the profession he chooses his calm authoritative manner coupled with ability should carry him far.

**F. A. WIDDOWS:** Fred is an Englishman who joined us after the last war. He is a keen sportsman excelling on the cricket and soccer fields. Other attributes include a flair for bright footwear. A Manchester lad, he saw time with the R.N.



**P. WISE:** Another rather quiet character who comes from Sydney. Peter advocates rum for warmth in camp with the University regiment and women when at Glenfield barbecues. Peter is known for the amount of liquid intake necessary to produce side chain reactions.

**B. A. WOOLCOCK:** A Queenslander from "Rocky," Bryan plays and follows sport, and his voice is well adapted to barracking. In fact, he invariably plays his best game from the sidelines. His polished exposition of the art of billiards may be evidence of a mis-spent youth. A forthright lad, he treads on tender susceptibilities without compunction.

## THIRTY-EIGHTH ANNUAL REPORT

*Ladies and Gentlemen,*

IT is with pleasure I submit the Secretary's Report for the 1949/50 period.

This year marks the beginning of a decline in members concurrent with a fall in student numbers as a result of the graduation of many of the larger years swollen by ex-service students.

Last year the Society had a record number of 350 members, whilst this current Society year there are 330 members. In the 33rd Annual Report, the Secretary mentioned that none of the previous final year were Society members; so that the present final year students are to be congratulated on their support to the Society, in that of the 94 final year students all are Society members. Much of the credit for this achievement must go to final year's energetic Year Representative, Reg. Tounsen.

The Society numbers in each year are:

First Year—51	Third Year—53
Second Year—55	Fourth Year—77
Fifth Year—94	

During the year so far, fourteen General Meetings have been held. Of these, two were solely for business, and at the others addresses have been delivered by Professors H. R. Carne, R. M. C. Gunn, C. W. Emmens, Dr. H. G. Belschner and Messrs. R. T. Pursell, J. E. Barnes, H. J. Geddes, J. D. Biggers, and V. J. Cole. Twelve Executive Meetings have been held, three with the Dean.

The finances of the Society, due to the large student numbers in recent years, are in a sound position. Thus the incoming officers will have an opportunity of considering worthy projects that could be financed from the Society's funds and/or reducing the Annual Fee.

This year the Society has in addition to the usual Sports Fee included in the Society's Fee given to the Sports Society the sum of £30 to buy necessary sporting gear so that the Hockey and Soccer teams could be suitably outfitted.

Representations have been made to the Senate through the Students Representative Council and the Faculty for funds to complete the tennis court at the University Farm. Now that students of various years are spending considerable periods at the Farm, facilities for outdoor sport are needed. Up to the present, funds do not appear to be forthcoming, but if a vigorous campaign for such funds can be maintained, I see no reason why it should not be successful.

The form of the long awaited War Memorial

Prize has been decided and is now in the process of being finalised. The various War Memorial Committees in past years are to be congratulated on their work in raising the required sum. The N.S.W. Division of the Australian Veterinary Association also merits our thanks as they have generously subscribed approximately half of the final sum of £100. The award of a prize for an original student contribution to "Centaur" has the advantage of remaining under the control of the Society, which it would not be if the prize were to be given for an academic subject. In addition it provides a large number of students with an opportunity to compete whilst encouraging interest in the Society per medium of its journal.

The social functions of the Society have again been a success this year. Particularly was this so with the "Vet. Informal" with an attendance of two hundred and forty, many of them being Freshers. The four hundred and twenty people at the Annual Ball voted it a big success despite weather normally destined for Melbourne turning up in Sydney. The enthusiasm and work of the Dance Committee played a large part in this success.

On the 17th July the Society's Annual Dinner was held in the University Union. The Society's guests were the Hon. E. H. Graham, Minister for Agriculture, Emeritus Professor J. D. Stewart, Professors H. R. Carne, R. M. C. Gunn and C. W. Emmens, Mr. Max Henry, Dr. H. G. Belschner, Mr. W. L. Hindmarsh and Mr. D. A. Gill. The total attendance was one hundred and fourteen.

The sporting activities of the Faculty have had the continued support of players and spectators, and reached the high standard of play achieved by Vet. teams of the past. The unstable weather however, played havoc with all sporting schedules, though it enabled the Union team to exploit its vigour in the heavy going.

On behalf of the Society and the Executive, I would like to thank the Dean and his staff for their support during the year. In addition I would like to thank Mr. Max Henry for his continued interest in the Society, and also Miss Osborne for acting as our Graduate Secretary during the past year.

Finally I offer my congratulations to those students who have accepted Office in the Society for the 1950-51 year, and I hope all will function as smoothly for them as it has done for the retiring Executive.

R. E. MOORE,  
Honorary Secretary.

## SOME REPORTS

### DANCE COMMITTEE REPORT, 1950.

**T**HE Social life of the faculty as a whole went off extremely well this year and the Committee feels satisfied that both functions held were quite worth-while.

The Freshers' Welcome (masquerading under the name of "Vet. Informal" for good reason) started the ball rolling, and about 270 people attended the Union on April 18th. It is believed to be about the second time in ten years that an actual profit has been made on a vet. function. Highlights of the evening were the balloon dance, and the various interludes which passed under the odd title of "Floor Show." The latter, although lacking in all normal requirements was taken in good part by the faculty and was felt to be at least an idea on which to work in future.

However, the Committee feels that it threw the best years of its life into the preparation for "The Big Do" at Paddington on 21st June, which in spite of the weather and dither was universally acclaimed.

In an effort to make our country cousins feel at home and encourage the attendance of certain field mice, the decorations consisted of lambs, stooks of hay, rabbits, palm fronds, etc., with balloons to add colour while (owing to the genius of our modest Mr. Morris) caricatures of prominent faculty members adorned the wall. Thanks are due to those who forsook pursuit of knowledge to help on Wednesday—without you, ladies and gents, nothing could have been accomplished.

Mention must be made too of the most important features of the evening—the band, which took a cheerful part in all proceedings, and the supper which was equal to even our hearty appetites. Both made a pleasant background for what we are told was a most enjoyable evening all round from the 430 folk present.

#### *Observer's Note—or Footnote.*

Notorious woman-hater from across the Tasman caught in close embrace on back stair, and not with the door-post . . . One Bailey, executing a haka purely on his medulla . . . Our pleasure at meeting the new foreign diplomat, Monsieur Bizarre . . .

Professor Flower's outstanding courage under highly erratic fire . . .

The absence of our Dean—greatly regretted . . .

H. McL. Gordon, the mouthpiece of Australia v. N.Z. quite unfairly beaten, alas! . . .

The genuine joy of all to hear of the engagement of our dear friend R. J. Knowles—may this bring him happiness and soothe his restless spirit. . . .

"The peoples' friend," pleading our ability to the Anatomy Department (still on a medullary basis)

. . . Love's young dream, or "a night on the parapet," complete with bottles, bag and ladye faire . . . after the ball . . .

### ANNUAL DINNER

**T**HE 1950 Veterinary Society Dinner was held in the Union on Monday, July 17, and was as usual, an unqualified social, if not financial, success.

For the first time in its history, the Society was honoured by the presence of the Minister for Agriculture, the Hon. Mr. E. H. Graham, M.L.A., one of its patrons. He was accompanied to the official table, after pre-dinner aperitifs, by as distinguished a gathering of Veterinarians as have ever attended a Society function.

Mr. Graham in proposing the toast of "The University" mentioned the important part played by Veterinary graduates in the animal industry of Australia, and the interest taken by his department in particular in the Agricultural faculties, while Professor Carne replying on behalf of the University; in place of Mr. Maze, the Registrar, who was unfortunately absent due to illness, stressed the importance of interchange of staff between Sydney and other Universities in the widening of our views and asked for much greater interest on the part of the commercial world in University affairs.

Emeritus Professor J. D. Stewart, in proposing "The Society," called the attention of all to the very valuable work of many of our guests who were early members of the Society; and expressed the hope that the Society should go on to even greater successes than were now attained. The President, Mr. Laurie Symons in addition to filling the chair most capably during the evening, in reply to Professor Stewart, thanked members for making his year of office a most enjoyable one and listed the many activities of the Society over the past year.

Mr. Bede Morris proposing the toast of the departing 5th year, in a lively speech wished them all well in their future careers, to which Mr. Alan Cole in reply, thanked Mr. Morris for the sentiments he had expressed on behalf of the Society.

The evening was continued at the Union and other well known (?) establishments and we feel sure that in spite of the making and breaking of many reputations, no better night could have been asked for by those present at this most important function.

To Messrs. St. George and Collett of the Dinner Committee, our thanks are due.

## *Veterinary Society Dinner - 1949*

**C**ONTRARY to usual procedure the Veterinary Society Dinner for 1949 was held in September because of the power restrictions earlier in the year. Despite the change of term there was a creditable number of students and staff present. Emeritus Professor J. D. Sewart, Sir Charles Blackburn, Mr. Max Henry, Professor Carne, Emmens and Gunn were on the official table and Mr. Rhodes (President of the Society) ably filled the chair.

Professor Stewart prefaced the toast to the University by apologising for his absence from the previous dinner—his first time since its inception. He continued by making a plea for an appeal for funds during the University centenary. Sir Charles Blackburn then replied.

Mr. Max Henry in proposing a toast to the Veterinary Society referred to the responsibilities of students on graduation and also encouraged them to seek co-operation within the faculty. Mr. Rhodes in his answer to the toast, qualified this by lamenting the apparent lack of "esprit de corps" among students over the last couple of years.

The final year students were envied by Mr. Symons (President 1950) in his toast to them, to which Mr. Doolan (5th Year) replied.

Altogether 155 people were present at the Dinner to enjoy the optimal conditions for student-staff relationships which are always very eagerly sought after in a small faculty such as ours.

## *Annual Procession - 1950*

**T**UESDAY, May 16th, saw the dawning of a grey, foreboding Festival Day. As usual, panic prevailed behind the Vet. School, and as in customary style we tried to create ideas and put them into action in the formation of our usual sensational entry in the Annual Procession.

Order emerged out of chaos and although we say it ourselves we reckon a fairly creditable effort resulted. The theme we picked was the abject poverty of the University in general—in particular one Veterinary School. Principal reason may have been the £10 prize offering for the best entry based on this theme nevertheless!

Our own consciences—higher principles and the staunch and upright character of the censors ensured



a wholesome drawing room type of atmosphere in lieu of the usual pornography, which I think was appreciated by all.

Armed with begging boxes and suitably attired as mendicants Lennie Lloyd, Julian Mullins, Mike Wilson and Ern Miles badgered the public with requests for money and managed to repay them with the odd gift of flour and crackers presented to the public with the utmost vigour from the back of the truck. We might record here that ours was the only truck indulging in this outrageous behaviour to escape the long arm in blue.

The collection resulted in 2/6½ of the public's money. Bruce Lindsay's management of Lassie and our haemophilic friend Ginger plus all the transfusion apparatus was admirable. Nothing was broken and nobody was bitten and the public were suitably impressed by the gravity of the situation. Portions of the recently incinerated Clinic were used to make parts of the float and lent weight to our earnest pleas.

We must record here with praise the work done by Morrie Davies to assist the Committee. The time and trouble he spent in producing a really workmanlike set of posters deserves a vote of thanks from us all. Such slogans as "Your pounds will save your hounds," "We get your goat—we'd like your Doe," must have impressed the public immediately.

Shopping executive, Margaret Wilson, handled her department admirably and young "Sarge" was a great help running errands and "borrowing" all those last minute items.

Sugar Cartage again showed their generosity to the Vet. School by making a truck available for the occasion.

We didn't win a prize, it rained for the latter part of the procession, but everyone enjoyed themselves and will no doubt, be in it again next year.

## REPORT OF SECRETARY VET. FACULTY BUREAU—1949-50.

**F**IRSTLY, some mention of Congress 1950 held at Gan Gan. Unfortunately, neither the Director, Mr. H. F. Goonewardene, nor myself was available to attend. However, we had hoped to have a delegate from Vet. Science, but despite an offer of subsidisation, no delegate was forthcoming.

It is reported that Congress was very well attended by delegated and interested students. The faculty Bureau Officer elected for 1950 is Mr. J. N. F. Cruickshank of Hobart University.

Towards the end of 1949 Vet. Faculty Bureau attempted the establishment of a Vacation practical experience scheme which was largely handled by the Dean; we feel that this scheme could well be further developed by more active work on the part of the Bureau as the student response was very gratifying.

Investigations regarding text books from dollar areas were undertaken. The general conclusions reached were that there is no real shortage of American texts due to shortage of dollars.

No faculty surveys were undertaken because we felt these were inadvisable and unnecessary in the case of Veterinary Science because the staff is fully aware of the student difficulties and finance seems to be the limiting factor in effecting improvements.

For the future it is suggested to the incoming Bureau, if the Vet. Society considers it worth while continuing the Bureau, that suitable projects for immediate development are:

- (a) Vacation Experience employment scheme.
- (b) An organised text book exchange within this faculty to enable students to buy and sell texts without a multiplicity of notices cluttering up the notice board.
- (c) Publicity within the faculty of the Bureau and N.U.A.U.S. in general.

J. A. COLLARD,  
Secretary, Vet. Faculty Bureau.

## FILM COMMITTEE

**D**URING the past year the film committee has endeavoured to show films once a fortnight but, owing to clashes with other fixtures, this has not always been possible.

Suitable films were in short supply and the New South Wales Film Council has limited each borrower to one screening per month. However, this discrepancy has been offset by additional sources such as I.C.I. and the Department of Agriculture. Films have also been promised from May and Baker, also Elliotts.

The Committee is grateful to Professor Carne for the use of the Faculty truck to collect the films; also to Professor Emmens for the use of the Physiology lecture theatre for the screening of the films.

It would also like to thank the New South Wales Film Council, I.C.I. and the Department of Agriculture for making the films available during the year.

## KITTEN ON THE KEYS.

By DE PUSSY

### OVERTURE:

Another year, another crop, for being women, not one is as was.

### OPUS No. 1 JOY BELLS:

Best wishes to Dawn Miner and Bruce Wilson, who trod the aisle Christmas Eve last; to Heather Galloway who wears that divine ring for Andy Gibson (lucky fella!); and to Julie Miles, also wearing diamonds for John Munro of Tabulam, far, far away.

### OPUS No. 2. FANFARE OF WELCOME:

This to the new batch of first year fillies; to Val Archer back from the tropics (glad you liked us better, Val); to Dawn Miner, returning from a year's recuperation; and to Nancy Butler, who returned to brighten the pathological picture.

The more the merrier.

### OPUS No. 3. MADAME BUTTERFLY:

Our style spies report that Priscilla Walker flew in for the Ball, looking charming in white, and that Isabel Gant was glowing in shot mauve taffeta. The three third-year pusseys, Margaret, Margo and Joan, descended from the wall in yellow, pale blue and pink bows. Miss Osborne and Miss McGruer, in black and dark red respectively, proved vets. can be feminine—plus.

