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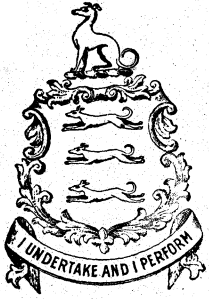


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**The Journal of the Sydney University
Veterinary Society**

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CENTAUR
1947

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Number Nine



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ACKNOWLEDGMENTS

To all graduates who aided us in the production of Centaur we offer our sincere thanks. At the same time we must apologise for the heavy demands we made upon their time and their good temper—that they gave freely of the former was particularly generous; that they retained the latter borders on the miraculous.

In particular we should like to thank:—The Dean for certain information on plans executed and projected, and his moral support at all times; Professor Gunn for helpful criticisms and suggestions; Mr. Geddes, who not only contributed an article, but acted so ably as Final Year portrait photographer and provided the frontispiece; Dr. Belschner, who checked the list of Stock Inspectors and District Veterinary Officers, and provided some notes on the career of Mr. Max Henry; and Mr. Henry himself who kindly contributed despite the inopportune nature of our request for an article.

The select band of undergraduate contributors, both successful and unsuccessful, compensated in enthusiasm for their deficiency in numbers. We are very grateful to them, and apologise for any maltreatment they may have received at our hands.

Finally, in all sincerity, despite anything stated or implied to the contrary, we thank the Society for the privilege of editing Centaur.

OFFICE-BEARERS FOR THE YEAR 1947

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S.R.C. Representative: Mr. R. J. Doyle.

Year Representatives: 1st Year, Mr. A. Cordukes; 2nd Year, Mr. B. Saunders.

3rd Year, Mr. R. J. Dun; 4th Year, Mr. A. G. Green; 5th Year, ———.

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EDITORIAL

The authors of "1066 and All That," introduced the Compulsory Preface into English literature. Surely the scheme is applicable to editorials, for, while many skip prefaces, we venture to say most skip editorials. We ourselves can remember on occasions reading the former, in fact, in textbooks we rarely get beyond them, but until very recently our editorial reading was limited to the point of non-existence.

Our case for a compulsory Editorial is now apparent. We are novice editorial-writers; you are probably novice editorial-readers and have here an opportunity to enter these select ranks—or, if already a veteran, an opportunity for well merited criticism of our technique.

Possibly, for our mutual benefit, a part of this editorial should be devoted to editorials. An editorial, we gather from extensive research over the last few days, is an attempt to influence public opinion without resource to reasoned argument. The technique, we believe, is to take a fully reasoned discussion of the point at issue, abstract the problem and conclusion, change if necessary the latter, and fill the intervening space with rhetoric, carefully filtered to remove any stray facts or evidence. We would doubtless learn this admirable routine in time, but the heretical doctrine of scientific method retains a precarious foothold among our beliefs, and we cannot pretend our editorial is in the classical style—although its theme, "Centaur, Its Scope and Purpose," would lend itself to such treatment.

A student society journal essentially consists of two parts. To use a well-known classification we may call them Faculty Records and Not Faculty Records (or the Rest). The relation of these two sections is important and somewhat involved. The Records are indispensable, but the Rest is the important part of the publication.

While any student government, or any student interest in past achievement remains, the Records must be included for reference and for their sentimental value. But it is the Rest, the literary, scientific and pictorial matter, in short, the "contributions," which distinguishes a Faculty Journal from a Secretary's Annual Report, slightly expanded, and made available in permanent form.

It is well to consider why we should not make available this expanded Secretary's report, with a manilla folder and a paper clip, and abandon altogether the idea of a journal.

"Centaur" is the journal of the Sydney University Veterinary Society. As such its functions are, to provide a medium for literary, scientific, or artistic expression for members; to provide members with a publication of educational, literary, artistic and amusement value; to present the Faculty and Society to those outside the University and to represent the Society amongst the journals of similar bodies within the University.

The Veterinary student, necessarily specialising along scientific and technical lines, and with a minimum of leisure, tends to abandon or leave undiscovered any ability not directly referable to examination success. So, even more than most technical students, he is in danger of graduating as a good technician but little else; a man who is limited in his range of leisure thought, occupations, and enjoyments. "Centaur" provides a medium for the development or discovery of talent in the "gentle arts." Further, those especially who doubt the value of the humanities, should remember the training in scientific thinking and logical expression that the preparation of a scientific article for "Centaur" would give.

The reader's angle is equally important, and in fact determines to a considerable extent the composition of the journal. The journal is neither a bound volume of lecture notes, nor is it an annual supplement to the A.V.J.

On the literary side it should contain material of intrinsic merit, irrespective of subject matter. A balance, naturally, should be struck between humorous and serious contributions.

Scientific contributions have a definite place in the journal. But their subject matter, while veterinary, should be fresh to most of the students, or should suggest new approaches or aspects. They should not be attempts at full scale research or technical articles, more at home in the columns of the

A.V.J., and, above all, they should not be mere rehashes of matter covered in lectures. The accent must be on interest, and the stimulation of interesting new ideas.

The publicity value of "Centaur" is fairly obvious. A good Faculty journal can do much for the prestige of a School, and thus ultimately for its graduates. Within the University the same principle applies, for most faculty societies produce a journal of some kind, and comparisons are inevitably drawn.

The ideal faculty society journal, then, records the activities of the society in that year. It provides a medium for latent and developing talent among contributors. It interests, educates and amuses its readers. It is good publicity for the Faculty and Society.

"Centaur," 1947, is far from perfect. The editors know only too well their own limitations. An improved "Centaur" would require better editors and greater undergraduate co-operation. That the former exist we have no doubt. If the latter can be rallied the outlook will indeed be bright.



List of Past Presidents

1912	PROFESSOR J. D. STEWART.
1913	DR. S. DODD.
1914	PROFESSOR J. D. STEWART.
1918	PROFESSOR J. D. STEWART.
1919	DR. S. DODD.
1920	I. CLUNIES ROSS.
1921	H. G. BELSHNER.
1922	H. R. CARNE.
1923	A. L. ROSE.
1924	W. A. CARR FRASER.
1925	E. N. SANKU.
1926	H. WHITE.
1927	W. WEBSTER.
1928	R. O. C. KING
1929	W. J. B. MURPHY.
1930	S. P. HEBDEN.
1931	K. S. F. BRAY.
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1936	H. E. B. SHAW.
1937	T. K. EWER.
1938	T. J. CUNNINGHAM.
1939	H. G. SUNDSTROM.
1940	D. S. WISHART.
1941	P. G. SCHINKEL.
1942	R. C. TAYLOR.
1943	J. D. ODBERT.
1944	C. J. IRVINE.
1945	R. D. HARTWELL.
1946	W. J. WILKIE.

THE NEW PROFESSORS



PROFESSOR CARNE.

Events of outstanding importance this year have been the creation of a second Chair in the Faculty and the appointment of the two new Professors.

The creation of the new Chair was made possible by a generous bequest from the late Mr. Hugh Hughes of Eureka Station, Broken Hill, N.S.W.

This step must rank in significance with the establishment of the School, the purchase of the University Farm, and the extension of the course to five years, as milestones in the history of the Sydney University Veterinary School, and, for that matter, of Australasian Veterinary Education. We are fortunate that two such able men are to follow in the footsteps of Professor Stewart and Professor Clunies Ross.

On the 7th May, 1947, it was announced that Dr. H. R. Carne had been appointed first occupant of the Hughes Chair of the Veterinary Pathology and Bacteriology, and that Dr. R. M. C. Gunn would succeed Dr. I. Clunies Ross as Professor of Veterinary Science.

Dr. Carne has been closely associated with the Sydney School throughout most of his academic

career. He graduated B.V.Sc with First Class Honours and the University Medal in 1923, after an undergraduate career characterised by active participation in all student activities. He was (in 1922) President of the S.U.V.S. and was a member of the first Eight the Faculty put on the river.

Dr. Carne's work in the research field is deservedly widely known. Following his term of office (1924-26) as Research Officer at the Government Veterinary Research Station, Glenfield, he was appointed Walter and Eliza Hall Veterinary Research Fellow and worked at the Pasteur Institute and Laboratoire Nationale de Recherches at Alfort. After his return to Australia he played an important part in the establishment of the McMaster Animal Health Laboratory, and supervised work there on bacterial infections of sheep. It was in this field that he submitted the thesis on "Corynebacterium Ovis," which gained him the D.V.Sc. degree in 1933. A further honour was the Rockefeller Travelling Scholarship, enabling him to spend a year at the Lister Institute of Preventive Medicine in London. Although increasingly burdened with other work in recent years, Dr. Carne has maintained a very active interest and enthusiasm in research work.

Possibly not so well known to students has been Dr. Carne's valuable service with professional and scientific bodies. He has been at various times State Editor of the Australian Veterinary Journal, Hon. Treasurer of the Australian Veterinary Association, and is at present President of that body; and in 1941 was appointed Secretary of the Australian National Research Council.

It was fitting that during 1944-45, Dr. Carne was convener of the A.V.A. Standing Committee on Education; for despite his manifold achievements in other directions, he has been very closely associated with Veterinary Education.

Following graduation, he was, for a year, on the Veterinary School Staff, as assistant to the lecturer in Surgery, demonstrator in Anatomy and first lecturer in Veterinary Parasitology. In 1928 he succeeded the late Dr. Dodd as lecturer in Veterinary Pathology and Bacteriology. Finally, in August, 1946, he followed Dr. I. Clunies Ross as Dean of the Faculty.

Students know well Dr. Carne's hard-working enthusiasm in all aspects of his work. Despite the ever-increasing demands of that work, they appreciate his friendly interest in them and their affairs.

Dr. R. M. C. Gunn is recognised by graduate and undergraduates alike as a fitting choice for the position of Professor of Veterinary Science.

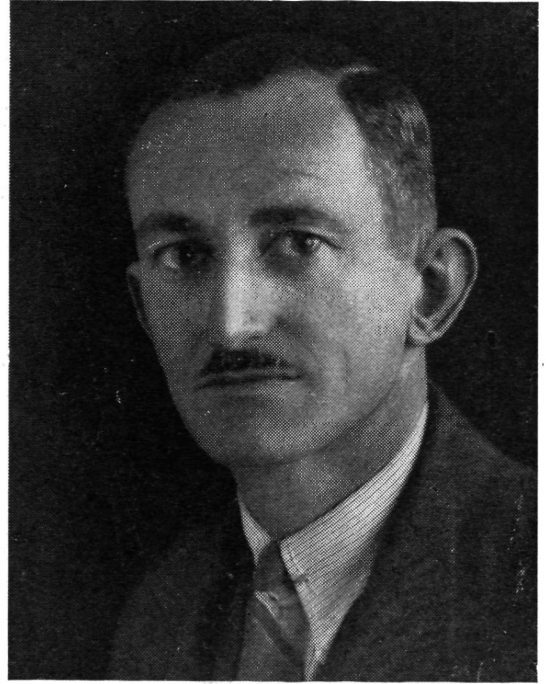
Dr. Gunn has had a brilliant academic career. In 1915 he graduated from this University B.Sc. Agr. with First Class Honours. Following his four and a half years' service with the A.I.F. in France, he studied at the Royal (Dick) Veterinary College, and at the University, Edinburgh. There he gained, in 1921, the B.Sc. degree and the M.R.C.V.S. diploma, together with the Medal for Veterinary Surgery of the Highland and Agricultural Society of Scotland. Before returning to Australia he attended post-graduate courses in Stockholm and Copenhagen. In 1929 he was admitted *ad eundem gradum* to the B.V.Sc degree by the University of Sydney, and in 1935 gained the D.V.Sc. degree on his thesis, "Fertility in Sheep."

Research on this subject has made Dr. Gunn's name known among primary producers in this country, and has gained for him an international reputation. The work has been of the greatest practical value to the Sheep Industry, and the associated development of technique in semen collection gave impetus to the application of artificial insemination in stock in this country. Other, less well-known, research undertaken by Dr. Gunn included successful experiments in horn grafting in horses.

Dr. Gunn has been very active in public life. He has held at various times the positions, among others, of Honorary Treasurer and President of the A.V.A. (the latter for two years); Vice-President and later President of the Medical Science Club; Chairman of the National Emergency Services (Veterinary) Committee and of the Scientific Manpower (Veterinary) Advisory Committee; and President (since 1942) of the Board of Veterinary Surgeons of N.S.W. He was for many years O.C. of the 2nd C.M.V.S. and later D.A.D.V.S. of the 1st Division A.M.F. He has been awarded the E.D.

To present and past students of this School, Dr. Gunn should need no introduction. Since 1922 he has been continuously on the Staff. In that year he became Lecturer in Veterinary Anatomy, Surgery, and Obstetrics, and was in charge of the Hospital and Clinic. Dr. Gunn has been Acting Professor of Veterinary Science on a number of occasions, totalling about five years, and for two years was Dean of the Faculty.

Successive generations of students have found Dr. Gunn a very competent teacher, and a sympathetic and helpful adviser.

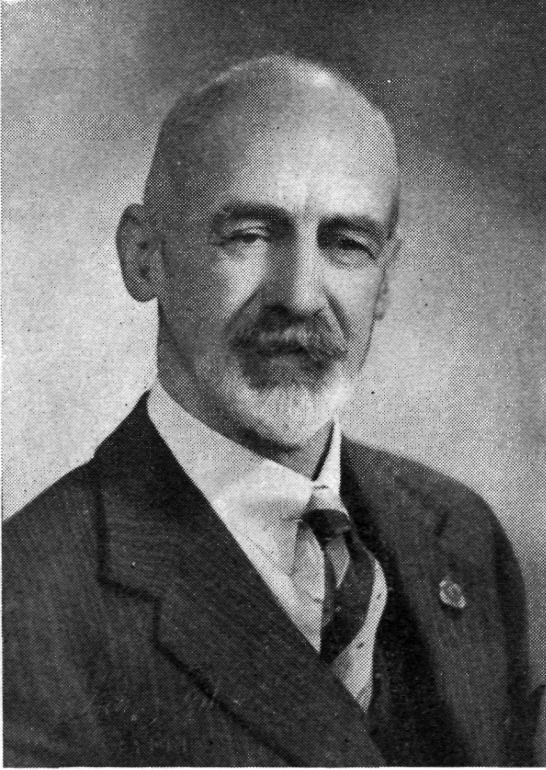


PROFESSOR GUNN.

The student body offers the two Professors congratulations and best wishes, and pledges its support in the difficult tasks that lie ahead. That these tasks will be difficult there is no doubt. Swollen numbers have created acute problems. As recorded elsewhere an enormous amount has already been done by the Faculty, but many of these problems still await solution. It seems likely that numbers will continue to grow, for the number of graduates in the next few years will be sufficient to emphasise to every Government and to the people of Australia as a whole the value of a well-trained body of veterinarians.

Simultaneous expansion in the syllabus brings its own problems, and these, too, are urgent. Even now it might be argued that the course is overcrowded, and the widening scope of Veterinary Science gives little hope for respite.

The creation of the second Chair indicates a recognition of the growing importance of Veterinary Science. It is also, in itself, a step towards the solution of the problems in the necessarily expanding field of Veterinary Education; and we can look forward to the time when the heads of every major Department in the Veterinary School have professorial status.



MR. MAX HENRY.

A very firm friend of the School of Veterinary Science retired from the N.S.W. Public Service when Mr. Max Henry relinquished his position as Chief of the Division of Animal Industry of the Department of Agriculture of N.S.W. Distinguished as he is in so many fields, any summary of his career must be disastrously incomplete. Mr. Henry for 40 years has served well the stockowners of N.S.W. and Australia as a whole, the Profession and the Sydney Veterinary School; while his conspicuous military service has won him high distinction.

As Chief Veterinary Officer and later Chief of the Division of Animal Industry since 1939, he has built up the largest, best organised and most efficient State Veterinary Service in Australia. That this Veterinary Service has such a high reputation is a tribute to Mr. Henry's qualities as an organiser and a leader. Never sparing himself his energy seemed infectious, and he had the happy ability to get the very best out of his staff. The confidence he placed in his officers was amply repaid by the atmosphere of mutual confidence within the Division.

It was in character that Mr. Henry should be particularly active within the Profession. Australian Veterinarians owe a tremendous debt of gratitude to him as one of the founders of the A.V.A. and A.V.J. He served as first Honorary Secretary of the A.V.A.; first Editor of the A.V.J. and had the unique distinction of being President of the A.V.A. on three occasions. Among many other public appointments may be mentioned those of President of the Veterinary Surgeons' Board of N.S.W. and Chairman of the Stock Medicines Board.

Despite his many commitments elsewhere, Mr. Max Henry's interest in the Sydney Veterinary School has never waned. After gaining his M.R.C.V.S. diploma at the Royal Veterinary College, London, he returned to Australia, and in 1911 was admitted to the B.V.Sc. degree of the Sydney University for a thesis on "Mastitis in Dairy Cattle." Thus he was one of the earliest graduates of this School. This early association he maintained as a part-time lecturer until 1941, and so, throughout most of its existence, he was a member of the Faculty of Veterinary Science. His wise counsel and encouragement was valuable indeed, especially in the dark days of 1924-30 when lack of numbers and outside support threatened the School's existence. When better times justified his faith, and planning for development was possible, he took a leading part in the reorganisation of the syllabus to comprise a total of five years with a greater relative emphasis on Animal Husbandry. He demonstrated in a practical way his confidence in the training provided by the Veterinary School. He absorbed graduates into his staff and was active in the provision of cadetships to ensure a continual supply of Veterinary Graduates for New South Wales. Through his belief that the B.V.Sc. is proof of wide capabilities amongst animals he has considerably enlarged the possible fields of activity of graduate veterinarians both inside and outside the Department of Agriculture.