All round vet. was well represented. Final years Mary Bardsley, Ena Dexter and Pat Gordon; third year en masse; second year's Pat Wilkinson, Kaidu Sommer and Joyce Haneman and first year's Jean Wooton, also tripped the light fantastic.

The physiology end was upheld, very nicely too, by Dell Ferguson and Helen Dawson.

We were all sorry to hear that Heather, fourth year's only lass, was prevented from joining the merry throng.

### FINALE:

Good luck final year—we know you will join with us in making the wish universal through the ranks.

Would that we were with you—but we'll "drink a cup of kindness yet, to the days of Auld Lang Syne."

## A PARASITE IS HE . . .

HUGH McL. GORDON, B.V.Sc.  
McMaster Animal Health Laboratory.

**T**HERE is not much mystery about helminth parasites. They are mostly very obvious macroscopic animals enjoying their mode of life in a host which seems to tolerate them quite well. Almost every individual domestic animal harbours some helminths for most of its life-time and acts as host, carrier and source of infection and re-infection.

Is it because helminths are common and conspicuous that they do not seem to excite the same interest as the microscopic parasites? Is it because their study does not commonly demand the fine array of glassware and apparatus and delicacy of technique required for the microscopic and sub-microscopic parasites, that parasitological research does not seem to be quite the same as bacteriological research? Is it because one seldom speaks of the bacterium or virus, but almost always of the disease it produces that helminths, commonly referred to by name, have not aroused the same apprehension as causes of disease?

The last question points to an important aspect of helminthology. It is that one should always think in terms of helminth disease (helminthiasis) rather than in terms of the helminth itself. The names of many bacterial diseases are arresting, frightening and impressive—anthrax, infectious necrotic hepatitis, entero-toxaemia. Why should not the helminthiasis be just as striking — there are some truly wonderful names which would surely make the diseases much more impressive. Think over macracanthorhynchosis, oesophagostomiasis and ancylostomiasis and realise with regret that *Hammerschmidtella diesingi* and *Pseudoheligmomom howelli* are not parasitic in domestic animals and will probably never qualify as bases for the name of a disease!

Helminths are ubiquitous and the only commoner cause of unthriftiness is malnutrition. The two often go together, the effects of one aggravating those of the other and often confusing diagnosis and complicating control. It is difficult to place a direct monetary figure on economic loss due to helminthiasis. In a field trial carried out on the Northern Tablelands of N.S.W. some years ago, sheep treated regularly with phenothiazine cut 11b. more wool than untreated controls. At current wool prices and assuming that 10 per cent. of the sheep in Australia are in regions where helminthiasis is likely to cause losses every year, this amounts to £2,500,000 (10,000,000 lb wool at 5/- per lb.). In outbreaks

mortality may be considerable — haemonchosis has killed 20 per cent. of a weaner flock, trichostrongylosis has accounted for 40 per cent. of the weaners on a property. However, losses from helminthiasis are usually more subtle and unspectacular and often do not arouse the concern of the stockowner. The sub-clinical effects, so-called, are difficult to measure in the field. Wool growth is a sensitive indicator and may be used readily in field trials. In a laboratory trial with trichostrongylosis it was found that in highly infested sheep which did not show clinical effects, the rate of wool production decreased as much as 40 per cent. below that of the controls. Wool quality as well as quantity may also be affected.

The economic importance of sub-clinical infestations may have to be demonstrated by field trials before the stockowner can be persuaded to adopt appropriate control measures. The highly efficient anthelmintic, phenothiazine, is a useful diagnostic agent because it is one of the few drugs capable of reducing ovine helminthiasis to lower than sub-clinical levels. While the modern uranium prospector goes round with a Geiger-Muller counter, the modern helminthologist takes some phenothiazine and a set of scales to demonstrate economic loss.

How many worms constitute a sub-clinical infestation, or for that matter, a clinical infestation? The number will vary from species to species and host to host according to age, size, pathogenic effects and so on. The duration or age of the infestation is of great significance. Helminths, unlike microorganisms such as bacteria and viruses, do not multiply in the body, and the degree of infestation increases only by accretion from outside. The effects of the infestation are often progressive—a state of affairs which often complicates diagnosis. For example, one may find 1000 *Haemonchus contortus* (the Large Stomach Worm of Sheep) in a weaner which is apparently quite normal clinically—provided the worms have been there for only a few weeks. If they remain for more than a few weeks the weaner will soon die from anaemia.

Some experiments are planned to see whether these equations apply:

$$\text{Pathogenic effects of } x \text{ worms for } y \text{ days} = \frac{x}{2}$$

$$\text{worms for } 2y \text{ days} = 2x \text{ worms for } \frac{y}{2} \text{ days.}$$



It will be too much to expect an absolutely clear cut result but there may be sufficient indication to explain some of the apparent anomalies which arise when one attempts a correlation between worm burden and pathogenic effects.

The question of worm population, pathogenesis and epidemiology open very wide fields for investigation and speculation. The biological efficiency of the host-parasite system is at stake.

What are the attributes of the "efficient" parasite, what are the criteria of efficiency? Swellengrabel has something to say—"If we see a parasite behaving as it should, not harming its host and, as a consequence, neither harming itself, in short if we see it behaving as an efficient parasite, we know that this is the outcome of an interaction between host to sacrifice something. The host had to get rid of his over-sensitiveness, he had to become tolerant to the parasite's presence in his body. And the parasite had to suffer a considerable reduction in its procreative powers. It is an adaptation of the host to a greatly subdued parasite."

Which is the more efficient parasite, the one which increases at the maximum rate irrespective of the consequences which may befall the host, or the one which practices a certain amount of "biological modesty" and has little effect on the host.

Adaptation of an organism to its environment is a very elastic and relative concept and as Elton points out, "There is room to speculate whether moderate efficiency in certain adaptations is not in the long run more likely to preserve the species, than what is usually described as a 'beautiful' adaptation."

Which is the more efficient parasite, *Trichostrongylus colubriformis* or *Cooperia curticei*? The former is widespread, commonly occurs in quite large numbers and is a common cause of parasitic disease in young sheep in which there may be heavy mortality. *C. curticei* has a wide geographical distribution, almost as wide as that of *T. colubriformis*, it usually occurs in relatively small numbers and is a very uncommon cause of parasitic disease in sheep in Australia at any rate. Is it ill-adapted to sheep or climate, or is it exhibiting an ideal host-parasite relationship? If number of individuals is a criterion then *T. colubriformis* is a much more efficient organism. What matter if some of the parasites are destroyed along with the host by an overwhelming burden of parasites, if meanwhile, the parasite, by producing enormous numbers of eggs, has ensured the continuity of the species. Sacrifice of the individual for the race is not solely the prerogative of man. Some parasites may deliberately sacrifice themselves

for the sake of their progeny, e.g. the female pinworm of man, *Enterobius vermicularis*, when replete with eggs migrates out of the anus, sheds her eggs and dies. There are examples of parasites for which disablement and even death of the host animal are advantageous, e.g. *Coenurus cerebralis*, the gid parasite in the brain of the sheep. The "giddy" sheep is less able to escape, and by its obvious disability may actually invite the attentions of the carnivorous final hosts of the parasite (dog, fox, etc.), and if it dies because of the damage caused by the cysts in the brain it is likely to be devoured by the final host animals.

It appears that pathogenicity cannot necessarily be regarded as a manifestation of maladjustment between host and parasite, it is merely incidental to the type of biological relationship concerned, in much the same way as phenomena of resistance and immunity. The fact that pathogenicity and immunity are incidental to the host-parasite relationship emphasises the significance of the sporadic occurrence of outbreaks and the erratic and unpredictable phenomena associated with immunity.

A striking aspect of the host-parasite relationship, in as much as certain trichostrongylid nematodes are concerned, e.g. *Haemonchus contortus* in sheep, and cattle, is the phenomenon of "Self-Cure." "Self-Cure" occurs in the field, and is seen as a sudden throwing off of the existing worm burden, followed in most instances by the development of a new infestation within a few weeks. The phenomenon has been seen and reproduced under pen and field conditions. It is provoked by administration of a large dose of infective larvae to a sheep already harbouring an infestation. Its occurrence is accompanied by changes in the titre of antibody and often by changes in the number of circulating eosinophiles.

The meaning and significance of "self-cure" have yet to be discovered. At first sight it appeared to be just another example of the effects of competition of the intra-species type and appeared to offer an instance among internal parasites of a density-dependent controlling mechanism similar to those reported for insects. However, it was soon apparent that the size of the existing infestation was not related to the occurrence of "Self-Cure" and when the phenomena is observed in a flock of sheep infested with *H. contortus* there is a marked reduction in worm-burden in almost every animal. The clinically affected sheep recovers from the disease, the lightly infested sheep shows a decrease in the number of worm eggs in the faeces.

Whatever the meaning and significance of "Self-Cure" may be, it plays an important part in the epi-

demology of haemonchosis, and probably in many other helminth diseases, and provokes a good deal of speculation in relation to general concepts of host-parasite relationships and immunity reactions. Is the reaction a truly immunological phenomenon? Is it a "shock" effect of the nature of an allergic reaction, and if so is it an allergic or anaphylactic effect confined to the parasite, or is it such an effect on the host with secondary effects on the parasite? Does an anaphylactic type of reaction in the host produce histamine or related compounds which disturb the amine metabolism of the parasite? Is it a biologically "useful" precaution to ensure that there is a turnover in the parasite population? Is it designed to protect the parasite against an overwhelming, fatal infestation? Is it a means whereby the parasite protects itself by not remaining in the host for too

long lest the host should learn to resist it too thoroughly?

It would be curious indeed if "Self-Cure" proved to be just another incidental in the host-parasite relationship and an indication that the parasite had been caught up in the vast web of allergens, to its own undoing. To what extent does "Self-Cure" reflect upon the "efficiency" of a parasite?

From these rather rambling comments, it is fairly clear that to define parasite or parasitism is not simple. Try it for yourself using first the approach of the zoologist who probably ignores pathogenic effects, then from the angle of the protagonist of preventive medicine, who is perhaps obsessed with pathogenesis and finally with the outlook of the ecologist who should not ignore or be obsessed with anything!

## ON WRITING FOR "CENTAUR"

THOSE of us who knew L.C.L. and J.V.H. well, not six months ago, remember their bounding good spirits and ever present "joie de vive." Now the pleasant smiles are no longer present, the usual greeting replaced by a short "good-day," the brightness of eye is replaced by a look suggesting grave dissipation (which heaven forbid) or the burden of heavy thought.

"Whence," say you and I, "came this grave change which replaced bright youth, with surly middle age."

The tragedy must be traced back to that apparently harmless, but in reality, fateful, day in Michaelmas term last when office bearers to our Society were elected. Little did we, the members realise that by the mere act of raising our right hands, two lives could be thrown from levels of serenity and peace into a seething cauldron of despair and worry.

Editors, we felt if we had time to think at all, had but to intimate their desire to peruse our amateurish exploits in the field of journalism and then to sit back to be swamped by the efforts of budding Northcliffes, Beaverbrooks and Fairfaxes.

Our return to the grind and worry of approaching examinations precluded thoughts for the two, to whom had fallen the apparent honour of producing yet another milestone in the literary history of our Faculty.

But now, only too obvious is the horror of our friends' position. Where previously they were welcome in the conclaves of their colleagues, now the weakest of our numbers pale at their arrival, plead urgent appointments, "cuppa tea," or "cases to dress," and hurry away to leave the more stout of heart to

move uneasily from foot to foot in their presence.

No longer can our friends with safety approach us directly, but now must ensnare us in some obscure corner of the locker room or Path. laboratory, there to plead with us not to forget the closing date for "Centaur" or to remind us of our rash promises of an "article to end all articles," made probably when we ranted at the supposed ineptitude of other's efforts.

No longer do they in their innocence have Faith in their Fellow Man. Too often have they received rebuffs to be put off by your protestation of "Faculty Spirit, Old Man," or "300 Vets. couldn't possibly let you down." It needs men of stronger mettle than you or I to ignore the pleading, nay the threats, of two who, in six short months, have become past masters in the arts of extortion and trickery. It is no longer a case of passing the whole matter on to the other fellow when L. fixes you with his fierce eye. You feel that you must do what he demands or forever cringe in his presence.

Desperately you have sought to escape but now find there is nothing left to do but to hark back to those halcyon summer days when some earnest dominic sought to fix in your unreceptive mind the glories of a Macaulay's or a Pitt's prose, while you dozed fitfully or thought of more important matters.

The disjointed set of facts and figures which you so regularly and monotonously throw back into the teeth of our examiners will no longer suffice and the intricacies of the split infinitive, of synonym and syntax, of the adverb and adjective defy disentanglement in your puzzled brain.



*in fine fettle . . .*

Constipation can be most damaging to the health of all domestic animals; unchecked it rapidly brings about a state of lethargy, causes unthriftiness and loss of appetite and energy, and leads eventually to more serious diseases.

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What shall it be? Humour or pathos, sarcasm or science? They all find you wanting, groping for the appropriate word or phrase or reaching for that dusty "English Grammar" or dictionary.

Unless you are an incurable fanatic in some field of scientific endeavour or are particularly interested in your hobby (greyhounds, golf or girls), not only does good English escape you, but subject matter likewise. No longer do you wonder why the editors have so much trouble ferreting out that rashly promised story.

Writing is not as easy as it seemed before. The abuse you may have poured forth at unfortunate authors and their articles in previous years, now returns to mock you, as you write. "That puerile nonsense," was not the rubbish it seemed at all. You struggle on—

"On writing for 'Centaur,'" Hmm . . . now that's an idea.

—J.M.H. IV.

## *Camden Saga*

1.

Early Friday evening  
Getting close to dark  
Two and twenty Vet students  
Set out for Camden Park.  
In case the town of Camden  
Happened to be dry  
They congregated in a pub  
To have a nip of rye.  
Then into the station  
And all aboard the train,  
Syd. Thomas bought a pack of cards  
And soon set up a game.  
Jackson started slowly  
But finished with a burst,  
Wallace didn't start at all,  
Bruce Portway only cursed!

2

At Camden having left the train  
They headed for the pub,  
And soon were lapping beer again  
Before they had their grub.  
The dinner was a good one —  
Steak and chips and eggs  
(Paid for by the Meat Board)  
And filled their hollow legs.  
The Assembly Hall at Camden Park  
Was to be their place of rest.  
The Hall was full of Camden folk  
And they couldn't get undressed.  
Some went out to find some hay,  
While some preferred to wait.  
Lank stretchers they were meant to use—  
—Very complicate!

3

Then came the dawn and Mr. G.  
Who pulled them out of bed,  
And fed them snags and corn flakes  
And thickly buttered bread.  
Before the sun had risen  
They'd driven thirteen miles  
And found themselves among the corn  
Prepared to start their trials.  
The first truck that they loaded  
Bogged in just a chain;  
They'd been very keen to load it  
But had to throw it down again.  
And e'er a couple of hours had passed  
They were filling up the Silo  
(Excepting one or two bright lads  
Who packed up for a li-lo.)