It is fitting that Mr. Max Henry, first Honorary Secretary of the A.V.A., should have now accepted the newly created position of permanent secretary. Students, in common with the Profession, look forward to seeing more of this truly great man.

MR. W. L. HINDMARSH.

Mr. Max Henry's successor in the position of Chief, Division of Animal Industry, is Mr. W. L. Hindmarsh. It is gratifying that such an able man should have been chosen.

Mr. Hindmarsh's wide experience in research and administration in both field and laboratory, together with his high academic qualifications, give him a broad outlook on problems in animal production.

He graduated B.V.Sc. at Sydney in 1914. On graduation he was appointed first Walter and Eliza Hall Veterinary Research Fellow. He enlisted in the A.I.F. and served as a Regimental Veterinary Officer. After the war he attended the Liverpool University Veterinary College. Here he obtained his M.R.C.V.S. Diploma and Diploma of Veterinary Hygiene.

On his return to Australia he was attached to the Department of Agriculture's headquarters veterinary staff, and later became district veterinary officer at Armidale. In 1928 he was appointed to Glenfield Veterinary Research Station, and succeeded Dr. Seddon, as Director of Veterinary Research. Work carried out at Glenfield under his direction included research into blowfly, sheep nutrition, brucellosis of cattle and pigs, and toxæmic jaundice of sheep. He was also very active in the establishment of the Artificial Insemination Centre at Glenfield.

For a considerable period Mr. Hindmarsh was Hon. Secretary, and later President, of the A.V.A. He has served on the A.V.A. Council on a number of occasions.

Mr. Hindmarsh is no stranger to the Veterinary School. As the first Department Veterinary Trainee graduate from Sydney, and later as an examiner and lecturer, he has maintained a close association with this Faculty.

The student body congratulates Mr. Hindmarsh, and wishes him every success in his new position.

SOME PHASES OF DISEASE CONTROL IN N.S.W. DURING THE PAST FORTY YEARS

By MAX HENRY, D.S.O., B.V.Sc., M.R.C.V.S.

There can be few occupations more engrossing than that of laying down a plan of campaign against a disease affecting livestock and putting that plan into operation. It is equally interesting to take an existing control situation and to build on that as each new development in knowledge appears.

In these notes the term "disease" will be interpreted in accordance with the meaning allotted to it in the stock diseases act of N.S.W. as including any pest or parasite affecting stock.

During the period under review the most persistent condition which the Veterinary Services of the Department of Agriculture had to handle was the presence of cattle tick (*Boophilus spp.*) in the north-eastern corner of the State, and the most spectacular problem was the outbreak of swine fever in 1927-28 and 1942-43. Next in importance and interest might be cited the control of Contagious Bovine Pleuropneumonia and Anthrax in all susceptible species. So important were these four diseases considered that no relaxation in control or variation in procedure was permitted during the war years of 1940-45. They are further of considerable interest because the methods of control adopted are quite distinct in each case. The only common aspect is that quarantine of land and stock is involved in controlling all four diseases. Even then the method of using the principle of quarantine varies very greatly. In each case also the methods adopted in N.S.W. are by no means those adopted in many other countries. These differences in action are dictated by the methods of animal husbandry in force here and the disease situation as it existed when control was first undertaken. To have followed blindly the lead of any other country would have displayed a lack of imagination which might well be described as criminal. These variations will be referred to as the diseases themselves are dealt with.

Cattle tick first reached the N.S.W. border at Tweed Heads, and an attempt was made to check its onward march there, which very nearly succeeded. Unfortunately the tick broke through at that point, though the much derided double fence along the border combined with constant patrol proved remarkably successful elsewhere and fully justified the confidence of the officials responsible for its construction. At the time of the invasion by tick, N.S.W. had one remarkable piece of good fortune. The tick, although pathogenic in Queensland right to the border, was not so in this State. In all probability it was introduced on horses and thus lost its pathogenic character. This one fact has led to a complete differentiation in action as between N.S.W. and Queensland and a difference in influence as between N.S.W. and U.S.A. In N.S.W., the fact that an animal in tick infested country is known to be or to have been infected with one or other of the organisms causing tick fever is sufficient to make the authorities insist on the slaughter of the animal or its immediate removal to Queensland. This action is taken to prevent it becoming a "carrier" and a constant danger. But in Queensland

the fact that a bovine in tick infested country is not infected with these organisms renders it so highly susceptible that its death is almost certain. Therefore N.S.W. endeavours completely to eradicate the tick, whereas Queensland so far has only tried to keep tick population at a comparatively low level. In the U.S.A. tick eradication was greatly helped because tick fever was so rampant and tick infestation so heavy that the stockowner was readily convinced that he would rapidly gain in an economic sense by tick eradication. In many parts of the infested areas of N.S.W. infestation was extremely light and tick fever unknown. Consequently it was difficult to persuade the farmer that tick eradication was of any benefit. The methods adopted here have comprised strict quarantine control of all cattle and horse movements (later also extended to sheep), fencing in of infested areas, the duplication of fences and the erection of buffer strips along the fences and the spraying and dipping of infested stock. By the term "infested stock" is implied not only the stock on which ticks are found, but every head of susceptible species on the farm, or which might have contracted infection by passing through the farm or along the road on which infested stock might have already passed. Much controversy arose at times over the respective merits of spraying and dipping. There is no question that in the hands of a competent man the spraying of a few animals can be as effective as dipping. The operation is wasteful of time and material, wearisome to the operator and unpleasant. If large numbers of stock are to be handled the human factor comes largely into the picture. Dipping as a routine procedure has few drawbacks. Certainly time is occupied in droving the cattle to the dip, but once there the procedure can be speedily and safely carried out. Special attention must be paid to the head. Occasionally accidents happen and a beast is lost. These cases are stressed unduly, but the percentage of accidents in properly controlled dips is very low indeed. Great importance is attached in New South Wales to the control of dip strength, and for this purpose a monthly routine analysis is made of every dip. Considerable difficulty was encountered in preventing oxidation, particularly of little used dips, but the analyst has overcome this problem by the use of molasses. The work falls into two sections—eradication and control. But control is simply a temporary process leading to eradication. In the areas selected for eradication, a programme of 15 months' consecutive treatment by dipping every 14 days is laid down.

In the early years of eradication the programme covered only ten months, and though some of the campaigns on this basis were successful, others were not; it appeared that the margin of safety was insufficient. Rough country which cannot be readily mustered is leased from the holders, and all stock removed from it for the duration of the campaign. One large area of rough country comprising 200,000 acres was completely cleaned on this principle by a two-year spell.

Efforts are frequently made to induce the authorities to accept a "clean" inspection in lieu of dipping. This was not allowed. The larval tick is very small—no inspection would guarantee freedom from tick. Inspection is of real value when ticks are found. Repeated inspection of entire herds extending over 12 months or more are also of value, but cannot replace dipping.

Closely associated with tick control has been the protection given by the border control which, varying in intensity according to local needs, stretches from the sea to the South Australian border. The border staff is also interested in the prevention of the introduction of Bovine Pleuro-pneumonia, though it is well recognised that a negative visual inspection is of little value. Pleuro-pneumonia at the present time is endemic in the Northern Territory and Queensland. In New South Wales the cattle bred in the State are practically free, though a few occasionally become infected through contact with carriers introduced from Queensland. This State unfortunately was not in the position of Great Britain and U.S.A., in which countries a slaughter out policy was adopted with success, because N.S.W. requires for its economic needs between 200,000 and 300,000 store and fat cattle from Queensland annually. Therefore the staff has always to be prepared to handle an outbreak.

Control has become progressively tighter as the State became freer: it is well recognised that the greater the freedom from a given disease the more rigid should control become. At the present time outbreaks are handled by quarantine, slaughter of all clinically affected animals and either test and vaccination or test alone or vaccination alone. The circumstances surrounding outbreaks in different areas differ to an extent which renders uniformity of action undesirable and impracticable. After completion of the period of quarantine the cattle are regarded as suspect and are held under close surveillance for a period of ten months. Every opportunity is taken to pass infected mobs direct into abattoirs for slaughter.

There can be little doubt that the compulsory destruction of clinical cases and positive reactors has profoundly affected the situation by eliminating many carriers, any one of which might have become the focus of a fresh outbreak. Much opposition was encountered when slaughter was first insisted upon—just, in fact, as every forward step in the control of Pleuro-pneumonia has been resisted. The complement fixation test has been a remarkable aid in controlling the disease. It is proving one of the most accurate biological tests in use.

Vaccination is losing its disadvantages now that laboratory prepared vaccine, proved and checked, is available; but instances were not lacking, when fluid from the pleural cavity was used, of bad breaks following vaccination particularly among dairy cattle. This is one of the diseases in which control is to a degree effective through the control of vaccination.

Anthrax is a disease in which control through vaccination is not only more readily achieved, but is absolutely essential. The control of anthrax would

largely be lost if vaccination was uncontrolled. Anthrax still remains a mystery. The explanation of the existence of an anthrax belt in this State is still awaited. Whilst the vaccination of sheep is rarely followed by undesirable results the same cannot be said of the use of anthrax vaccine on horses and cattle. Further work is required to make available vaccines safe for all classes of livestock.

Improvement in the position regarding anthrax is largely a matter of education, so that drovers and others concerned will become more suspicious of unexplained deaths and readier to report them. In the case of pleuro-pneumonia and anthrax, vaccination is a well established custom, but in the case of the disease next to be mentioned, swine fever, vaccination in this State is absolutely prohibited. This applies to the whole of Australia. Attempts made to introduce vaccination during the outbreaks which occurred here were luckily resisted with success. If it had been allowed Australia would now, instead of being a continent free of this disease, have been in the same unfortunate position as U.S.A.

There is only one wise policy for Australia to adopt if she is invaded by virus diseases like swine fever, rinderpest and foot and mouth disease, and that is immediate and drastic slaughter. If Pleuro-pneumonia had been handled in this way, as the veterinarians recommended at the time, this continent would have been saved a lot of trouble. Bitter experience proved that it was not sufficient to destroy the carcasses of clinically infected pigs, but that it was necessary, if a quick clean up was required, to destroy the carcasses of all pigs on an infected holding. Recent research work at Glenfield Veterinary Research Station has shown the reason why. Apart from the slaughter of the pigs, strict control of pig movements in infected areas, insistence on garbage boiling or destruction, and disinfection of saleyards and infected piggeries was carried out. Fortunately, the virus is not very resistant to adverse agencies outside the animal body. Next to the living pig the most serious cause of spread is the feeding of pig meat scraps in garbage. This is also well recognised in Canada. The difficulty of accurately diagnosing swine fever is not always realised. There is only one really satisfactory test, and that is the result of a blood inoculation or a feeding experiment with known healthy pigs.

All the conditions so far mentioned require departmental control, if satisfactory results are to be secured. There are other conditions in which a good deal of control is achieved voluntarily. One very good example can be seen in the control of black disease in sheep. The development of a scheme of vaccination against this condition has had a most remarkable effect on the security of sheep raising in the central and southern tablelands of this State. Control is required either over the disease or the use of vaccine. The vaccine is a dead one, but, notwithstanding this, some degree of control was exercised at first to protect the stockowner against possible exploitation and to secure information on the incidence of the disease.



POTENTIALITIES OF ARTIFICIAL INSEMINATION IN AUSTRALIA

The prospects of successfully developing artificial insemination services in Australia depend upon: (1) the genetic justifications for the practice; (2) the cost of Artificial Insemination in comparison with natural service; (3) the effort made to improve the level of nutrition of livestock in this country; (4) the effectiveness of the presentation to stock-raisers of the case for artificial insemination.

The case for artificial insemination in Australia rests primarily on the difficulty of selecting sires that will improve the productive capacity of the grade herd or flock. It is not a remedy for the normal difficulties of breeding; nor is it likely to be a cheaper method of breeding in this country than natural service. In England, where it may cost up to £50 a year to maintain a bull and where the artificial insemination fee is 25/- per cow, the owner of a herd of 12 to 15 cows can breed more cheaply by artificial means than by keeping a bull himself.

In Australia where sires may be maintained at much lower cost by turning them out to graze, where high transport costs and longer distances between farms will make higher fees necessary, it is almost certain that the unsubsidised insemination service will be more costly than natural service. Several writers on the subject have suggested that the higher cost of artificial insemination will be a complete bar to its adoption in Australia. I do not subscribe to that point of view. The greater certainty of obtaining better-than-average stock by artificial breeding, the original justification for the practice, is surely worth something. Dairy farmers do not hesitate to pay an extra pound or two at a sale for a good cow, and then they are guessing at the productive capacity. Why should not an artificially-bred heifer, the productive capacity of which can be largely guaranteed, warrant the additional cost of breeding it? At the most it should not cost more than £1 above that of the naturally-bred. This amount should be readily recoverable during the productive life of the cow—most likely in the first lactation.

Table 1.—Analysis of Sire Surveys on Basis of Average Production of all Tested Daughters of Each Sire.

Av. Butterfat Prodn. of all Daughters (lbs. fat)	No. of Sires	% of all Sires	Cumulative Percentage
400 and over	52	3.7%	3.7%
390-399	54	3.9%	7.6%
380-389	78	5.6%	13.2%
370-379	107	7.7%	20.9%
360-369	110	7.9%	28.8%
350-359	161	11.5%	40.3%
340-349	162	11.6%	51.9%
330-339	145	10.4%	62.3%
320-329	147	10.5%	72.8%
310-319	118	8.5%	81.3%
300-309	96	6.9%	88.2%
Below 300	165	11.8%	100.0%
Total	1395	100.0%	

And I believe one should be chary of accepting the suggestion that it would be cheaper—and presumably better—to buy 50 guinea bulls than to breed artificially. If there were a satisfactory correlation between price and breeding quality, the 50-guinea policy

would be a sound one. Unfortunately, success in breeding is not so readily purchasable. When a man sets out these days with 50 guineas to spend on a bull, he has little assurance against the normal risks, namely, one-third of the bulls he may buy are genuine herd improvers—and he cannot pick that third with certainty; one-third will maintain the productive capacity of the average grade herd; one-third will depress production. His chances of securing a herd-improver are just about one in three.

Ward provides evidence of the normal proportions of herd-improving sires available. Table 1 sets out the details of his surveys of the performances of 1395 sires.

The above table shows that the average productive capacity of the 40,000 dairy cows included in the survey is about 340lb. butterfat. This is probably equally true for the entire dairy cow population of New Zealand and also for the cattle of exclusively dairy breeding in Australia. Note the increasing difficulty of obtaining a sire to maintain let alone raise the productive capacity when the herd average is appreciably better than 340lb. The owner of a 400lb. herd has one chance in 33 of securing a bull to maintain production.

The inevitable question is whether a farmer has a better-than-average chance of securing a herd-improver if he selects a bull on the butterfat yield of its dam. Ward has a ready answer. Eighty-three per cent. of the 1395 bulls in his survey were selected for their "butterfat backing"—that is, mainly on the yield of the dam. And there is the example quoted by Reed, Chief of the Bureau of Dairy Industry, United States Department of Agriculture, of the breeder who would not use a sire unless its dam had given 700lb. fat in a lactation and who, despite a succession of such sires, did not succeed in getting his herd average beyond 400lb.

Selection on the yield of the dam alone must be regarded as an outmoded method. It fails because it does not distinguish between individual performance and transmitting ability. It does not even work satisfactorily where only one generation is involved instead of two. Ward's figures show that if two groups of cows, differing by 100lb. butterfat, be mated to the same bull, their daughters will differ by only 15lb. fat; also that 40 per cent. of the daughters of the top cows in dairy herds fail to yield as well as the average of all the daughters. When a breeder selects a bull solely on the yield of its dam, there are two generations between the cow and her son's daughters—a double opportunity for that will-o'-the-wisp character, better-than-average productive ability, to be diluted or lost.

The dearth of herd-improving sires, established by Ward's surveys, is the outcome of the multifactorial or polygenic mode of inheritance of milking capacity. Illustrations have been drawn from dairy cattle, simply because they have been more closely studied, but the suggestion is that most of the economic characters in farm animals behave similarly. These characters are not only multifactorial, but also weakly inherited. Under such circumstances simple selection is so ineffective as to be of little practical value. How little is shown by McMahon's estimate that it would take 96 years to raise the average wool clip of a flock by 1 lb. by selection on the female side alone.

The modern method of breeding for weakly inherited characters is to work through the progeny test, which differentiates between transmissible and non-transmissible merit. The effectiveness of this method is indicated by the recent announcement by the Department of Agriculture of the isolation of a merino ram capable of getting stock that average 1½ lb. wool above the flock level. Thus, in a single generation, through the progeny test, as much improvement is effected as is possible by more than a century of phenotypic selection on the female side. Of great importance is the fact that the ram's own appearance gives no clue to his extraordinary breeding capacity.

All this discussion of breeding principles may seem unrelated to artificial insemination. In reality it is the basis of the argument for A.I., which is the one method by which the animal breeder can overcome one of his greatest handicaps when he has isolated an animal of outstanding breeding ability—the low reproductive rate of the larger farm animals.