4

The chopper now and then would scream  
And spit out many teeth.  
It scared the wits from several chaps  
Especially those beneath.  
The loading gang was very wise,  
They got their little rest,  
"One Stick" Stellingwirth took a prize  
For total lack of zest.  
Mr. Deakin deputised  
For the Chairman of the Board,  
He sat upon his little seat  
The while the tractor roared.  
We could write screeds and screeds,  
But we think "What the heck,  
By far the best part of it all  
Was the very timely cheque!"

—A. FISHER IV.

## CHOOSING A CAREER IN VETERINARY SCIENCE

**M**ANY students have chosen the course of Veterinary Science without a specific objective in view on graduation, and as they near the completion of their courses, become slightly panic-stricken when endeavouring to make a decision on their future in the profession.

The situation at present is somewhat further complicated by the fact that a large number of students are ex-servicemen. Many of these men are influenced by the wish to provide maximum comfort for their families; therefore the rate of remuneration at which they commence duties, and the degree of civilisation pertaining to such employment, is of high importance.

The younger student, without responsibility, should not be influenced to anything like the same extent; but he should rather look forward to the opportunities of future promotion, and the possibility of taking part to a greater degree in the development of the profession.

When the student is considering his future career, his first decision will be to choose practice, teaching or departmental work of some nature. His next decision will be whether his work will be in the field, in the laboratory or the abattoirs. Finally, he must decide if his bias will be towards animal husbandry or animal health. He will be unwise, however, to allow his choice to make him careless of training in other fields not entirely related to his future role in the profession. This is important, because in the course of a career, one may change from one type of work to another.

In recent years private practice has developed with remarkable progress; and there has been a considerable increase in the proportion of animal owners who now look to the veterinary surgeon for help and guidance. This relationship between the veterinary surgeon and the animal owner has been well fostered in many of our large towns and cities, and it is in these areas that small animal practice forms a major item of work. Such a relationship unfortunately, fails to exist in most of our country districts. In some instances the veterinary surgeon is to blame for this situation, as he has failed to extend his services to the man on the land. However, the major factor in this problem has been the shortage of qualified practitioners to carry out this important work. The desirable veterinary surgeon—stockowner relationship can only be achieved by more graduates setting up country practices and making a thorough study of the stockowner and his many problems. The future of private practice in many dairying dis-

tricts in Victoria and New South Wales is being threatened by the establishment of Co-operative Veterinary Schemes. Such schemes can only be operated if veterinary surgeons accept employment in these organisations. Before accepting such posts graduates should give due consideration to the far reaching effects that such schemes will have on the veterinary profession in the near future. It must be realised that if such schemes are permitted to progress unchecked, it will provide opportunities for the inauguration of similar schemes by other organisations, and, ultimately, the veterinary surgeon will lose the right to his private practice.

For the student who prefers some form of departmental employment, there are many fields from which to choose a career in the Commonwealth and State Government Departments. It is regretted that commencing salaries offered by these departments are not higher. Salary revisions would be an added incentive to graduates to take up this important work.

The Commonwealth Government employs veterinary surgeons in the Department of Commerce and Agriculture, Commonwealth Scientific and Industrial Research Organisation, Department of Health and Departments of External and Internal Territories. Veterinary officers in the Department of Commerce and Agriculture are responsible for the inspection of meat for export and many other matters appertaining to the meat industry. The majority of these officers are stationed in capital cities but are transferred to Queensland during the slaughtering season. This is responsible work and the senior men at least carry out much administrative work. Graduates should find this employment very interesting, and there are opportunities for promotion for young men entering this service now.

The Commonwealth Scientific and Industrial Research Organisation provides opportunities for students who intend taking up research after graduation. This work is carried out in the laboratory and in the field. This department is interested in fundamental problems rather than in every-day investigations into current mortalities. It is particularly interested in parasitism both internal and external, nutritional problems and the study of diseases of economic importance such as pleuropneumonia, mastitis, contagious abortion and tuberculosis. The majority of officers in this service are men of some standing and there are opportunities for graduates to advance in this field of research.

A small staff of veterinary surgeons is maintained at Canberra in the Department of Health under the control of the Director of Veterinary Hygiene. This work entails supervision of the health of livestock in the Australian Capital Territory and the administrative control of the importation of animals, animal products, and anything which might be a medium through which infectious diseases might be introduced into Australia. Graduates entering this department have opportunities to visit other countries. Departmental work of this nature is particularly important to the health of our livestock as it protects Australia from an invasion of diseases not already found here.

In the Northern Territory and in New Guinea, Papua and Mandated Territories, veterinary officers are employed by the Departments of External and Internal Affairs. Veterinary work in the Northern Territory consists of disease control and devising methods to speed up beef production, while in New Guinea the emphasis is on animal husbandry. These departments offer every opportunity for the exercise of originality in connection with the management of stock and the control of disease.

The Department of Agriculture employs a staff of veterinary officers in each State. The work carried out by these men is very important for the maintenance of animal health and the control of disease. Duties include inspection, testing and supervision of animals exported and imported. Investigations are made into mortality and morbidity amongst our economic animals. The testing of cattle for Tuberculosis, and the supervision of the slaughtering of tuberculin reactors is carried out by these officers. Also under the control of the Department's veterinary surgeons is the clinical treat-

ment of animals owned by the State Governments and maintained on agricultural farms, mental homes, gaols and institutions. In each State there is a research and diagnostic station where specimens forwarded by veterinary surgeons are examined and reported upon. The work carried out by this Department is essential for the well-being of our livestock and the health of the community.

Now that there are two veterinary schools in Australia, a considerable number of graduates are employed in teaching. Many graduates make this their career, and combine it with some form of research. Others take junior posts which are particularly helpful in increasing their knowledge and experience for private practice at a later date.

At present two veterinary surgeons are engaged at Taronga Park Zoo and similar appointments in other States are available. A limited number of veterinary surgeons are employed by organisations connected with the wool industry, some are advisers to pastoral companies, whilst others are employed by firms which produce stock foods and medicines.

Although the various careers referred to are those followed by the majority of veterinary graduates, there are other positions which, from time to time, attract members of the profession.

It can be seen that the veterinary graduate in Australia has a wide field from which to choose a career, but he should remember that in whatever sphere he makes his career, the status of the veterinary profession will depend upon his co-operation with his colleagues, and his efficiency as a veterinary surgeon. With these ideals always in mind, the status of the veterinary profession will be raised to the high level which we aim to achieve.

—J.V.H., IV.

## *Orientation Week*

**T**HIS year orientation week began by following the now accepted pattern of a tour of the University following the official welcome to Freshers in the Wallace Theatre. On the following day the Dean (Professor Carne) welcomed the Freshers to the Faculty.

The President explained the functions and activities of the S.U.V.S. on the third day. His address was followed by another from the Secretary of the Sports Club. Both appealed to all Freshers to give strong support to all activities of the Faculty as the success of the Society and the Sports Club depended ultimately upon their interest and keenness.

On the fourth afternoon, by the kind permission of Professor Emmens, a demonstration was given in the Physiology Department. Unhappily the first rabbit proved unduly sensitive to anaesthetics. The second unfortunate animal lived sufficiently long to prove that McC. never did really understand that 3-way switch on the manometer. The whole affair was most ably compered in the best scientific jargon by Mr. Maurie Davies.

An informal dance for all Freshers was held in the Union Hall by the S.R.C. on Friday night. The week was enlivened by the presence of the S.U. Regiment.



## SPORT

SO far, this year's Faculty Sporting activities have been well up to standard.

In the first term our crew was disappointed in being beaten for the Interfaculty title again by our well-established stumbling block—Engineering.

However, it was gratifying to see the Football team trounce them under very appropriate conditions.

Nevertheless the rain washed out the football competition after only a few matches had been played which was very unfortunate as we had great prospects of winning. (Our team won each of their three matches to nil.)

The hockey, tennis and shooting were also washed out.

The athletics gave our very few representatives a lot of exercise with very little success.

We also suffered a scarcity of numbers and defeat in the I.F. Swimming.

Our hockey players showed great determination, nearly all being inexperienced in the game and yet holding their own against strong opposition.

We have been fortunate in receiving £30 from the Vet. Society and hope to bleed them again later.

Those in the faculty who received Blues were:—

Charlie Thompson: This year he is captain and club champion of the Rifle Club. He was in the three Inter-Varsity teams in Queensland, and was captain and top scorer of the combined 'Varsities

team. Charlie was also in the Inter-Varsity table tennis team.

John Holt: Also received his Blue for rifle shooting.

He was last year's Club Champion and top scorer for all teams (Imperial).

In this year's Inter-Varsity he was Sydney's top scorer and was second in the combined 'Varsities team.

Cho Chuck Nam: for basketball. He represented the 'Varsity in the Inter-Varsity events and was selected for the combined 'Varsities team. He was also selected as the outstanding player of the series.

Jack Neasey and Bill Spotswood: both were awarded blues for Australian Rules.

Jack has been club captain for the last couple of years and this was his second blue.

Bill was chosen as the best and fairest player for the last season. His favourite saying is "We was robbed," after practically any match.

Mal. Fitzpatrick: was awarded a blue for rowing. He rowed second in the winning Inter-Varsity crew last year. He is also a mainstay in the Andrews' crew.

Marsh. Edwards: Captained the Uni. Baseball team.

We are very proud of the above men's accomplishments and only hope there will be as many in future years.

## ATHLETICS

THE Annual Inter-Faculty Athletics Meeting was held on May 17th. Once again a small team represented the Faculty, and though our members tried hard they were no match for the strong and well-trained teams fielded by other faculties. Medicine won clearly by 33 points to Science's 21 and Law's 18. Vet. Science was well down the list with 4 points.

Best performances by members of the Faculty were:

H. Prell 4th in the 120 Hurdles.

J. Arnott and G. R. Gee 3rd in the high jump.

J. Hurst and P. Knight 4th in the shot putt.

Another praiseworthy effort was that of the tug-o'-war team, which put up a gallant fight before it went down to Engineering in the final. The team consisted of: J. Hurst, M. Spittle, R. Hyne, J.

Arnott, J. Neasey, P. McCormick, P. Knight and Dunbar.

Others who represented the Faculty creditably were:

N. Sorenson, R. Lane in the 2 x 440 relay.

A. Jackson, H. Prell, G. R. Gee, L. C. Tomlinson in the 880 relay.

G. R. Gee, M. Spittle, L. C. Tomlinson and H. Prell in the 4 x 110 relay.

H. Prell and G. R. Gee in broad jump.

M. Spittle and G. R. Gee in hop-step-and-jump, discus and javelin.

Now that the Inter-faculty Carnival has been discontinued the faculty championship will be decided on points allotted to faculty representatives who are placed in the University championships. Hence it is essential that the Faculty be well represented in the next year's Athletic Championships.

### BASKETBALL

With only half of last year's deadly combination back this year, fresh blood had to be introduced into the old firm—and with fair success, although the incidence of fouls seems to have increased—one player was heard to ask "What's this barging business?" after a foul had been given against him.

The early incapacitation of Lloyd Brown reduced our fighting power to the bare minimum, and gave us no excuse to call for time out. In point of fact, this shape of affairs was only experienced in one match since rain caused the cancellation of several matches after Lloyd had been placed on the injured list.

Our power can be determined best by the results of the games played—two were won, one was drawn and a fourth lost to Arts after a titanic struggle with three non-players being pressed into service.

### CRICKET

**O**N account of incessant rain, net practices could not be held prior to the selection of the team for the inter-faculty Competition. Consequently, much of the talent that such preliminary practices might have revealed, was forced to lie dormant.

We were up against Dentistry, which incidentally, got to the final round of the Competition, in our first match. It was quite apparent from the start that

we were up against a team that had had quite a lot of practice. The result being that we were beaten decisively.

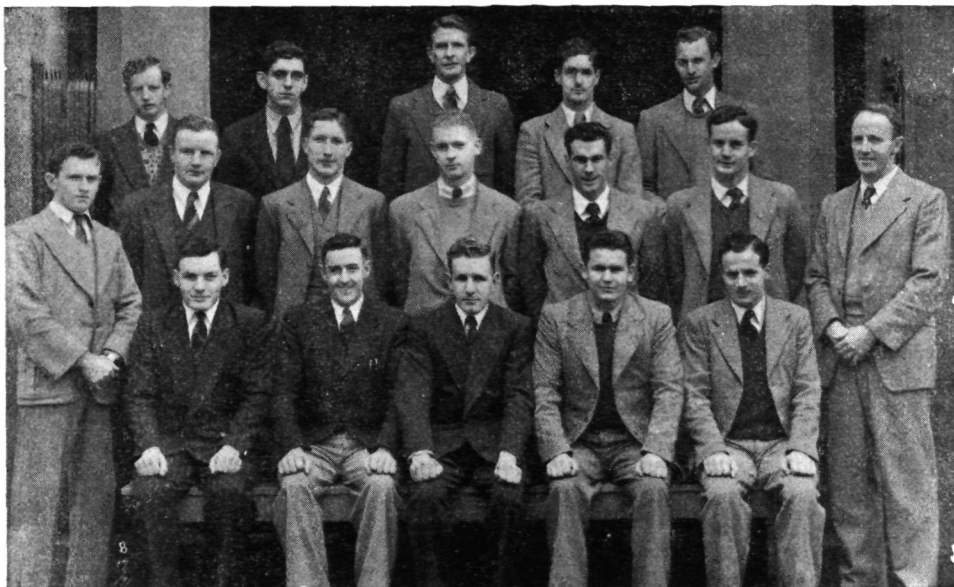
We were first in to bat. That accurate bowling of Stewart and Lloyd and a "wicked" pitch didn't give us much of a chance. Our first five batsmen were back for a total of 15 runs. It was only after Johnny Peach, Roy Nielsen and John Faulkner had been to the crease and played some bright and breezy cricket that we had a few runs on the board. We were all out for some 80-odd runs.

Dentistry took the strike and passed our total after losing five wickets and with half an hour of playing time to spare. Freddie Widdows was again "tops" with the leather. With his devastating swing and immaculate length he was responsible for four of the five wickets that fell.

### FOOTBALL

**S**URE, and it's robbed we've been!

Yes, the weather clerk took a big firm grip of Inter-Faculty football this year, played with it for a while, and then tossed it away as a useless plaything. This made the organising very difficult for the rather weak Committee appointed by the University Football Club, on behalf of a weaker still Sports Union.



**FOOTBALL TEAM, 1950.**

**Back Row.**—R. K. Dickens, B. A. Pandretto, P. R. Knight, M. A. Spittle, R. Dreardon.

**Middle Row.**—J. H. Thomas, R. G. Cuming, A. J. Bruce, N. M. Wallace, K. J. Austen, R. W. Berry, E. R. Manson.

**Front Row.**—J. C. Mullins, B. Portway, S. H. M. Thomas, C. Thompson, J. D. Stewart.

However, the weather was bravely faced up to on two occasions and, in spite of the ground being more like an after-flood quagmire than a football field, our XV played some very sound football to win both games. The only other game was played under much brighter conditions which gave us a chance to show just what we could turn on for an admiring throng of barrackers, when the conditions were right.