Progeny-testing, though effective, is a slow and cumbersome basis for breeding. Each sire must first be tested out on a limited number of females, and held for two or three years until the progeny are old enough to be accurately assessed, before it can be used extensively. The chances are that only a small proportion of the sires so tested will be worth using afterwards—Table 1 gives an indication. All the expense, time and effort that goes into testing out the eventual rejects is part of the cost of the few herd or flock-builders that progeny testing isolates. A few years of regular progeny testing soon finds the breeder with his farm pretty well cluttered up with sires under test, sires being held until their progeny mature, progeny groups under test that cannot be broken up until the test is complete, and larger-than-normal heifer groups.

This trouble becomes warranted when the few good sires isolated can be used to produce not just a few dozen progeny, but several hundred.

Most of the technical problems of Artificial Insemination have been solved. The success of high dilution rates, rates of up to one-hundred to one, have opened up new possibilities for getting far greater numbers of progeny from one animal. James, in New Zealand, is now claiming that he can successfully inseminate 2000 cows within six weeks from one bull.

One final aspect of the genetic argument for A.I.: there is no point (other than disease control) in practicing A.I. with unproven sires. The poor and the mediocre require no artificial aids to their multiplication. There is, of course, a one-in-three chance that the unproven sire may turn out well, but better odds than this are necessary if a sire is to be used extensively. The influence of a sire in a herd is of relatively long duration. One cannot be rid of it by selling off the progeny. Herd or flock numbers have to be maintained. Some undesirable individuals are often kept on for the reason that no better ones are immediately available to replace them.

It is one of the tragedies of A.I. in Australia that both pioneer units were established with young unproven sires. They were set up, of course, to study technique but, if the sires used breed badly, appreciable damage may be done to the cause of artificial insemination.

Dependable information should be available shortly from Glenfield and Werribee on the cost of A.I. There is little point in hazarding a guess. That it will be higher than the charge made overseas is tolerably certain. It ought to be possible to reduce the costs in commercial units, however, by the use of lay inseminators, as is the practice overseas.

There is a case for subsidising A.I. centres. In the past some State Governments have willingly provided substantial subsidies on pure-bred bulls. Like amounts, devoted to the promotion of A.I. would be a better national investment.

It would be wrong to avoid in a discussion such as this the present need for improvement in the breeding of our dairy cattle. So long as the average production is far below the potential production, we can hardly pretend that the breeding of the existing cow population limits any attempt at improving the yield.

According to statistics, the average yield of butterfat per cow is about 150lb. a year. The potential capacity is probably more than 300lb. Such figures suggest that it is the feeding rather than the breeding which will long be our major handicap.

Carter's work at the Nutrition Laboratory indicates that the hereditary potential of part of our merino population, at least, is 17lb. wool a head.

It is mainly in the areas which are able to provide a nutritional level that exploits the present hereditary potential fairly well that the A.I. may be expected to have reasonable prospects. In other areas any available finance is better spent on feeding than on breeding. An improved pasture can be a far better investment than better-bred cattle. It is, at any rate, capable of giving a quicker return.

In considering the alternative prospects, one should avoid the facile conclusion that breeding does not matter until the herd average reaches 300lb. butterfat. There is evidence from various sources that the individual with a high potential production will give much more butterfat on the same feed than the individual with a low hereditary potential. Breeding can still be of some importance at the lower levels of feeding.

There is little sign as yet of stock-raisers clamour for the establishment of A.I. centres. Until the weakness of existing phenotypic breeding methods is more generally understood and until the feeding levels of our livestock have been decidedly improved, little popular demand can be expected. A great deal must be done on the educational side before A.I. services on an extensive scale become a reality.

—H. J. G.



Critical Experimentation as a Basis for the Development of Efficient Anthelmintics

By W. P. ROGERS, McMaster Animal Health Laboratory, C.S.I.R.

Parasitology is an age-old science. From the earliest times man's interest in the biological phenomenon of parasitism, no less than the recognition of parasites as a cause of disease, has stimulated research. As a result, our knowledge of helminth morphology, taxonomy and life histories has reached a level of scientific exactitude. Control measures, however, apart from those dependent on a knowledge of life cycles and epidemiology, can hardly be similarly classed. Indeed, it is remarkable, and something of a reflection on our ability, to recall that in this atomic age, many of the anthelmintics in use to-day figure even in the earliest Chinese pharmacopoeia. But how can we seek new and more efficient drugs? Are we to continue with the ancient empirical methods, or are we to seek a more rational approach to chemotherapy? Probably empirical methods will continue to be applied with the success they have attained in the past, but, sooner or later, a more rational approach must be found if parasite chemotherapy is to advance in step with science in general.

Helminth chemotherapy has passed through several phases of development. First came the period of "unscientific empiricism," which was characterised by the use of mixtures selected for more or less mystic reasons. Some of these mixtures were successful in curing diseases caused by helminths and so earned lasting places in the pharmacopoeia. In such a manner we obtained kamala, male fern, chenopodium and santonin.

The second phase, "critical empiricism," developed as the result of more accurate studies on drug efficiency. Clinical conditions, before and after treatment, were examined more carefully and positive evidence associated with the destruction of parasites, was sought. The value of older drugs was re-assessed, and new drugs, such as thymol and β -naphthol, were found.

The method of "critical experimentation" evolved when attempts were made to correlate molecular structure and physical properties with anthelmintic activity. A parent molecule, still selected on somewhat empirical grounds, was taken as a starting point, and the pharmacological properties of its derivatives and analogues were carefully assessed. By this means compounds more toxic to the parasites and less toxic to the host were sought and the chemical groupings and physical properties associated with these functions were determined. By such methods, tetrachlorethylene, hexylresorcinol and the modern arsenical and antimony anthelmintics were found. But these drugs are not good enough: the method of critical experimentation must be improved if we are to obtain further success.

The weakness of the method lies, at present, in the selection of the parent molecule to be studied. Some rational method of indicating a promising starting point must be found, otherwise we cannot truly designate the process as critical experimentation. There are several closely related, rational biological approaches to chemotherapy which may be briefly mentioned, not because they are an answer to the problem, but because they represent an early fumbling

towards what may, in time, become successful procedures.

First of all, there is the applied cytologist's approach to chemotherapy. Hormones, metabolic poisons, stains, growth factors, insecticides, narcotics, anaesthetics, etc., are agents which the applied cytologist uses to obtain information about cells. With a knowledge of the special properties of different cells the applied cytologist seeks agents which have selective actions on different types of cells. The agent of promise is modified to attack a chosen variety of cells, the parasite or diseased tissue, leaving other cells undamaged.

The now familiar phenomenon of biological antagonism gives another possible method for the rational development of therapeutic agents. During the last decade, a number of synthetic or naturally occurring compounds which have specific antagonistic action against vitamins or other essential metabolites have been found. As examples of protein antagonists, ascorbic acid oxidase, which inactivates vitamin C in several plants, and avidin, which combines stoichiometrically with biotin and renders it ineffective in certain biological systems, may be quoted. The antagonistic analogues of essential metabolites are more numerous: thiopanic acid inhibits the growth of bacteria requiring pantothenic acid, but organisms which synthesise pantothenic acid are not affected: pyriithamine is antagonistic to thiamine: coumarin is antagonistic to vitamin K, and so on. Many antagonisms have been elucidated only after the empirical discovery of the inhibitor, as in the case of sulphonamide p-aminobenzoic acid and "gammexane"—I inositol antagonisms, but nevertheless the list of agents developed on a knowledge of bacterial nutrition is impressive. Indeed, a general theory of the structural changes in analogues necessary for antagonism is being built up. As yet, our knowledge of helminth physiology is so poor that no basis for studies on biological antagonists for systems within these organisms exists.

The nature of systems most susceptible to specific inhibition is a matter for consideration. Processes in cell metabolism which are concerned with the breakdown of substrates and their oxidation seem to be of a similar pattern in a wide variety of cells, and it is probable that the inhibitors of catabolic processes would have little cell specificity. On the other hand, synthetic activities of different cells vary, and it would appear that inhibitors affecting anabolic processes may have more selective actions. In this regard, the marked and undoubted specific synthetic activity of helminth sex organs gives a fertile ground for chemotherapeutic research.

This discussion serves to show that there is a possibility of new drugs being developed by research based on a knowledge of pharmacology and cell metabolism and structure. However, it is obvious that a wide knowledge of the physiology and biochemistry of parasite and host cells, and the media in which drugs are to act, is required before success can be expected. It is unfortunate that, in as far as helminths are concerned, very little is known, and it is surprising

that the examination of the physiological basis of parasitism has been so neglected. Our knowledge of helminth physiology can be summarised quite briefly.

Firstly, there is the matter of respiratory metabolism. Many workers maintain that the longevity of parasites *in vitro* is greatly shortened if oxygen is withheld. Much of the work on this question is of doubtful value, because helminths kept *in vitro* are very susceptible to bacterial action, and it is probable that the results obtained are due to the reaction between parasites, bacteria, and the gas phase, rather than the direct result of the action of the gas phase on parasites. However, there is little doubt that all helminth parasites so far examined have active aerobic metabolic routes utilising cytochrome transfer systems. Also many parasites contain specific haemoglobins which function as oxygen carriers at very low gas tensions. It has been shown, however, that certain parasites are poorly adapted to high oxygen tensions, for, under such conditions, toxic metabolic products accumulate and finally kill the parasite. The question also arises: where do intestinal parasites obtain oxygen? In this connection, the respiratory pigments of helminths need further examination. So far, we may say that helminths are facultative aerobes, and it is probable that in some forms, aerobic metabolic routes are of importance.

Let us turn now to the feeding mechanisms and the nutrition of the parasite. In nematodes, it is probably that the alimentary canal is the major and perhaps the only route for the ingestion of food; the entry of even small molecules through the cuticle is probably very slow. The diet may be exclusively host tissue, or, in some parasites living in the alimentary tract, host ingesta. Whatever the diet may be, there is evidence that parasites are very wasteful feeders, for fluids pass very rapidly through their intestines and large amounts of food are required. Thus a single hookworm may extract 0.84 ml. of host blood per day, and the large redworm of the host may destroy up to 280 times its own weight of host gut mucosa during its growth. The essential nutritional requirements of helminths are not known. Some tape-

worms will not grow if the host diet is lacking in certain vitamins, some Ascarids contain very large amounts of vitamin C and some Strongyles have a great faculty for accumulating zinc! The determination of the essential food factors of helminth parasites requires a study of parasite growth *in vitro*. So far, attempts to carry out such experiments have been unsuccessful.

The metabolism of helminths has only been examined in detail in relation of carbohydrate metabolism. It has been shown that glycolysis is similar to that found in mammalian muscle as far as lactate formation. An examination of lactate and pyruvate metabolism may lead to more interesting information. The metabolism and physiology of the nervous and excretory systems of helminths has not been examined and offers a fruitful field for experiment. The physiology of reproduction and the metabolism of the sex organs also needs investigation. The paradox, that the cuticular membranes of adult nematodes is albumoid in nature, whereas egg shells are chitinous, suggests an interesting field for research, particularly in that cell-permeability studies have such wide implications in the field of chemotherapy. The problems of parasite physiology are most numerous, but they are not the only ones in this field which need examination. There is a pressing need for new methods of assessing anthelmintic activity; particularly, we need methods which can be used when only small amounts of drug are available for testing.

The position may be summarised thus: though critical empiricism is still a strong force in chemotherapy there is every reason to suppose that critical experimentation, especially when developed on sound biological premises, will play a part of growing importance in the development of new anthelmintics. With this view in mind, all observations on parasite physiology, and particularly those concerned with parasite nutrition and anabolic metabolism, are of importance in building up the background on which the rational chemotherapy of the future may be based.

Modern Concepts in Biology.

Nature makes so gradual a transition from the inanimate to the animate kingdom, that the boundary lines which separate them are indistinct and doubtful.

—Aristotle, B.C. 384-322.

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A little-known incident in the annals of exploration is the discovery by a Scandinavian explorer of a Tibetan ox which he named after his brother, John.

A SOUTH AUSTRALIAN'S IMPRESSIONS OF SOUTHERN QUEENSLAND

This article is an account of what I observed and learned by enquiry during May vacation, 1947. My impressions, and the conclusions to which I have come must be viewed in the light of a number of limitations. These are:—

- (a) The brevity of my trip.
- (b) That I saw the country during only one season and the unfavourable one at that. This has its advantages in that the true capabilities of any district can more reliably be assessed during that season.
- (c) That I was seeing for the first time a summer rainfall area compared with South Australia, my home State, which has a winter rainfall (see Fig. 1), and so was faced with new conditions and problems.
- (d) The part of the State which I saw was mainly confined to the Darling Downs, it being that section bounded by Brisbane, Ipswich, Gatton, Toowoomba, Dalby, and Warwick.

Therefore my comments for the most part refer to this area only, although from conversation I learned something of problems associated with pastoral and animal industries in Queensland generally.

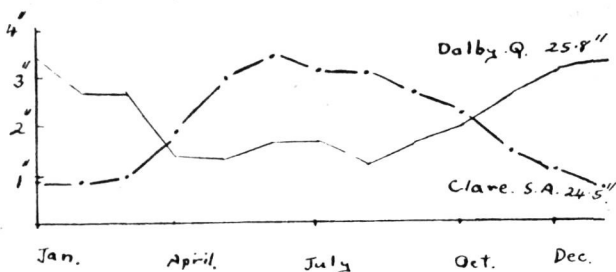


Fig. I.

Contrast of Winter and Summer Rainfall Areas.

The line of equal summer and winter rainfall runs north of Carnarvon in Western Australia, in a generally south of east direction, to cut the east coast of New South Wales near Sydney. South of this line precipitation is of the winter rainfall type. Thus in western Victoria, South Australia and Western Australia there is a distinct Mediterranean winter rainfall climate. The summer is hot and dry and the peak growth period of pasture occurs in September and October.

To the north of this line the trend of summer rain incidence becomes progressively more marked, and winter forage crops and pasture plants are generally replaced by summer growing species. This main trend is broken and modified by (1) local physiography; (2) proximity to coast; (3) altitude. Evaporation is high in the summer rainfall areas, also in the drier parts of the winter rainfall region.

It seems to me that the main problem facing the Queensland pastoral industry, except the north and north-west where the rainfall is more unpredictable,

is to provide a suitable pasture feed during the winter. The position in South Australia is different, the problem there being one of providing a suitable feed during the summer drought, and often early Autumn.

It is not the total dry matter yield per acre which is of primary importance, but rather its continuity of supply, and/or suitability for conservation. Consequently the carrying capacity of land is dependent upon the unfavourable season of the year. Therefore the first and most profitable improvement in pasture management should be to ensure a continuity in supply of pasture for as great a period of the year as practicable, and the introduction of a fodder conservation scheme. This lack of continuity of supply is a direct result of the rainfall and other climatic conditions.

It appears that during summer, which is the wet season and a period of high temperatures, conditions favour a great flush of plant growth. This is in excess of the requirements of grazing stock and remains standing in the paddocks for the remainder of the season and the winter. During this period it progressively deteriorates in feeding value, due to the continuous leaching caused by the high summer rainfall. Fig. 2 illustrates the effects of this process of leaching. Sights such as this one seen near Dalby are common. The plant species concerned are Pitted Blue grass, Buffalo grass, *Stipa* spp., *Danthonia* spp. and in places Rhodes grass (*Chloris gayana*). Much of the country is transitional between Brigalow or Belah scrub and Open Eucalypt Forest. Land development has ranged from complete clearing to partial ring barking; the latter is evident in fig. 2.



Fig. II.

Leached Standing Feed Near Dalby, May, 1947.

South Australia's problem is one of summer drought, the months, January, February and March are the bottle-neck period in respect to carrying capacity. No great problem of leaching exists, the deterioration of standing pastures being only slight, and this is due to excessive dehydration. However, many of the exotic species such as barley grass (*Hordeum laperinum*), Silver grass, and Brome grasses (*Bromus* spp)

which have established themselves in the natural pastures, run to seed very early in their growing season, while the endemic species, *Stipa* and *Danthonia* have been depressed by grazing stock and top-dressing. As 50 per cent. of total weight of plant and up to 70 per cent. of nutrients are transferred to the inflorescence, where it is not available because of protection by harsh hairs and spines, the resultant stands are of poor feeding value.

The task in S.A. was to develop a pasture with an extended growing season and the constituent species of which retained their feeding value after maturity. This was achieved mainly by the development of subterranean clover (*Trifolium subterranean*) Mt. Barker strain, on acid soils, and to a lesser extent *Medicago* spp, particularly *truncatula* (Barrel Medic) and *denticulata* (Burr Medic) on alkaline soils of earlier districts. With these introductions came a new technique to pasture management. This is the practice of top-dressing with phosphatic fertilizers, which is essential, for the Subterranean Clover demands a high soil phosphate. With the low nitrogen level already existing the conditions favour a good growth of pasture, especially once the clover becomes established. Fig. 3 shows the comparison in the period of growth for annual exotics, compared with Subterranean Clover pastures.

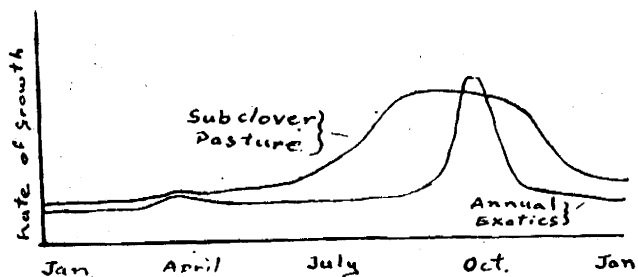


Fig. III.