The results of these games were:

v. Engineering, won 6-0.

v. Science, won 9-0.

v. Dentistry, won 16-0.

It is very pleasing to note that we did not have our line crossed at any time nor, for that matter, were any points scored against us; a record worth bearing in mind next season.

A much better team spirit has developed this year, and given a strong Committee next year, we should be able to develop another good combination which will continue to keep our faculty name respected in Rugby Football circles.

Again this year two teams were chosen within the faculty, representing New Zealanders and Australians, the resulting game ending very satisfactorily in a draw after a most interesting exhibition both for players and spectators. If this were to be played at the end of the season as an annual fixture I am sure it would be the highlight of our sporting activities.

### GOLF DAY — 1950

SOME fifteen of the keener members of our Faculty gathered at Pennant Hills course on Easter Tuesday, despite inclement weather, to do battle with par and the tremendous growth of grass which the recent rains had produced on the fairways as well as the rough. With Mr. Webb and Mr. Len Whitlock the boys smote mightily and frequently all day, to the extent that some were almost too weak to lift their jug at the day's end. Almost!

Ned Buckley was noted as possessing a beautiful backhand where the "One armed Bandit" was concerned, no doubt developed after years of experience, but these notorious machines remained unconquered at days end.

Don Mackie, after a three-way tie with Pete Malone and John Holder, took out the McManamny trophy on the count back, while Bede Morris hit some tremendous woods to take out the handicap stableford event.

Once again our thanks are due to Mr. Webb in making arrangements with his club, for what turned out, as usual, a most enjoyable day.

### RIFLE SHOOTING

THE Inter-Faculty Match was postponed until third term because of heavy rain and results will thus be too late for publication. However, Vet. have a very strong team to defend their title and should prove very hard to defeat.

The Faculty was again well represented in Sydney's winning Inter-Varsity team, but more shooters in junior years are needed to maintain our supremacy in future years.

Geoff. Letts of final year has developed into one of the Club's outstanding coaches performing well in Inter-Varsity at Brisbane this year.

John Holt, University Blue, despite other activities still found time to shoot and was again outstanding at Inter-Varsity, where he topped the Sydney team.

Charlie Thomson, Captain of Sydney and Combined Varsities teams, won the University Championship and was top score for the combined team.

Phil. Knight has many brilliant performances to his credit, including a possible at 800 yards, and has represented University A in Inter-club matches.

Brian Saunders, another University Blue, has unfortunately been tied down by work this year, but shot excellently on his only appearance at the range this year.

Charlie Crates has found final year and family cares sufficient to keep him out of mischief this year and his only score for the year was a bouncing baby boy.

Other shooters who have performed well this year (on the range as well as the dance floor) are "Possum Hayes" Jack Hurst, and Norm. Sorensen.

The Sports Society in making available to any shooter in the faculty an excellent .303 complete with heavy barrel and aperture sight, has done much to foster this sport in the faculty and it is hoped that more shall take advantage of this in the future.

### ROWING COMMITTEE REPORT

FOR the fourth consecutive year the Veterinary Science crew finished second to Engineering. This year was to have been *the* year, in which the crew seemed confident of winning, and those few who did have enough spirit to turn up entered into training with great keenness.

The crew finally boated: Cox. J. Barnes; Stroke, M. Spittle, P. Knight, A. Juleff, J. Hurst, T. Tredinick, A. Jackson, P. Carter, D. Coward; four of these being in the lightweight division, but this ap-

peared to be an added incentive to work while in the boat. Peter Carter and Dick Coward were outstanding examples.

The race was run at Abbotsford in a fairly brisk cross wind. The Vet. crew romped home in their heat, and showed really brilliant form for so short a training period. In the final the committee considered it best to steady down the crew in the first part of the race. On reaching more sheltered water Jimmy Barnes called for a final burst. The results were amazing. The crew relentlessly outrowed Dentistry and an extremely strong crew from Medicine, and was overtaking Engineering at the finish. The final

result was  $\frac{1}{2}$  length, and a canvas to Medicine in third position.

Many were surprised at the Vets. good showing among crews containing oarsmen of such repute as those boated for Med. and Engineering. We can only put it down to faculty spirit and sheer grit.

We extend our thanks to the Leichhardt Rowing Club for the use of their best boat and the club facilities: and to Arthur Eedy and Jimmy Barnes for the time spent in moulding the combination.

We may with luck do the trick next year, when we sincerely hope to have more starters—a few of the Kiwis perhaps?

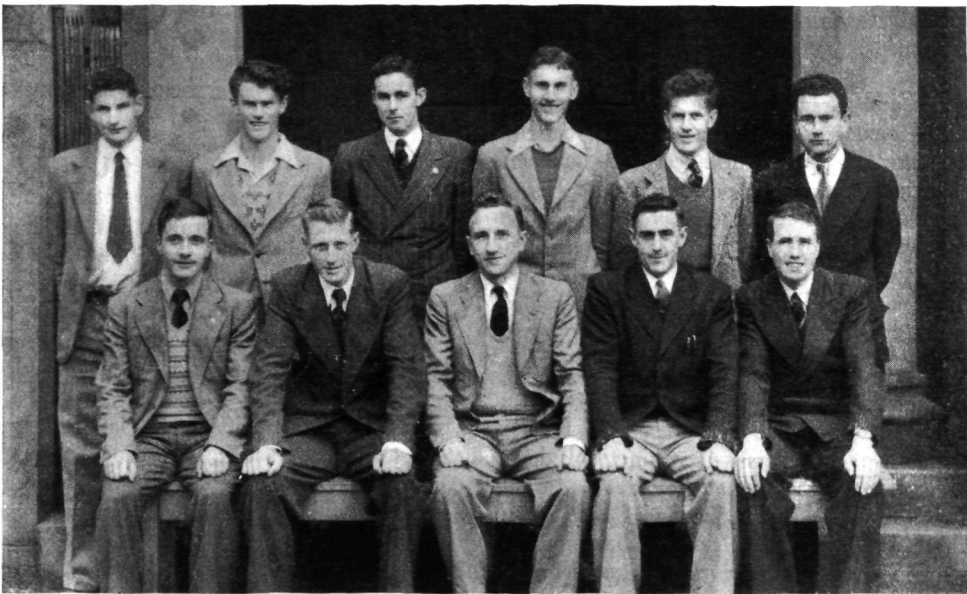
## HOCKEY

**T**HIS season only three matches have been played. Vet. have played well and even caused a surprise by holding the well-favoured Med. team to a one-all draw. Bede Morris—the star half—took the honours by being the top-scorer for the matches played. Andy Brooks was the find of the season by putting to good use his soccer knowledge as goalie when he ably kept the balls out.

Andy Gibson again was captain and we must thank him for the time and trouble he went to in arranging teams on the short notices we have had due to the weather.

Results:

- v. Arts—0-0.
- v. Arch.—3-0.
- v. Med.—1-1.



### HOCKEY TEAM

**Back Row.**—K. J. Dobson, R. C. Shapcott, N. I. Mortimer, P. H. Malone, A. L. Cooke, A. H. Brook.  
**Front Row.**—J. J. Hayes, B. Morris, A. J. C. Gibson, B. Portway, A. R. Jackson.

## INTER-FACULTY SWIMMING, 1949-50 SEASON

**T**HE Inter faculty Carnival was held again at the North Sydney Olympic Pool on the night of the 29th March.

The response to the insistent appeal for swimmers was again most unenthusiastic, there being only seven members of the Faculty's 300-odd who turned out. Our thanks go to these few. It is difficult to account for the seeming unpopularity of this sport within the Faculty—pressure of work during the first half of the Season is perhaps responsible in part—but the fact is that swimming is the one sport that the Vets. do not take a leading part in, and this state of affairs will need to be rectified, if the Faculty is to regain the Penfold Shield at any time in the future.

A team of five finally represented the Vets. in four events, the results of which were as follows:—  
Mary Bardsley—3rd in Women's I.F. 50 Yards Breast Stroke.

Jack Hurst—repeated his previous season's performance of 3rd in the Men's I.F. 110 yds. Breast Stroke.

The Relay Team of Cheshire, Hurst, Liefman and Lane, 3rd in the 4 x 55yd. I.F. Men's Relay.

The team also reached the final of the 3 x 55 yards Men's I.F. Medley Relay but had to scratch.

This small degree of success was an improvement on the previous season's results, the faculty finishing fifth (instead of sixth) of the ten faculties competing.

Jack Hurst and Greg. Cheshire will, it seems, be the nucleus of next season's team. Greg. is capable of very fast times over sprint distances and Jack will no doubt be in a prominent position in the Breast Stroke events. If the Faculty can produce another half dozen swimmers of similar standard who will support these two men, then Vet. Science will have a team that the other Faculties will need to watch at the next Inter-faculty Carnival.

## TENNIS

1950 so far has been a most adverse year for tennis, entirely due to bad weather the faculty championships have, at the time of writing, only been played out as far as the second round.

With Fred Evans, D. F. Cumming and C. J. Roberts absent this year, the singles championship looks very open but should on performances go to either Col. Hickson or S. Pulver.

If Neil Mortimer can show anything like his last year's form, the doubles should go either to Neil Mortimer and J. Collard or S. Pulver and Lascelles.

Similarly bad weather has so far prevented the

playing of the inter-faculty matches, if we do get a break in the weather before Christmas the team fielded will probably be chosen from C. Hickson, G. Pulver, Neil Mortimer, J. Collard, Lascelles and B. Drew.

## WOMEN'S SPORT

**T**HE Inter faculty Swimming Carnival and the Women's Inter faculty Athletics are the only two events in the women's sporting world which have eventuated this year so far.

In the swimming we greatly missed final year lasses Ena Dexter and Priscilla Walker, both of whom were away on extra-mural work. However, we are very grateful to Mary Bardsley who upheld the honour of the Vets. by coming third in the 50 metres breast-stroke.

We were more fortunate in the Athletics field, thanks to Isobel Gant. Isobel came second in the broad jump with a jump of 13 feet, 1 inch—the actual jump was 14 feet, 6 inches, but Is. took off well behind the mark and 13 feet, 1 inch was the official measurement. Isobel also tied for second in the high jump and, if it hadn't been for extramural work, would have represented the Varsity at Adelaide during the May holidays. Surprise of the day was Vet's winning of the Inter-faculty Relay. Perhaps the fact that we were the only faculty with a team had something to do with it!

Later in the year we hope to compete in the hockey, basketball and cricket competitions—even if half the team has never held a hockey stick, basketball or cricket bat before!

## AUSTRALIAN RULES

**A**LTHOUGH there is no inter-faculty competition in Australian Rules, it deserves a place in this Journal as more than fifty per cent. of the University team belong to this faculty.

1949.—Although this was only the second year in which University had fielded a side in the Sydney competition we did quite well and had some good wins.

In the Inter-Varsity held in Sydney we won against the experienced Adelaide side although losing to Melbourne and so gained second place.

1950.—Due to a strong group of recruits gained from second year we have a good side this year and have already beaten last year's premiers and run this year's leaders to within three points.

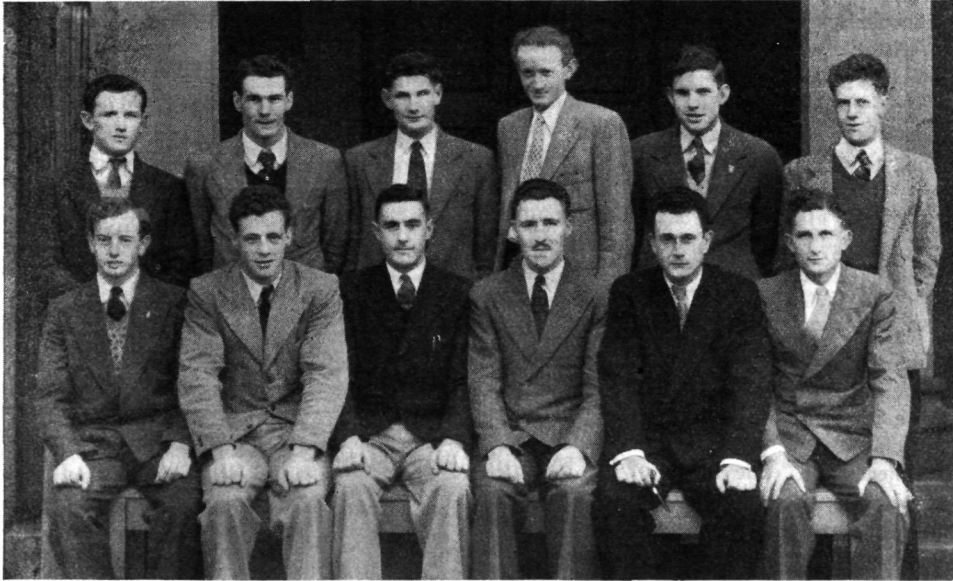
Special mention is due to Jack Thompson and Jack Neasey for their selection to play for the Sydney sides in the recent state trials.

Congratulations to Jack Neasey and Bill Spotswood on their University Blues.

## SOCCER

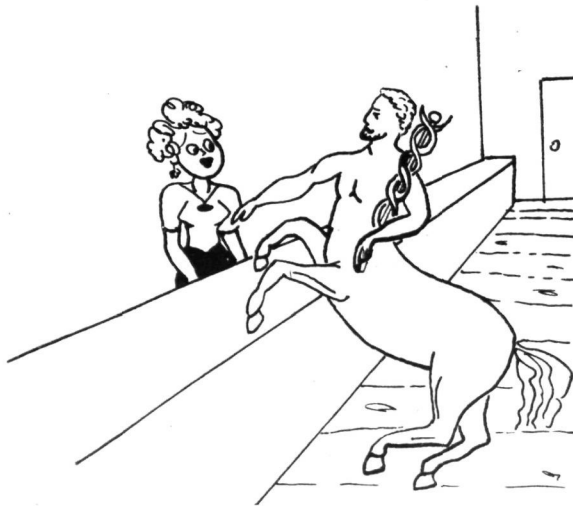
**O**WING to the rain the Inter-Faculty Soccer Competition was abandoned. We played two matches, one against Agriculture (won 3-2) and the other against Engineering (lost 1: 2).

The following players comprised the team: Austin, Brook, Buckley, Cooke, Dickens, Dobson, Hopkins, Johnston, Jubb, Lindsay, Portway, Thomas and Tredinnick.



## SOCCER TEAM, 1950.

Back Row.—J. H. Thomas, K. J. Austen, K. J. Dobson, K. V. Jubb, J. R. Hopkins, A. L. Cooke.  
 Front Row.—R. K. Dickens, E. P. Buckley, B. Portway, B. G. Johnston, A. H. Brook, A. B. Lindsay.



"And what did you wish to see Mr. Ripley about?"