Seasonal Pasture Growth in S.A.

The losses sustained from these pastures standing in the fields during the summer is slight. The burrs produced are most nutritious and are sought after by the stock and maintain them during the latter part of the season. Actually they act as a protein concentrate. The development of this pasture has not only lengthened the grazing period of the year, but has provided a type of plant material which can be utilised to the full in any system of fodder conservation, be it hay making or ensilage. The carrying capacity has been raised four to five times that supported by the original *Danthonia*, *Stipa* pasture, although there has only been an increase of 20 per cent. in dry matter yield.

The lack of a suitable legume has always been a problem in Queensland pasture development, resulting in sown pasture being grown on the more fertile soils only. Two of the most pressing problems in the area which I visited were this lack of a legume, and as mentioned above, a discontinuity of supply of suitable feed, particularly in the winter months.

In early winter paddocks are covered with dry, rank, leached feed, often three feet in height, but because of its unsatisfactory feeding value, this period must be classed as one of shortage. The presence of this feed proves a hindrance, and the practice of burning it off has developed. This allows the young green

feed to come through more readily when conditions become suitable. But it must be remembered that one ton of dry matter requires 500 to 1,000 tons of water for its production, which is the equivalent of five acre inches of rainfall. It can be seen that this practice of burning off represents a substantial loss of water, which, in Australia, is most wasteful. Present experiments have been planned to find some pasture species which will withstand continuous leaching and retain its nutrients until the winter, thereby eliminating the deficiency which at present exists. A new technique may be necessary which means that landowners would have to drop their old methods, which many would be loath to do.

I was frequently told the *paspalum dilatatum* withstands the effects of leaching quite well, and being a summer grower, it can be grown then and left in the paddocks to stand until required in the winter months. An alternative is to cultivate during the summer (a difficult matter due to strong growth on cultivations) and thus conserve the summer rains; then lucerne can be grown in the winter. The resultant feed has been shown to support up to three sheep per acre, but this method has only a limited application. It is not a matter of increasing the yield of dry matter per acre, a thing which is difficult to do because this is directly dependent upon the rainfall, but one of increasing the carrying capacity of the land by improving its nutritive level.

As far as animal nutrition is concerned in this particular area and out west, it is the crude protein level of the pasture which is the limiting factor to any animal production. It is claimed in many circles that the small fine woolled sheep of Queensland are the product of a protein deficiency. In the Mitchell grass country a similar protein deficiency exists, in this case the grazing stock are beef cattle. Mention of protein brings the other pasture problem into the question: the lack of suitable pasture legume. I was informed that much experimental work was being carried out at the present time in an attempt to develop such a legume. The Pigeon Pea is one of the new legumes being tried.

The presence of only small quantities of legumes (two per cent.) is sufficient to produce increases of 20 per cent. in the live weight of grazing cattle. Not only is a legume needed to supply the crude protein required by grazing stock, but it is also necessary to keep the soil fertility at a satisfactory level, which is reflected in the resultant growth of the grasses in the pasture. Rhodes grass has become a most important species in sub-tropical Queensland, but such pastures deteriorate in the absence of an accompanying legume in consequence of the frequent burnings and continued grazing. These pasture will quickly re-establish, following a vigorous cultivation, but the stimulus provided is short-lived. Lucerne has been successfully introduced after surface cultivations of Rhodes grass pastures, but this species is notorious for its inability to grow with a legume—it outgrows the other species, only about two per cent. of lucerne persisting. An alternative is to grow separate stands of grass and legume, and to feed them separately and this change could be brought about without a radical alteration in the present system of pasture management.

Rhodes grass is now grown on the cleared Belah scrub land soils, and to a lesser extent on the forest soils. It is virtually the only sown pasture species developed in this area. Rhodes grass responds to nitrogen fertilizers, but the endemic species present

will not. This indicates that this species should readily respond to the association of a legume in a pasture mixture, but with the absence of the legume the endemic species take control.

From what I saw of the Downs country I am of the opinion that more use could be made of lucerne. This has been done on a number of properties, and the results are quite satisfactory. As suggested earlier, perhaps it could be grown more successfully as a separate stand, either to be cut green and fed straight to stock, strip-grazed for a few hours daily, or made straight into hay. Stands last for about seven to eight years.

Dalby is on the black soil plains. Much of this country was earlier invaded by prickly pear (*Opuntia spp.*) and it is only in recent years that this pest, which in many places prevented all forms of land utilisation, has been successfully eradicated by the introduction of *Cactoblastus*. This district is a large wheat-growing area, although dairying is gaining importance. The milk is converted into butter, and so there is a considerable quantity of skim milk available for a pig industry. The average property is 600-800 acres, and as far as I could make out those keeping livestock rely to a great extent upon grown crops, and pastures play a very minor role indeed. In fact, the main use of the natural grass pastures is for dry stock and a limited number of beef cattle. On many of the properties which I visited the better country was under cultivation, and the grass pastures were restricted to the rougher and in many cases to the stony parts of the property, where the only development attempted was ring barking.

The practice of grazing not only oat crops but also wheat crops is quite common, and has no apparent effect upon yields of grain. According to Geddes such grazing crops are ideal for dairy cattle, as the figures below indicate, if grazed at the correct stage of growth. The percentages of moisture may be a limiting factor.

The following is a typical example of the feeding methods employed throughout the different seasons in the management of an A.I.S. herd. Oat crops are available for grazing purposes during the late autumn and winter, the wheat crops are sown in May-June, and these are grazed when ready, so that winter grazing is confined to cereal crops. Then Sudan grass (*Sorghum Sudansis*) is grown during the summer as



Fig. IV.

A near ripe crop of grain sorghum, May, 1947. The standing men indicate the height of the crop.

the green grazing crop. The grain sorghums (*Sorghum vulgari*) are also grown extensively during the summer months. After the grain has been harvested the cattle are turned in. The stems and leaves, although starting to brown, are still quite succulent. Lucerne is available at different times, and may be cut and fed to stock or strip grazed. Any surplus is converted into hay, the same applies to the Sudan grass, but on the whole very little hay is made. It is seldom that sorghum is made into silage.

These different feeds will now be examined in respect to their feeding value for dairy cattle, and both the winter and summer feeds will be discussed from the point of view of nutrition—both for maintenance and production.

Requirements of a Dairy Cow:—

Average live weight 1250 lbs.—yield 30lbs. milk per day; butterfat, 3.7 per cent.

	S.E.	P.E.
(a) for maintenance purposes per day	6.9lbs.	.74lbs.
(b) for production purposes per day		
3 gallons	7.5lbs.	1.8 lbs.
Total requirements per day	14.4lbs.	2.54lbs.

Feeds Available:

(a) Grazing Oats or Wheat—

Moisture	D.M.	C.P.	P.E.	S.E.
82%	18%	2.9%	2.0	9.0
On a D.M. Basis		16.1%	11.1	50.0
Capacity per cow per day =	30lbs. D.M. (approx.)			
	30 100			
	= — x —			
	18	1		
	= 166lbs. of grazing oats.			
			S.E.	P.E.
This 30lbs. D.M. contains			15 lb.	3.3 lb.
Total daily requirement			14.4lb.	2.54lb.
Leaving a surplus of			0.6lb.	.76lb.

These figures indicate that grazing oats and wheat are quite adequate as feed under these circumstances, with one condition, and this is that the cattle are able to eat the 166lbs. of green oats per day.

(b) **Sudan Grass.**

Moisture	D.M.	C.P.	P.E.	S.E.
80%	20%	2%	1.0	8.0
On a D.M. basis		10%	5.0	40.0
In 30lbs. D.M.			1.5	12.0
Total daily requirement			2.54	14.4
Leaving a shortage of			1.04	2.4
			lbs. per day.	

These figures show a marked deficiency of P.E., and a small deficiency of S.E. As lucerne hay is available it merits consideration as a protein supplement (see Table 1).

(c) **Lucerne Hay.**

Moisture	D.M.	C.P.	S.E.	P.E.
10%	90%	14.9%	35.0	8.3
On a D.M. basis		16.5%	39.0	9.2
1lb. of lucerne hay contains			.35	.083

As Sudan grass is the basic pasture its limitations should be stressed. Table 1 indicates the position. This table is derived from the expression.
 P.E. total = (D.M. sup x P.E. sup.) plus
 [(30 — D.M. sup.) x 0.05]
 where P.E. total = total daily requirement of protein equivalent.

i.e. 2.54 for Production of 3 gallons/diem

2.24 " " 2½ " "

1.94 " " 2 " "

D.M. sup. equals Dry Matter content of Protein supplement.

P.E. sup. equals Protein equivalent of Protein supplement per lb. of D.M.