## PROLOGUE

FROM the earliest times men have sought a satisfying explanation of the Universe and their own place and significance in the grand scheme. Prior to the development of science their explanations took the form of nature myths. The oldest records of evolutionary speculation came from the Greeks and particularly Aristotle who, through his acquaintance with and comparative methods of study of organisms was aware of a graded series in organisation and correctly inferred evolution. He looked upon evolution as a striving to an "archetype" ideal by supreme intellect.

From then till the fifteenth and sixteenth centuries war, commerce and religion left little room in men's minds for science but contact with the Near Easterners in the Crusades of the Middle Ages culminated in the Renaissance and the turning of man's intellectual curiosity to the world of nature. These men were, however, furnished with a ready-made explanation of the origin of life in the Biblical account which was official and respectable and made other explanations unnecessary. The fossils of the Renaissance period were assumed by the adherents to the theory of Special Creation to be the remains of those killed in the Neochian deluge. (The theory of Special Creation arose from the belief that the earth was only a few thousand years old and that the animals and plants were created to populate the earth and the making of man was the last and crowning event.) The developing realisation that each great rock formation held fossil types not occurring in layers above or below led the theorists of Special Creation to the theory of Catastrophism postulating a succession of great catastrophies which destroyed all life and was followed by a new creation of higher types.

Unfortunately, for this view, an eighteenth century amateur geologist studied the effects of natural agencies on the earth's surface. He nowhere found evidence of world-wide cataclysms or any processes not at work to-day, and concluded past geological forces were no different from those now operating.

On every continent a certain cycle of events has repeated itself many times, the cycle consisting of the uplifting of land, its rapid erosion with deposition on continental shelves and geosynclines resulting in a rising water level with inundation of lower parts and the cycle ending with another period of continental uplift. This cycle is the basis of sub-division of earth history into periods of time corresponding to the systems of strata formed during the periods of sea invasion.

### GEOLOGICAL SUCCESSION.

Eras.	Periods.	Age.	Land Life.
Groups of Rocks	Systems of Rocks	Millions of Years	
	<b>Quaternary.</b>		
	Recent .....	—	
Cenozoic	Pleistocene ..	1	Man
Rise of Mammals	<b>Tertiary</b>		
	Pleocene .....	25	Land Mammals
	Miocene .....	35	
	Oligocene .....	40	Birds
	Eocene .....	60	
	Palaeocene .....	65	Flowering plants
	<b>Cretaceous .....</b> 120		
Mesozoic	Jurassic .....	150	Dinosaurs and Flowering Trees
Rise of Reptiles	Triassic .....	200	
			Dinosaurs Cycads Conifers
Rise of Amphibians	Permeian .....	210	Amphibians Lycopods Conifers
Palaeozoic	Carboniferous ..	300	
Rise of Fishes	Devonian .....	350	Seed ferns, Lycopods, etc. Insects, land molluscs
	Silurian .....	400	
	Ordovician .....	475	
Rise of Invertebrates	Cambrian .....	550	No land life known
Archeozoic	.....	1000	Probably no Land Life
Proterozoic	.....	1900	

The knowledge of the slow cyclic continuity of geologic change and of the progressive degrees of organisation of fossils in succeeding rock strata inferred the corresponding slow continuity of change of the form of living organisms, an inference borne out by direct evidence of comparative embryology, physiology and anatomy and the indirect evidence of palaeontology. The story of man's development has been pieced together from these four main lines of evidence, studies of anatomy, embryology and physiology, enabling the deduction of problematical relationships and hypothetical ancestors and concrete evidence is furnished by rock records of the remains of ancestors.

Further discussion will be concerned with man's relation to the other primates, to fossilised man and near-man and possible lines of development therefrom.

The living primates are divided into three groups, lemurs, tarsoids and anthropoids. Lemurs are squirrel-like arboreal primates, simple in structure, being only a little more advanced than the tree shrews (insectivores) from which they are probably derived. The orbital cavity is not bounded by a complete bony socket, the toes bear claws and the uterine wall is connected all over the surface of the placenta.

The tarsoids represented by the single survivor *Tarsius*, is rat-like and arboreal. It is distinguished from the lemur by having large eyes directed forward, an almost complete bony eye socket, a larger development of the posterior cerebral lobes, and a more disc-shaped placenta. In all these characters *Tarsius* approaches the anthropoids. *Tarsius* is not a monkey but is above the lemur level. It is too specialised to be regarded as a true intermediate and instead is regarded as an offshoot of the transition between lemur and monkey. This suggestion is confirmed by the remains of *Tarsius*-like creatures in the Eocene, contemporary with lemurs and which bridge the gap between lemurs and higher primates.

The anthropoids are the highest main division of primates and include monkeys, great apes and man; characterised by a larger and more complicated brain, complete bony eye-sockets, stereoscopic vision and the presence of the macula lutea.

The first of the two sub-divisions of the group includes the New-World monkey *Platyrrhini* with nostrils directed forward and separated by a low, wide septum and each jaw having three pre-molars on each side. This group includes the marmosets and South American monkeys. The second sub-division comprises the *Catarrhini* with nostrils directed downwards and the septum narrow. This group includes the Old World monkeys (*Cercopithecidae*), the man-like apes (*Simiidae*) and extinct and recent man (*Hominidae*). All members of these three families have the human tooth formula and as opposed to the *Platyrrhini*, the digits have flattened nails and the tail is not prehensile.

The *Cercopithecidae* fall into two groups. In one the thumb is vestigial, the hind legs are longer than the fore, there are no cheek pouches for holding food and the stomach is large and complicated. The other group which includes among other forms the baboonchas have the thumb well-developed, cheek pouches present, and the stomach is simple.

Of all animals the anthropoid apes most closely resemble man in anatomy, physiology and behaviour. This group includes the gibbon, orangutan, chimpanzee, and gorilla. The anatomical features distinguishing man from apes are very few, the difference

being almost entirely in proportions and relations of parts, the structures being almost identical.

The oldest known fossil primates are lemuroids and tarsoids of the Paleocene and lower Eocene. It appears that anthropoids of new and old worlds developed from tarsoid stock. The earliest ancestral *Catarrhini* monkey (*Parapithecus*) occurs in the lower Oligocene; it was very primitive and may well represent the stock from which *Cercopithecidae*, *Semiidae* and *Hominidae* have developed. From this stock the *Cercopithecidae* diverged during the Oligocene and Miocene and have since specialised along lines divergent from those which led to man. The stock that led to the great apes on the one hand and man on the other apparently originated at about the same time, for the oldest ape-like fossil (*Propliopithecus*) belongs to the lower Oligocene. The common ancestor of man and the apes would thus seem to have lived in the early Miocene or late Oligocene. *Dryopithecus*, a Miocene genus appears to have developed in the direction of the gorilla and chimpanzee and it or its immediate precursor may be the common ancestor.

#### NEAR-MAN AND MAN

The Pleistocene comprises the entire known history of man which can be understood only in relation to the changing conditions and great climatic disturbances of the period. The Pleistocene is often referred to as the glacial age, not because it is the only era in which glaciation occurred, but because being more recent its work is still evident in the Northern Hemisphere. Four times the ice-cap came down from the pole, and at least three times it flowed out from the mountains of southern Europe, these periods alternating with interglacial stages warmer than the climates of corresponding areas to-day.

The number of glaciations is the only time-table for the Pleistocene and knowledge of human history is tied in with the glacial sequence. This however, can only be done in a limited way and the evidence is not clear. If human fossils were actually found in glacial deposits their period could be determined but such finds are negligible, the edge of a glacier not being a place of comfortable habitation. The advance and retreat of the ice-caps affected climatic conditions over large areas and caused great fluctuations in the flow of streams from the glaciated areas. These variable conditions resulted in the formation of terra in representing old valley levels along stream channels and the fossil sequence in such areas may be determined.

The steady evolution of mammalian fauna during the Pleistocene was accentuated by extensive

northerly and southerly migrations induced by changing environment. Accordingly the different stages of the Pleistocene contain quite distinctive mammalian fauna. The succession of faunas, worked out from many occurrences, provides in part the key for dating human records. Many stone implements are found in the Pleistocene deposits and the cultures to which these implements belonged are fairly well established. Human fossils associated with these stone tools can often be assigned to a definite cultural period. However, only the later stages in cultural history can be readily dated in terms of glacial or inter-glacial periods.

The criteria generally used in distinguishing between humans and anthropoid apes fossils are of two sorts—(1) definite association with artefacts and evidence of the use of fire. (2) anatomical features including cranial capacity and the less reliable features of jaws, teeth, pelvic shape, shape of leg bones and foot.

#### JAVA MAN (*Pithecanthropus*).

Three teeth, a skull cap and a femur were found. The teeth were human in character but not widely different from those of the higher apes. The femur was definitely human and the creature walked erect as evidenced by the position of articular surfaces and the straightness of the shaft. The skull was ape-like with heavy brow ridges and a low skull vault indicated a brain far smaller than that of modern man, but larger than that of any living great ape. The cranial capacity was about 940 ccs.; that of a modern European is about 1550 ccs. and few great ape brains exceed 600 ccs. Although the size was intermediate the brain was definitely human as the areas controlling speech were in the process of development.

#### PEKING MAN (*Sinanthropus*).

Showed many similarities to Java man and the two existed contemporaneously. *Sinanthropus* seems fairly closely related to the man Java but somewhat more advanced in the larger brain (1062 ccs.). The great thickness of the cranial bones seems the only specialisation. Peking man had learned the use of tools and fire. The bulk of material of Java/Peking men is of middle Pleistocene dating their existence from three-quarters to half a million years ago.

#### PILTDOWN MAN (*Eoanthropus*).

The third type dating from the early Pleistocene. The bones of the skull were of thickness comparable with those of Peking man but the forehead and skull vault were essentially modern in contour. The infra-orbital ridges were undeveloped in contrast with later Pleistocene Neanderthal Man and the cranial capacity was 1300 ccs. The jaw however, was

quite ape-like in character, as were the canine teeth. There was some doubt whether the incongruous association of jaw and skull could be the correct interpretation, but it appears to be borne out by a similar and later discovery and because there are no other skulls like the Piltdown and no trace of man-like apes elsewhere in Europe in the Pleistocene.

#### HEIDELBERG MAN.

The jaw of *Homo heidelbergensis* is the only remaining piece of skeletal evidence for human evolution of the lower Pleistocene. The jaw is extremely massive and powerful but otherwise is of definitely human character. The jaw is short and broad with the tooth rows diverging posteriorly as in man and not narrow with parallel tooth rows as in the apes. The teeth are entirely human.

#### NEANDERTHAL MAN

(*Homo neanderthalensis*).

During the middle and latter parts of the Pleistocene, Europe and West Asia were inhabited by this species of rather ape-like men. The brow ridges were enormous and the forehead low, but the cranial vault was expanded posteriorly and was of capacity 1550 ccs. The teeth, except for being rather large, and the jaw, were essentially human. To judge from brain casts and evidences of culture their intelligence was but little below that of some primitive men of to-day. Neanderthals lived in caves and buried their dead; they had already developed the use of fire and specialised flint tools of several kinds. In Europe men of Neanderthal occupied the region for a considerable period of time but abruptly disappeared after the maximum of the last glacial advance.

#### GALLEY HILL MAN.

The age is middle or lower Pleistocene, probably the second inter-glacial stage. This man was about 5 ft. 3 ins., stocky and muscular with modern type bones. The cranial capacity was 1500 ccs. and the skull was no more ape-like than many existing crude types of men to-day. He is far older than the oldest known Neanderthal and in age approximates *Pithecanthropus*, *Sinanthropus*, *Eoanthropus* and Heidelberg man.

On the pedigree of modern man opinions are not unanimous. The belief is general that Heidelberg man and his probable descendant the Neanderthal man, came originally from a stock similar to, or identical with, Java/Peking man. The possibility is not yet excluded that modern man came from Neanderthal stock in which case we number among our remote ancestors men of Java and Peking type. Piltdown man could not have resembled Java/Peking stock. On cranial characters alone *Eoanthropus* might well pass for an early member of modern man's

ancestors. If he is on the direct line of human ancestry then parallel reduction in the size of jaw and changes in tooth size and pattern must be supposed to have occurred independently in the Pithecanthropus-Neanderthal line and in the Eoanthropus-Homo sapiens line. The Galley Hill man is of the same species as ourselves and is placed by many authorities as our direct ancestor. He is older than Neanderthal so that if this theory is correct any

relation of Homo sapiens to Neanderthaloids must be by descent from a common ancestor. The final interpretation seems to be that human stock split late in the Pliocene into two or three main lines of development, the Neanderthaloids (including Pithecanthropus, Sinanthropus) Heidelberg man and Neanderthal man being one, our own line a second and Pilt-down man, if not a direct ancestor of Galley Hill man, a third.

K. V. JUBB.

## VETERINARIANSMANSHIP

**T**HE above title, coined especially for the occasion could perhaps be defined as the art or subtlety of becoming a veterinarian. When one has mastered all the arts and subtleties one likes to sit back and reflect on them. When one has almost mastered them the reflection becomes even more desirable.

Five years and approximately 700 examinations are needed to ensure that students know that hair grows on the outside of a horse. We meet this decadent animal in Zoology as a digitigrade member of the order Ungulata; in Zootechny where it dons well-sprung ribs and legs on the outside of its body; in Anatomy as a convenient focal point for discussion groups; in Genetics as something of a musician, roaring and whistling at the slightest provocation; and finally, in Surgery where it is respected by all for its awesome predisposition to obscure lameness, cutaneous haemorrhage and cardiac syncope. (Somewhere along the line the fledgling horseman finds that that annoying bit of hair hanging over the horse's face is not called the fetlock after all). When the student has overcome all these difficulties he is at last able to pick out blood horses by feeling their ears and he is later allowed to charge a guinea for this service.

What useful ground work is acquired in the first year. In Botany we learn that fungi have a sex life and in Zoology the stalk of the protozoon *Vorticella* contracts every now and then into a spiral and then slowly expands. It is characteristic of scientific confusion that this same structure is again met in Anatomy as the processus urethralis of the ram. Apart from Physics and Chemistry the main surprises of the year are that members of the S.R.C. take themselves seriously and that Honi Soit to be produced economically, would cost 7 1-8d. per copy.

Physiology and the reign of the bicycle ergometer—what romanticism and rare flavour are in the words. The average student if supplied with intravenous glucose and an admiring audience can produce enough electricity to light a lamp long enough to find a heavy metal bar to smash the bicycle ergometer.

Histology! Cherchez la femme! Ah messieurs, those Physiotherapy girls. Ooh la la! How cunningly we altered our microscopes so that by looking down the barrel we could see the blonde three rows away.

The fascinating part of Pharmacology is that one doesn't learn anything about drugs used by veterinarians. Ours is a greater heritage—we learn the secrets of the alchemist and the mysteries of parental administration.

Cookery lessons are provided in fourth year thinly disguised as practical Pharmacy. Here one finds that it is the yolk of the egg that is required for the emulsion and not the white after all. One also learns how difficult to retrieve the discarded yolk from the sink or waste bin. Pharmacy is the only subject where one ounce does not equal one ounce.

Surrounded as we are by a wheat field, a parking area, a busy road and nurses' quarters, how could we fail to be socially conscious?

Other faculties may have their single annual festival, but for the veterinary student, five years (at least) of saturnalias and orgies are assured whereby he may acquire the aplomb and social acumen necessary to perform a rectal examination on a dairy cow while the farmer's daughter is holding his coat.

Without doubt, the piece de resistance of the year is the dinner. At this sacrosanct function, members of the staff deliver modified lectures and esteemed members of the profession are fed at slight financial loss by the under-graduate body who later descend to

the level of beasts of the field, besot themselves and sing traditional University ballads and Australian folk songs. Some assemble for lectures next morning.

It is not until after two years practical Biochemistry, four terms' lectures and the collection of a 24-hr. sample of urine that one is adjudged competent to attend lectures in Meat Inspection, but as the examination is never until next year the usual fervid enthusiasm is absent from the lectures.

Without doubt the highlight of the half decade of training is the first day of practical surgery operations. With unnaturally loud voices, perhaps tinged with a note of hysteria, we gathered around the horse which stolidly returned our gaze, bit the nearest student, pondered for some minutes and then died of heart failure. But dead horses are at a premium for practice operations as owing to the poor state of their circulation, great liberties can be taken with vessels of awe-inspiring size.

However, in practical Bacteriology the innate fearlessness of the veterinary student is revealed.

With intrepid nonchalance he works in a shower of virulent organisms bravely scorning the risks of mastitis and laughing gaily as he dashes anthrax broth from his eyes.

After five long years, the doors of the inner sanctum are thrown open and the student is admitted to the holy of holies—the final medicine viva. The immaculate student wearing a brand new starched white coat is ushered into the presence, shown an emaciated animal, and given half a minute to make a diagnosis. NO, of course he may not touch it or ask questions—he is there to make a diagnosis. We shall leave this immaculate student as the haematidriosis commences—we know that in ten minutes' time he will totter forth with blank visage mouthing definitions. Or perhaps he will weep softly in the locker room, but we know that he will be broken in spirit and subjected at last to the iron rule of authority.

Then the long struggle of veterinarianmanship is over—he will soon be a graduate. He will then be able to sue for fees—the world is his.

QUOD ERAT.

## MILK FACTORY VETERINARY SERVICES

**T**O-DAY dairying is an important Australian rural industry; whole milk and the various milk products are popular foodstuffs here, while the products also have export value. Consequently, an efficient production system should be maintained. Veterinary surgeons can aid the attainment of general efficiency by their ability to act as extension officers for new medical and husbandry developments, to implement disease control measures—both prophylactic and therapeutic, and to perform the every day medical and surgical tasks offered by a relatively dense animal population as seen in a dairying district.

A problem concerning the veterinary profession has arisen in recent years with the establishment of veterinary schemes by numerous milk factories in an attempt to aid their suppliers. Due to the resulting salaries, conditions and nature of the schemes, much has been said regarding their desirability with respect to our profession.

In considering the problem, the effects of the schemes on both the farmer and veterinary surgeons should be taken into account. Unfortunately, any consideration is complicated by the fact that at present each scheme is individual; as a result, few statements apply to every organisation. I shall attempt to confine my remarks to those of a general nature.

Many services have aimed at lowering costs, as compared with the fees of private practitioners, for their dairy farmers. Reduction in the cost of testing for, and innoculating against various diseases, should help to induce many reluctant farmers to partake more fully in measures aiming at reducing the incidence of infectious diseases in their herds. Further, with smaller fees, the farmer does tend to call in the vet. for many minor tasks for which he would often not consider it worth-while to call in a private man. This can have the effect of burdening the vet. with many really non-essential calls; but, it could possibly produce an over-all increase in production due to additive effects of a large number of herds. On the whole, lowered costs should be an advantage to the farmer and increase the general efficiency of the industry. However, where the factories do not provide a service at a lower cost than that given privately—and this has occurred—or where they use a professional man in a money-making fashion, the schemes are to be deprecated. Of course, a definite disadvantage is that non-factory suppliers in a dairying district receive no concession when they can obtain the services of the factory Vet. In fact, by using the service these farmers help to maintain benefits for the dairy farmers by paying profitable fees to the factory.

Other advantages for the farmer can be provided by a laboratory; the building and staffing of a suitable laboratory can rarely be undertaken by a private practitioner. Some factories have equipped and staffed laboratories with factory employees who can perform numerous menial tasks, sometimes just as a part of their normal duties. Some other factories intend to do likewise; whether such is a general thought amongst factory directors, I do not know. Many of the simpler laboratory techniques associated with diagnosis can be performed, and medicines dispensed, "on the spot." Speed and efficiency in diagnosis and treatment should be increased by such facilities, besides providing good conditions for the veterinary surgeon.

But, even if the schemes are advantageous to the dairy farmers, there is no reason why the veterinary staff should tend to be disregarded. The question of salary rightfully assumes importance, especially under present-day conditions. There is no doubt in my mind that many companies pay low salaries, especially to the younger graduates; indeed, I know of factory hands receiving an almost equal amount of money to that received by young graduates and for fewer hours of work. This may result from the desire of companies to balance fees with the costs of the veterinary service. Perhaps this is due to non-realisation by them that the value of a service in maintaining a more even and higher production level on the farms is of a nature not shown by fee returns. A reasonable remuneration is a necessary feature in any scheme, for the veterinary surgeons are professional men, and have to live under prevailing conditions as others—including unskilled men.

Further, other conditions should be of at least a decent standard. It is difficult for one man to enjoy short hours when dealing with animals that may require attention during any of the daily twenty-four hours. But this is no reason why adequate staffing should not be attempted in order to give working hours that at least compare a little with those enjoyed by most other members—lay and professional—of the community. Usually, cost is the stock reply of the company; but, if they want these services, why should our profession receive all the "kicks." While small-self contained organisations are the basis of the services, it is difficult to envisage much relief in this

While discussing the necessity for asepsis while doing uterine grafts to the cornea of sheep a member of the Surgery Department stressed it thus—"sterilise the instruments, the dressing, the air and even the attendants" . . . .

direction. Those who argue in favour of private practice as against these schemes on the basis of poor working conditions, should remember that a private man in an under-staffed (usually) dairying district has far from ideal hours and vacation periods. Probably the factory vet. is better off when many menial tasks associated with travelling and the laboratory are performed for him.

It is said—and to my mind correctly—that salaried employment under bad conditions lowers the prestige of the profession. If conditions could be made generally satisfactory, perhaps our prestige would be raised amongst the farmers by these systems if they allowed them to make increased use of the vet's knowledge, as a result of decreased costs.

The right to private practice has always been considered to belong to us if we should so desire; less expensive veterinary services definitely reduce, and generally eliminate its possibility in a district. Thus for those interested in the advantages and work of a private practice, these dairying services are a serious problem. Especially now that dairy farmers had a "taste" of these less expensive systems, it would seem that only by the evolvement of such rural systems involving private practitioners will this problem be overcome.

The general freedom of a veterinary surgeon to exercise freely his ideas on veterinary matters concerning the district is somewhat restricted by the over-riding authority of his employers—the manager, directors and shareholders (the farmers in co-operative systems). This anomaly can only be reduced in nature, and not completely eliminated, by any laws that may be invoked regarding employment of veterinary surgeons by dairy factories.

To myself, it would seem that most of the schemes arose to fulfil the needs of the farmers for some type of subsidised rural veterinary service. I do not think that these milk factory services are ideal, and consider that if such subsidised rural services are to be a feature of our country, a more general scheme, taking full consideration that it is utilising members of a profession is necessary. Until such is forthcoming, following reduction of the apathy of milk factories towards the veterinary surgeons they employ, the present day schemes may possibly be a useful stop-gap measure.

—L. J. FULTON, IV.

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## POPULAR FALLACIES

WE must, I think, anticipate encountering a wider variety of deeply instilled misconceptions than in most other vocations. Such tenets shall undoubtedly prove a source of intellectual aggravation. In Veterinary Science particularly have they been bred, nurtured and capitalised by charlatans and misguided yokels.

The problem is complicated not inconsiderably by the type of person with whom we're most concerned. Certainly many livestock owners do know a lot about their animals, but a high percentage are deluded and conceited with a colossal mis-knowledge. These latter are usually quite loth to have their pet theories shattered and ego deflated.

Human medicine has the advantage of us here, for its human contacts are, for the most part, worried, sick and frightened. They are disinclined to theorise about a problem which affects them so closely and are eager for solace of professional opinion. The average patient does not question for a moment the diagnosis offered and believes implicitly in the "Doctor's wisdom." If the patient should succumb, the fault lies not with the doctor. Not so in vet. There the disease process does not lay its shadow on the human concerned; he may be worried about financial loss or even emotionally upset from affection for a pet, but NOT sick, frightened or personally endangered. In many cases he or his neighbours will have formed "practical" diagnosis and will disagree mentally with the vet. from the beginning should his findings not concur. Following the death of the animal their dissociation from the vet.'s "incompetence" becomes vocal and the local "Grape Vine" has soon lessened his status.

The medical profession has a long history and belief in its infallibility has become traditional. Medical men too, have from time immemorial occupied a place apart in the society. On the other hand, the veterinary profession, as such, has a short history, and its tradition unfortunately, is derived from the blind, crude methods of village blacksmiths and butchers. The majority of the public still regard vets. as "Horse Doctors" of doubtful qualification, little skill and paucity of knowledge. This view is being yet perpetuated by the still numerous "quacks" scourging the country.

Many pseudo-theories are of nuisance value only—e.g., "Raw meat must not be fed to pups or 'Dis-temper' will inevitably occur." However, quite a number are definitely and seriously harmful. To illustrate this: The proprietor of a Pet Shop on

Parramatta Road, has been advising purchasers of puppies to avoid completely the feeding of milk if the pup was to be reared. He further advised that the pups be given one meal only per day, consisting of meat. The result of this sage advice has been the presentation of two puppies by different owners at the Clinic within a few days. Both puppies were suffering from rickets and severe emaciation; one died after admission to hospital. This may be a lucrative business for the seller and vet, but is pretty hard on the purchaser. One woman admitted she thought pups needed milk, but thought the owner of a puppy shop should know what he was talking about.

Fallacy is spread not only by ignorant theorists, but also by men who should know better. Two outstanding examples are:—

- (a) A museum specimen of a spider in the Aquarium at Taronga Park Zoo. The caption reads "Atrax robustus", or "Trapdoor Spider", responsible for many deaths in the Sydney area." Surely the public deserves to know that the "Trapdoor" is NOT Atrax robustus, nor is it lethal.
- (b) Also by an expert from Taronga Park on the Hallstrom Quiz one Saturday evening. A question was asked by a listener about Hydatids. The answer included a statement that man and RABBITS were most commonly affected in Australia.

These assertions would be accepted as infallible by the average man. Information from such a source should be completely reliable. Is it any wonder so many delusions are held?

The public cannot be blamed for its lack of scientific knowledge, nor for its imaginative theorising. Science is seldom sensational in the popular sense, so is granted little observance by the newspapers. Truth is not readily available to the lay man and neither his nature nor his schooling incites him to search for it. He is usually willing to accept the platitudes of Tom, Dick and Harry, on subjects of which he has no previous knowledge; such a measure saving him the irksome task of thinking for himself. Being merely human, his imagination will embellish the theory to make it a little more plausible and attractive. Thus flavoured by his personality, consciously or sub-consciously the "theory" becomes his and he is most unwilling to relinquish it. He is, however, usually eager to transfer his knowledge to the next uncritical audience. It seems paradoxical that much of humanity will not talk of that of which it has particular real knowledge for fear of being dubbed bores and

"Know-Alls," but yet will ramble away on subjects of which it has hazy and misguided notions. Perhaps this is attributable to the sense of propriety introduced by the "touching up" of such "theories"; whereas if a topic is reasonably well known it is also realised of it that personal "tit-bits" cannot be added.

It seems to me that the huge gulf between Science and Society can be bridged only by such as us who have contact with Science and live in Society. The thinking public deserves to be shown the way to scientific truth; then the inevitable "theorising" should at least have a sound basis. I am not suggesting for

a moment that we dash around dispensing what little knowledge we have in all directions and chewing the ears of any poor unfortunate we contact; the majority and certainly the most dogmatic theorists, would neither listen nor believe anyway. There must always be encountered, though, a small percentage with minds sufficiently enquiring to merit at least an indication of the manner in which they may acquire the desired knowledge. If only a few of such people are shown the way to one scientific truth by each of us we must have helped a little in dispelling the fog of fantasy in which the general public floats.

C. H. GALLAGHER, IV.

## BACTO FOR THE BEGINNER

**T**HE tyro, when first coming to death grips with bacteria, will undoubtedly be thoroughly bamboozled, depressed and disheartened, hence a few timely remarks at this stage will, I hope, prove an invaluable guide when confronting the bacterium in the laboratory.

The author recommends that this article be cut out, pasted on a piece of 3-ply, folded into a compact space (suitable for hip pocket) and treasured along with the ever present "pro forma."

Firstly then, we come to—

- (a) *Bacteria*.—These are funny, teeny weeny little doovers that you know are what they are, because that's what Mr. Bain said they were.
- (b) *Classification*.—Generally this is in a mess, but learn it, because, while having little practical application, it sounds impressive.
- (c) *The Microscope*.—These are entertaining pieces of mechanism that are very valuable if one desires to observe the bacteria on their own ground.

A Word on Microscopes.—

*Types of Microscopes*.—

- (1) *Direct Illumination*.—Theoretically everyone knows how to use this type.
- (2) *Dark Ground Illumination*.—Can only be used before sunrise and after sunset.
- (3) *Electron Microscope*.—No relation to the atom bomb, but is costly, hence is not used by this University. Due to the dangerous practice of maintaining the thermionic cathode at 60 K.W. negative with respect to earth, this is liable to produce the same harmful effects as a "prairie oyster" and must be used with caution.

The student will find that though he learns more and more about microscopes, his intelligent use of them becomes less and less. Thus a few hints on microscopy may not be amiss.

*Focussing*.

- (a) If, on looking down the eye-piece, intense blackness greets the eye, one of three things may have occurred.
  - (1) The objective is not in alignment with the barrel.
  - (2) The sub-stage diaphragm is closed.
  - (3) The light source has failed — in which case, go home.
- (b) If, on looking down the eye-piece, one registers a perfect, inverted image of the lecturer, or window-sash, one of two things may have gone wrong—
  - (1) The numerical aperture is less than half the wave-length between you and the "rat-house."
  - (2) The sub-stage condenser has been racked down too far, in which case it is useless and may be wrenched out and discarded.

*Observation*.—A point of interest here is the theory put forward by leading authorities claiming that it is advisable to keep at least one eye open when using the microscope, as bacteria are unpredictable things and may lash out without warning.

Having once focussed the microscope and presuming one looks through the right end of it, hours can be spent looking for "bugs" that in all probability aren't there anyway.

It is wise to know just what bacteria look like and thus be able to differentiate them from reflected light bulbs, specks of dirt, and air bubbles.

*Flaming the loop.* (or "fanning the trigger").

This is a sacred ritual devised by the powers of "the August Sign of the Bacillus," whereby everything shall be sterilised by red heat (i.e., all except the bacteria under investigation and one's partner).

Means of heat sterilisation other than Bunsens and blow torches are:—

- (1) *Autoclaves.*—Work and make the same noise as do pressure cookers and are handy for the preparation of broth, agar, stews, vegetables and surgical instruments (scalpels and syringes give 10 mins. extra cooking).
- (2) *Metal Spatulas, Flat and Soldering Irons.*—May be good in the field for preparing a "rare steak."

*Media.*—Very nutritious and caters for the taste of all organisms.

- (1) *Broth.*—Delicious, especially for invalids and chain-gang cocci.
- (2) *Agar Plates*—may be neat, or flavoured with blood. The two requirements here, are a knowledge of cookery and a good apnoeic period, viz., know what boiling water looks like and be able to hold your breath for five minutes while sowing the plate.

*Pasteur Pipettes.*—Now these really are fun. The general idea is to squelch up a section of glass tubing in a flame and then keep on pulling till about 3ft. of hair-like glass thread is formed. From this stage onwards half an hour can be spent in executing fancy designs, bubbles and love-knots.

*Staining.*—Similar to developing, and originated by persons with a strong aesthetic sense who got tired of looking at transparent organisms. If properly done, the bacteria obligingly take up the various

dyes and this provides great scope for the imagination and futuristic art.

**FIRST AID.**—

If, by any chance, the unwary student is attacked by a pathogenic bug, the following course may be adopted:—

- (1) It is useless to place the affected part in boiling water for ten minutes as most spores readily withstand this treatment.
- (2) Encourage bleeding by debridement.
- (3) In bad cases the member may be amputated.
- (4) Place the part in a sling.
- (5) Add a biniodide blister and pin-fire.
- (6) Forget about it and go to the pictures.

Well, having grasped all that, it might be just as well to finish by exploding several ill-founded myths, namely:—

U.S.S.R. workers have not succeeded in breeding all gram-negative bacteria.

Mice are not killed by drowning in the lysol jar.

Alcohol does not blush when exposed to a naked flame.

When using ether there is no need to place the bottle on the floor, as the vapour is still noisy in its descent.

Bacteriological warfare is absolutely ridiculous as there is no known bacterium capable of lugging a .303.

So, hoping that these few words are not in vain, I will conclude by reminding each and everyone of you that I am available for consultation any time between 9 a.m. and 5 p.m. Mondays to Sundays excluded.

Yours,

LOUIS EINSTEIN KOCH, B.U.L.L.

## ANOTHER FACULTY OF VETERINARY SCIENCE

AUSTRALIA has, at varying times, been blessed with three veterinary schools. These had the status of faculties in the universities of three of the eastern States and were situated at Melbourne, Sydney and Brisbane. The origin of the Melbourne School differed from that of the other two in that it was the successor of a private school. It gained its University status at about the time of the founding of the Sydney School. When the Melbourne School ceased to function as a teaching school somewhere about 1930, the full burden of providing veterinary education and graduates, for the whole of Australia, fell upon Sydney. This remained the position for

a number of years, until the founding of the youngest school, that of Queensland in the mid-thirties.

The Faculty of Veterinary Science at the University of Queensland was opened to students in 1936 about a quarter of a century after the opening of the Schools at Sydney and Melbourne. In the few years since then it has had quite a checkered career, twice having periods of advancement and once of recession. It owes its origin largely to the foresight of Professor Goddard, Professor of Biology, in the University. That the Senate decided to establish a faculty was due largely to his energy and advocacy.

The beginnings were humble. One professor and a few students formed the faculty. Professor Seddon was the first Dean and he controlled the destiny of the school until its temporary closure in 1942. Under his control the school grew in numbers, both of students and lecturers, till 1940. That year marked the peak of its pre-war development, there being some twenty-eight students seeking after knowledge. Another reason made it a notable year—the graduation of the first group of students. In all, five students graduated, including one of the fairer sex, the only woman to survive the rigours of veterinary education in Queensland. The school was soon, however, to run into troubled waters. Of these difficulties the chief was lack of students. As the depletion of the student body, by enlistments, was so heavy, the cessation of the faculty's activities was recommended and the school duly closed down in 1942.

After the war, a Department of Veterinary Science was opened. This provided instruction for the first three years, the student then coming to Sydney to complete the final two years of the course. In 1946, the first lecturer, Mr. Burns (Zootechny) was appointed. 1947 saw the appointment of the second, Mr. McDowell (Anatomy) and 1948, the third, Mr. King (Pathology). It was not till the end of 1949, when there were some fifty students in the first three years, that it was decided to raise the department to full faculty status. A Dean, Professor T. K. Ewer, was appointed and is to take up the appointment during 1950.

In the pre-war years the faculty was given a home of its own. This was a fine brick building complete

with the coat of arms emblazoned in stone above the main entrance. With the closure of the school, this building fell into alien hands. The first to occupy it was the American Army, who established there a pathological station, complete with morgue. After their departure the Agriculture Department installed themselves and have remained the occupants ever since. After the war, to compensate for the loss of this building, a start was made on a second Vet. school, but unfortunately, this time, it was a job for wood, fibro-cement and corrugated iron. After many months of construction the buildings were finally completed and are now in use.

The Queensland School has an advantage over its Sydney counterpart in having a more rural setting. The school adjoins an Animal Health Station of the Department of Agriculture, and research laboratories of the C.S.I.R.O. These close associations lead to many advantages for the student. He gains practice in carrying out routine husbandry practices on the experimental flocks and herds of the laboratories, is constantly in the presence of well-bred animals of all species, and has an opportunity of seeing the practical application of some of the knowledge he is acquiring.

In the pre-war years the emphasis of the teaching was placed more upon preventative medicine and animal husbandry than upon clinical aspects. As the new school is still in its period of formation, it is yet too early to tell which line it will now follow, but with a little encouragement, it will play an important part in the future of the profession.

P. J. MYLREA, IV.

### SYDNEY UNIVERSITY ANIMAL GENETICS SOCIETY

**O**FFICE Bearers: Elected at Annual General Meeting, 12th April, 1950.

*President:* Dr. G. F. Findlay.

*Vice-President:* Mr. Murphy (N.S.W. Dept. of Agriculture.)

*Hon. Secretary and Treasurer:* Mr. B. C. Eastick.

*Executives:* Messrs. M. Barry, N. Wallace, C. Gallagher, L. Symons, J. Barnes and R. Cuming.

Mr. J. Pollack (Science) has since been co-opted onto the Executive.

This year we have 50 financial members and an average attendance at lunch time lectures of 45 persons. During first and second terms we have heard lectures from:

Mr. J. Coleman—"Fat Lamb Production in Australia."

Dr. C. Dunlop—"Population Genetics" and viewed a film depicting by Phase Microscopy, sex cell Divisions.

A proposed meeting to be held before this article is printed is a symposium with speakers from the A.J.C. and leading Geneticists on "Coat Colour in Horses."

No Secretary's or Treasurer's report was available at the last Annual General Meeting owing to these officers having completed fourth year. To this end it has been moved and carried at a Society Meeting, "that the Annual General Meeting be held in third term" when office-bearers will be available to advise incoming officers. With this change it is hoped that the Society will function more efficiently than previously.

B. C. EASTICK, Hon. Sec. and Treas.

## RESEARCH REPORT

### ACKNOWLEDGMENT.

*We are indebted to Professor Carne, Professor Gunn and Professor Emmens for their ready co-operation in the preparation of this section. Without their help this report would not have been possible.*

*We would also like to thank the staff working on these topics for divulging their bosom secrets.*

### Department of Veterinary Science

#### I. FERTILITY IN SHEEP

**F**OR a large number of years, research has been in progress in the Department of Veterinary Science on fertility in sheep. It has been shown that seasonal variations in the amount and quality of semen in rams are caused by atmospheric temperatures and that seminal degeneration is brought about by deficiencies in diet. Deficiency of Vitamin A or Carotene in the diets of rams has been definitely established as one of the causes of seminal degeneration due to such deficiency. Recent work has shown that these factors are, however, not alone responsible for all seasonal fluctuations in ovine spermatogenesis, the nature of the additional causes being, as yet, imperfectly understood.

Investigations are in progress on the initiation of spermatogenesis in rams. Puberty has been found, under the circumstances under which the experimental animals were kept, to occur between 150 and 250 days of age and between 60 and 80 lbs. body weight.

### Department of Veterinary Pathology and Bacteriology

#### 1.—Contagious Pustular Dermatitis of Sheep. (Professor H. R. Carne and Miss N. Wickham).

Investigations of the virus of pustular dermatitis of sheep are being carried out with the main objective of endeavouring to produce a killed vaccine which can be used with perfect safety in clean flocks without the risk of setting up new centres of infection, which accompanies the use of the present method of vaccination with live virus. Attempts are being made to adapt this virus to grow in chick embryos. Should this be successful, it would immediately provide a ready means of obtaining large amounts of virus, which could then be used for the preparation of vaccine. A considerable series of observations have been made upon the various immunological aspects of this disease, including the duration of immunity after

#### II. BREEDING OF DAIRY CATTLE

Since it was known that the average butter fat production of cows in New South Wales is very low compared with that in New Zealand or Great Britain, and neither the general use of stud bulls nor the adoption of herd testing has succeeded in raising it, a survey of the existing conditions in North Coast dairy farms has been undertaken, and a report is in process of being made prior to the submission of recommendations aiming at the improvement of the industry.

#### III. PROJECTED RESEARCH

Projected Research includes investigations of muscle functions and lamenesses, of early fat lamb production, of methods of promoting high quality semen production at will combined with an investigation of the consequent histological changes in the testes, and of methods of treating infected wounds.

- the present method of vaccination with live virus.  
2.—Canine Encephalitis. (Mr. J. H. Whittem and Mr. J. D. Steel).

A detailed investigation has been in progress over the last three years designed to ascertain whether so-called canine distemper is a single disease entity produced by the classical canine distemper virus described by Laidlaw and Dunkin. It has already been shown that a second virus, i.e., that of fox encephalitis, exists in Australia, and considerable evidence has been collected to indicate that a third condition, known as "hard pad" disease, may be due to a distinct virus, possibly unrelated to the other two. It would seem on present evidence therefore that so-called canine distemper really includes a group of diseases whose clinical symptoms are so similar that there are no



satisfactory criteria at present available for their separation on clinical grounds alone. Investigations in progress involve cross immunity tests, detailed study of the general and histo-pathology of these affections, and the properties of the viruses concerned.

- 3.—Immunological Studies on *Corynebacterium ovis*. (Professor H. R. Carne and Miss N. Wickham).

*Corynebacterium ovis*, the cause of caseous lymphadenitis of sheep, is wide-spread in Australia. The present investigations are designed to determine whether the utilisation of newer methods of preparation of vaccines, including the use of adjuvants, are able to stimulate production of an effective immunity against exposure to natural infection.

- 4.—Studies on *Pasteurella multocida* with special reference to Antigenic Structure. (Mr. R. V. S. Bain).

Detailed study of the general biological properties of a wide range of strains of *Pasteurella* from domestic animals are under way, and particular attention is being focussed upon the study of the antigenic structure of these organisms. Such fundamental information is basic to any advance in the methods of active immunisation against organisms of this type.

- 5.—The Function of Eosinophile Leucocytes. (Professor H. R. Carne and Miss N. Butler).

The function of eosinophile leucocytes is still

an enigma in veterinary, as well as human pathology. Eosinophiles are a characteristic feature of many hyper-sensitive states. They are also commonly associated with parasitic infestation. The present investigations are directed towards methods of producing artificially a high level of eosinophiles in the blood of experimental animals, with the object of obtaining large local collections of eosinophiles which can then be submitted to biochemical and other studies.

- 6.—Study on an Heritable Epithelioma of Sheep. (Professor H. R. Carne).

A strain of fine wool sheep has been maintained in the laboratory for some time in order to study the incidence and development of an epithelioma of the wool bearing portions of the skin which has appeared in three generations of a well-known stud. Unless submitted to early surgical excision, these malignant growths prove fatal. The factors responsible for the local development of the growths are being studied.

- 7.—The Significance of *Proteus* sp. in Canine Enteritis. (Mr. S. J. Gilbert).

Strains of *Proteus* sp. have been recovered from a series of cases of canine enteritis. A study is being made of the incidence of this type of organism in normal dogs, and the immunological and biochemical properties of the strains involved are being studied with a view to determining whether they play an etiological role in the pathological conditions with which they are associated.

### Department of Veterinary Medicine

- 8.—Investigation of Hepatic Disease of Dietary Origin. (Mr. J. D. Steel and Mr. J. M. Keep).

Investigations are being made on experimental rabbits and sheep to determine whether it is possible to produce the various types of liver injury in these animals which have been described in rats as a result of certain dietary deficiencies. Recent investigations in England and America have shown that serious pathological changes in the liver may result from deficiencies of lipotropic and other substances, and the possibility of similar types of disease of the liver occurring under natural conditions in domestic animals is of particular im-

portance in leading to a better understanding of the various serious diseases of the liver which occur more particularly in sheep.

- 2.—Electrocardiography in Domestic Animals. (Mr. J. D. Steel).

The electrocardiograph has been successfully employed for the study of various affections of the heart in man. Present investigations are designed to determine the normal electrocardiograms in domestic animals and to study the deviations from the normal which occur in various types of heart disease in these species.

### McGarvie Smith Animal Husbandry Farm

- 1.—Study of the Economic Basis of Dairy Cow Feeding in Australia. (Mr. H. J. Geddes).

Mr. Geddes has been engaged for a number of years on a detailed study of the economics of dairy cow feeding. Important improvements in the technique of recording milk production are a

special feature of the work, which has been proceeding at the University Farm. A new type of flowmeter has been developed by Mr. V. Hemmens in association with Mr. Geddes and has now been installed for routine measurement of milk production.

- 2.—Rearing of Calves on Minimum Quantities of Milk. (Mr. H. J. Geddes and Mr. D. I. Lamond).

The great wastage of many thousands of dairy calves annually has suggested means of saving these animals in order to increase meat production. The present series of studies, which has been supported by grants from the Australian Meat Board and the Metropolitan Milk Board, has been designed to determine the minimum quantities of milk upon which calves may be raised successfully. It has been shown that quantities as low as 15 gallons are sufficient to enable successful calf-rearing to be carried on. Detailed studies have been made on methods of administration and important observations have been made upon the

factors necessary to satisfy the sucking urge of young calves, and the effect of such factors as the rate of drinking upon the nature of the curd formed in the stomach, the establishment of ruminal flora by means of transfers of cud from adult cows to calves, etc.

- 3.—Topping-off of Beef Cattle in North-Western New South Wales. (Mr. H. J. Geddes).

Experiments have been proceeding on a property in North Western New South Wales to determine whether it is economically sound to top-off beef cattle which have failed to reach full prime condition owing to the failure of natural pastures. The possibility of utilising grain sorghum as one type of concentrate for such purposes is being specially examined.

### Department of Veterinary Physiology

- 1.—The effect of oestrogen treatment in causing sterilisation of albino mice, and their capacity to regain fertility. A paper based on this work is now in press.—C. W. Emmens.

This work is in part related to the subterranean clover problem but was started without reference to it. Male mice have been treated with doses of oestradiol benzoate sufficient to cause sterility during a course of some six weeks of injections, and then allowed to recover. This recovery occurs within a few weeks and is apparently complete. Female mice similarly treated but for a period of only four weeks also recover apparently normal fertility even when they have been given many times the minimum dose necessary to sterilise them completely during treatment. This recovery may, however, be delayed for some eight or ten weeks. Since ewes previously on affected pastures apparently do not recover when placed on sound pastures, this indicates either a species difference or that the subterranean clover oestrogen does not necessarily act in quite the same way as oestradiol benzoate.

- 2.—The effect of pH, osmotic pressure, glucose and electrolyte content of diluents on the motility of human, bull, ram, and rabbit spermatozoa. A paper based on this work is in press.—C. W. Emmens and A. W. Blackshaw.

The various mammalian spermatozoa are very similar in their reactions to modifications in the environment, although they have different optimal pHs for full motility. It is only in a medium of pH 9-10 and usually under hypertonic conditions that the sperm are affected in motility by the rela-

tive content of glucose and sodium chloride in diluents. These findings contrast with reports from the U.S.S.R.

- 3.—The capacity of spermatozoa of various species to withstand freezing under different experimental conditions.—C. W. Emmens and A. W. Blackshaw.

The work of Dr. A. S. Parkes and his colleagues in Britain has already shown first that human and now that bull and goat spermatozoa can be successfully frozen and revived under suitable experimental conditions. Our own work, while confirming these results, has also shown that similar conditions are not very successful with ram or rabbit spermatozoa. However, ram and bull spermatozoa have been successfully frozen under rather different conditions, and some degree of success achieved with the rabbit.

Success in the rabbit is, of course, of first importance for experimental work.

- 4.—Studies on the metabolism of spermatozoa of various species under various experimental conditions and temperatures.—C. W. Emmens and I. G. White.

These studies are only just commencing and have had to await the completion and testing of the Refrigerated Warburg Bath referred to under 12 below. It is intended to run biochemical investigations which will, in part, be in conjunction with the more physiological work referred to above, but other independent investigations are also planned.

- 5.—The intra-vaginal assay of oestrogens with particular reference to the development of sensitive tests

for the study of oestrogen production and excretion in ruminants. A paper is in press.—J. D. Biggers.

It has been felt important to extend our knowledge of the intra-vaginal assay of oestrogens for two main reasons. Firstly, the technique may be of considerable importance in the study of reproductive physiology of ruminants and the related subterranean clover problem. Secondly, the results of intra-vaginal assays, which indicate that under the conditions of local application the potency of some of the most important oestrogens is perhaps identical, lead to the possibility of most interesting developments in our understanding of the action of this type of hormone.

6.—Studies on the interaction between oestrogens and proteins and the events accompanying the stimulation of the female genital tract by oestrogenic agents.—J. D. Biggers.

These studies are an extension of the work on intra-vaginal assays and will include comparisons of the events which follow the local administration of oestrogens with those which follow their administration by subcutaneous injection. There is reason to believe that the process of vaginal cornification, for instance, must differ in the two cases. It is also hoped that these studies may help to make the intra-vaginal assay method more precise and more suitable as a laboratory tool.

7.—Studies on the oestrogen content of Dwalganup early-subterranean clover.—J. D. Biggers and J. Cymerman (Dept. of Organic Chemistry).

A lot of work has already been done, particularly in Western Australia and in the Courtauld Institute of Biochemistry, London, on the nature of the oestrogen presumed to be responsible for the hormone-like actions of subterranean clover.

We are undertaking collaborative research in conjunction with the Western Australian workers in an endeavour to throw further light on this problem.

8.—The grafting of segments of uteri to the anterior chamber of the eye in sheep, the placing of the ovaries into the vaginal cavity and studies of the reproductive cycle made possible in such preparations.

—J. D. Biggers, G. Alexander and L. Larsen (Dept. of Veterinary Science).

In some laboratory animals and in monkeys, it has been possible to follow the course of events in uterine and other grafts placed in the anterior chamber of the eye. This technique has not previously been applied to the sheep, in which it should be of considerable interest in enabling us to follow the reproductive cycle. There is no

other sure way of determining even the various stages of this cycle in the normal intact ewe. If we are successful in preparing animals in which both the uterine and the ovarian cycles can be followed with minimal disturbance, it should then not be too difficult to link up such factors as oestrogen and progesterone production with the various phases of the cycle.

9.—A comparison of the relative statistical effectiveness of the probit and angular transformations and the use of crude percentage responses in the examination of quantal data. A paper is in preparation.—J. D. Biggers.

In work of the type at present being undertaken by Mr. Biggers, a considerable amount of rather involved statistics has to be done. This comparison of various ways of the statistical handling of data has been made because the angular transformation in particular offers an easier computational method and appears to have at least the same accuracy as the conventional probit method.

10.—An attempted extension of the intra-uterine test of Hooker and Forbes for minute amounts of progesterone to an *in vitro* technique.—G. Alexander.

The Hooker and Forbes test for progesterone is a very sensitive test in which small amounts of the hormone are placed in the lumen of the mouse uterus and subsequent histological studies are made. This is a very time-consuming and laborious method and following a suggestion of Mr. Whitem, who undertook a few preliminary tests himself, we are investigating the possibility of developing an *in vitro* method. It is, as yet, too early to forecast any results.

11.—Studies on the adaptation syndrome in sheep and its possible relation to pregnancy toxæmia. A paper is in press.—I. G. White.

The similarity between the adaptation syndrome in sheep and pregnancy toxæmia was also remarked by Mr. Whitem. His arguments seemed so convincing that we have undertaken a study of some of the events following continued noxious treatment of the ewe to see whether a typical adaptation syndrome could be produced and also whether it looks like pregnancy toxæmia. The syndrome could certainly be elicited but to date it seems doubtful whether it is very directly related to pregnancy toxæmia despite the fact that they share symptoms in common.

12.—The construction and performance of a refrigerated Warburg Bath.—I. G. White.

This has been a purely technical problem which has been satisfactorily solved with the assistance of Andrew Thom Ltd. (who constructed the

original bath) and the Refrigeration Installation Service Company. This bath is now capable of maintaining any temperature between about minus 7 degrees Centigrade and plus 45 degrees Centigrade to within a twentieth of a degree or less.

13.—Some biochemical studies on pairs of identical and fraternal twin cattle. A paper is in preparation.—I. G. White.

Previous biochemical studies and indeed, other studies of identical twins, have stressed the big differences between pairs of twins as against the relatively small differences within pairs. This may be a very misleading comparison because twin pairs are normally collected from widely scattered regions and may be of different breeds and strains. Mr. White has compared the behaviour of identical as against fraternal twins (non-identical twins of the same sex). He has studied such factors as blood cell counts, blood chlorides, blood sugar and red cell fragility. Although only eight pairs of twins have been available for this work, the

results are most interesting in that it has not been possible to demonstrate any greater average differences within the fraternal pairs as compared with the identical pairs. There have been the usual big differences between pairs but not within them. These findings make it seem very likely that, for this particular type of work, there is little or no advantage in using identical as against fraternal twin pairs.

14.—A survey of methods of assaying hormones. Book in press, edited by and contributed to by C. W. Emmens.

This book is shortly to be published by the Academic Press, New York, and will comprise the most comprehensive and authoritative account available of methods of hormone assay. It is a collaborative volume written by about fifteen different specialists in their particular fields. It is of interest that, since the planning of this volume, three of the authors have migrated to Australia—Professor Waring to Perth, Professor Thorp and myself to Sydney.

#### IF

If you can keep your head and neck when all about you  
Are losing theirs and blaming it on you;  
If you can learn your Bradley when all men learn the body,  
But make allowance for their secret learning too;  
If you can drink and not make drink your master,  
If you can swot and not make swot your aim;  
If you can meet with Lecturers and Professors,  
And treat those two imposters just the same;  
If you can bear to hear the truth you've spoken  
Twisted by knaves to make you "post" repent  
When what you know to be a hunk of fascia  
Is said to be a rounded ligament;

If you can cut up bods and keep your virtue,  
Or talk with Profs., nor lose the common touch;  
If neither Phys. Ed. Chooks nor women Vets. can tempt you,  
If all Girls count with you, but none too much;  
If you can learn about the King's Merinos  
When you know that Corriedales stand supreme,  
Or listen to the whisper of still Aminos,  
And suppress with fortitude the want to scream;  
If you can fill the examination paper  
With three hours' worth of goodly waffle spun,  
Yours is the Vet. School and everything that's in it,  
And, which is more—you'll be a B. Vet. Science my Son!

KIWI

## QUARANTINE OF IMPORTED CATTLE

**T**HIS article revolves around an incident which took place in South Australia on 20th February, 1950. The title may be a little misleading in that the particular incident relates to one animal only—a cow. The animal Genuine Rochette 80th was a 4-year old Jersey consigned from Jersey Island to a stud in South Australia. I made the related trip with Mr. W. S. Smith, B.V.Sc., a Department of Agriculture Veterinary Officer, the animal being taken from the vessel "Clan Buchanan" to the Torrens Island Quarantine Station (human and animal), which is situated in the Port Adelaide River.

The procedure for entry into Australia is as follows. On arrival at Fremantle the ship is met by a Veterinary Officer of the Western Australian Department of Agriculture. A thorough inspection of all animals on board is made. In the case of cattle, note is taken of any surface lesion, visible pathological or clinical change and presence or otherwise of ectoparasites. Of the latter, detection of the presence or otherwise of Warble Fly (*Hypoderma bovis*) receives particular attention. This parasite if present, is generally detected in small swellings (this being the larval stage) in the subcutaneous tissue along the back region. At this Port all cattle are given a wash with a Derris Root preparation. Any larvae detected are expressed from the swelling and destroyed.

Following the inspection the Veterinary Officer notifies, by telegram, the results of his inspection to the Department of Agriculture in the State to which the animal is consigned. The telegram in this instance stated—"Animal clean. Other cattle on the vessel showed signs of Warble Fly."

An interesting note at this stage is that in Fremantle, as in every Australian port, straw, manure or

excess foodstuffs collected from or for a consignment of animals, may not be discarded until the vessel is on the high seas. However, limited quantities of food may be conveyed to a quarantine station.

On arrival at the disembarking port the consignment is met by a State Veterinary Officer, Administration Clerk of the Department, and a representative of the importer or his agents. The Veterinarian makes a thorough examination of the animal, noting any visible or palpable lesions, and pays particular attention to any lesion reported from Fremantle. Custody of the animal from the Captain or First Mate of the vessel is received by signature to appropriately prepared papers held by the Administration Clerk.

The animal is now transferred to a pontoon or launch and conveyed to the Quarantine Station where a further inspection is made. A tuberculin injection is given, in this case to one of the caudal folds, and twenty-four hours later a Johnin injection is given, in this case to the other caudal fold.

These two tests are recorded 96 hours after the first injection (that is the tuberculin injection). The animal is registered on the Quarantine Station by the Clerk, while the inspection is in progress.

The animal remains in quarantine for 30 days at the end of which a further examination is made. Depending on this and other inspections the animal is admitted to the mainland or retained for appropriate treatment.

I had returned from South Australia before this animal's 30 day period was completed, but have since learnt that an imported animal had taken its place in the importer's stud and believe it was the animal of which I have written.

—B.C.E., IV.

### OUTLOOKS

"An idle life I live in this place, as the world counts it; but then I have the satisfaction of differing from the world as to the meaning of idleness. Here I can live as I please, here I can throw the reins on the neck of my whim."

BARRETT—"From a Bush Hut."

"Stopped in the straight when the race was his own!  
Look at him cutting it—cur to the bone!  
'Ask, ere the youngster be rated and chidden,  
What did he carry and how was he ridden?  
Maybe they used him too much at the start;  
Maybe Fate's weight-cloths are breaking his heart!'"

KIPLING—"Life's Handicap."

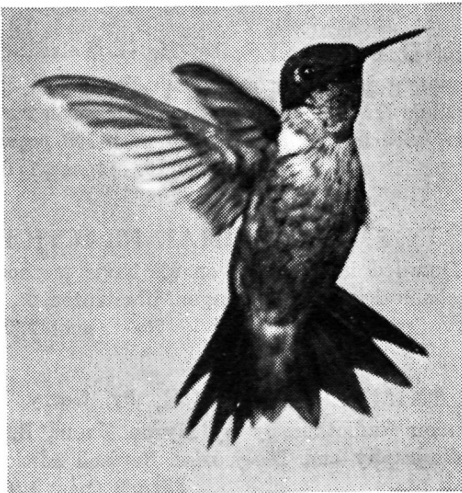
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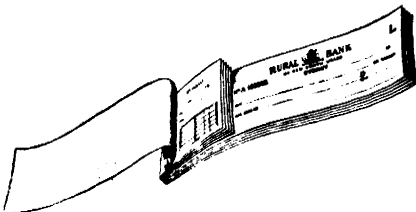
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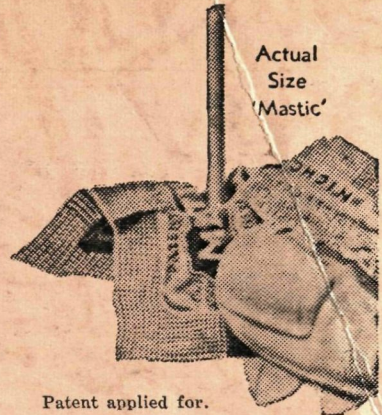


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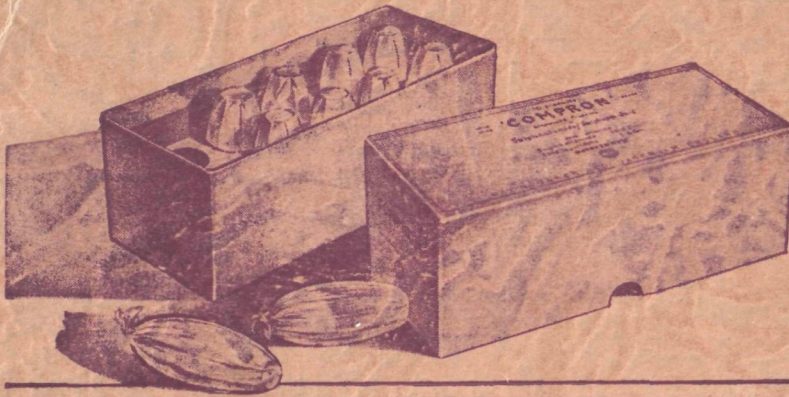
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