	P.E.	D.M.	P.E. sup.
i.e. Lucerne Hay .. .	8.2	90%	0.092
Linseed Meal .. .	14.3	92%	0.155
Crushed Peas .. .	18.2	86%	0.20

30lbs. is taken as the average Dry Matter capacity per cow/day.

0.05 equals P.E. of Sudan Grass per lb. of D.M.

TABLE I.

The feeding value of rations containing Sudan Grass.				
lbs. of each Constituent in the ration	Constituents in the ration	D.M. in lbs of each constituent in ration	Total D.M. in ration	Total weight of ration in lbs.
3 galls.				
150.0	Sudan Grass	30.0		
12.0	Lucerne Hay	11.0	41.0	162.0
26.0	Sudan Grass	5.2		
27.2	Lucerne Hay	24.8	30.0	53.2
100.0	Sudan Grass	20.0		
10.8	Linseed Meal	10.0	30.0	110.8
115.0	Sudan Grass	23.0		
8.0	Crushed Peas	7.0	30.0	123.0
2½ galls.				
150	Sudan Grass	30		
8.8	Lucerne Hay	8	38.0	158.8
62.0	Sudan Grass	12.4		
19.4	Lucerne Hay	17.6	30.0	81.4
115.0	Sudan Grass	23.0		
7.6	Linseed Meal	7.0	30.0	122.6
125.5	Sudan Grass	25.1		
5.6	Crushed Peas	4.9	30.0	131.1
2 galls.				
150.	Sudan Grass	30		
5.5	Lucerne Hay	5	35	155.5
100	Sudan Grass	20		
11.0	Lucerne Hay	10	30	111.0
129.0	Sudan Grass	25.8		
4.5	Linseed Meal	4.2	30	133.5
135.5	Sudan Grass	27.1		
3.3	Crushed Peas	2.9	30	138.8

The limiting factor in balancing sudan grass pasture with lucerne hay is the Dry Matter intake. This is particularly apparent with production figures of 2½ and 3 gallons. Perhaps the 35lb. D.M. intake for two gallons production level may not be an embarrassment. Therefore, in the higher production levels controlled grazing of Sudan grass is essential, as is feeding protein supplements such as linseed meal and crushed peas, rather than lucerne hay.

When fed in amounts sufficient to meet the protein requirements lucerne hay reduces the intake of Sudan grass, the staple grazing crop, to an uneconomically low amount.

Grain Sorghums grow particularly well to a height of five to six feet, as fig. 4 indicates. Yields of 60 bushels are not uncommon. The relative prices of wheat and grain sorghum determines the extent of its use. The crop is harvested with ordinary wheat harvesting machinery, but because of the heavy yields it needs to be power driven. Adjustments are made to the comb. After harvesting, as has been stated above, the stems and leaves are still green and can be used as a roughage. They come in useful in case the grazing crops are too high in moisture content. The grain is quite popular as a pig feed, but like most other grains it requires crushing to obtain the best results. All pig raisers claim that it produces a firmer white fat. With the skim milk from the dairy and

a suitable supply of greenfeed in their runs, conditions are most favourable for raising pigs.

In conclusion I suggest that too much reliance is put upon the growing of cereal and other grazing crops, with little if any emphasis upon fodder conservation. There seems to be a lack of preparedness for the future, for only the wants of the current season are considered. This short-sighted policy to my mind is a result of the influence of cereal growing, where all emphasis is upon the current season, particularly as there is no need for fallowing in this district. But when dealing with animal production the attitude must change; more thought for the future is required. Having to reduce stock numbers, or pay high prices for feed is undesirable. The only way to prevent such an occurrence is to prepare for the bad season by the introduction of an adequate fodder conservation programme. Admittedly this is difficult to do with cereal crops, as the protein content of the material is low and with dairy cattle this is a major consideration. Special emphasis should be laid on the importance of conserving as much protein rich feed as possible, and without a suitable pasture legume this is difficult. Far more use could be made of lucerne for this purpose, and also of field peas for grain. In both these we have a good supply of protein, each

(Continued on page 34).

CHAPERONE TO A VET. STUDENT

It seems to be common "knowledge" that, when broken, horses' bones just don't knit. The reason for such a generalisation becoming so widely accepted by laymen is no doubt that, with limbs broken, most horses are just not worth the trouble involved in treatment, but this is a little blunt—hence the euphemistic "they just don't knit—it can't be done." However, early this year the considerable publicity given to the case of "Chaperone" rather gave the lie to the matter, and at least a few "animal lovers" found their favourite "can't" such an embarrassment that they levelled a charge of cruelty on those responsible for Chaperone's care. Yes! It takes many good reasons and not a little determination to look at a crumpled mass of suffering horseflesh and then say "Don't shoot." But it can be done and done without cruelty. This is the story of the case of Chaperone—something of what was done to get her back to the stud, how and why it was attempted.

As most of you know, to your cost, there are race-horses and racehorses, but Chaperone belonged to the first variety in every sense of the term. By Ajax, out of Aulone, Chaperone was not only a magnificent looking chestnut filly—she also had the "blood." In fact it was not surprising that she was not offered for sale as a yearling, nor was it unexpected when throughout her racing career she carried the colours of her breeder, Mr. F. W. Thompson, of "Widden," and of his friend, Mr. H. Allen, of Melbourne, who formed a partnership to race Chaperone on lease from A. W. Thompson & Co. (Widden). She had nine starts to gain five firsts and two seconds. Her last win was as a three-year-old in the Shorts at Randwick in October, 1946, when she equalled the course record of 1.10 for six furlongs. Little wonder then that, when an accident brought her racing career to a premature close, A.J.C. Vet., Mr. Roy Stewart, B.V.Sc., and Mr. Frank Selkrig, foreman at Mr. Payten's stable, together decided not to destroy her immediately but to see if an attempt could be made to save her for the stud.

At the time of the accident she was being prepared for the Oakleigh Plate (run in Melbourne last February). On Saturday morning the 18th of January she was doing a two-furlong gallop when she fell at the turn into the home stretch on Randwick's inside grass track. The force of the impact was sufficient to break the humerus on the near side.

Mr. E. N. Larkin, B.V.Sc., took over the case when the mare had been returned to the stable and here he had her placed in a crush-like padded frame which was specially built in her own box. This was intended to aid the mare's morale, giving her the company of her stablemates and a familiar view from the door. Once in the crush the patient's weight was supported by a sling which was attached to the side bars of the crush. This arrangement, instead of the conventional overhead support for the sling, and the absence of breast plate and brithcing, was intended to minimise the risk of bed-sores or galling. All was satisfactory for almost a week, but on Thursday, 23rd January my diary contained an entry—"Mare's temperature normal but sweating badly—Night very hot—little rest." On Friday she was restless, and by 10 o'clock had found the knack of almost slipping back out of the sling by letting her hind feet slip

forward. Twice we frustrated her efforts, but after the third attempt it was decided to transfer her to a more conventional type of sling, slung from the rafters. The possible necessity for this had been foreseen and the necessary timber was already cut waiting to be put in position. Unfortunately, while the change was being made, Chaperone embarrassed all present by her strength and stubbornness and she had to be lowered to the floor to save a struggle. One side of the crush was removed, and after an injection of morphine the patient spent the next four hours quietly resting on the ground. At this stage few would have given 2/- for her chances, but at 3.45, she got up on her three legs unaided—surely a tribute to the stamina of a horse that had been immobilised for almost a week.

From this time on, nursing was much more simple and progress followed a satisfactory curve. The mare was now in a sling with breast plate and brithcing. Added support was given by the crush, so that she could and did sit back on the hind-rail, while an air cushion attached to the front-rail gave support to the head and neck. In this way she could relax completely with all feet off the ground, or at will stand on her three legs. This was the only movement permitted and the sling was left adjusted to keep the broken limb clear of the floor.

Attempts to X-ray the fracture were unsuccessful due to the large inflammatory swelling and the bulky mass of muscles in this region. Again reduction of the fracture was prevented by the strength of these same muscles. Thus nature was left to take its course, with the limb hanging from an immobilised body. During the early stages hot and cold fomentations were applied as frequently as practicable.

To facilitate hot fomentation a simple technique was adopted. A small outlet tube was fitted to the bottom of a five-gallon drum. From this a rubber tube led to the valve casing of an old bike tube. The latter was passed in front of the shoulder under the axilla, led out behind the elbow and up on to the lateral surface of the shoulder. Here the hot water gravitated over a towel which was laid over the shoulder and wrapped around the forearm. The rate of flow could be controlled by manual pressure, but the double tubing was always taut and full of hot water so that the axilla was kept warm. During the first few weeks the swelling was such that there was only just room to slip the towel between the limb and the padded side-rail of the crush.

As would be expected the fall had caused numerous skin abrasions, but only one wound gave any trouble. It was a deep sinus inside the near stifle and suppurated for about two weeks, during which time irrigation was necessary twice daily. However, the most important job was to keep the animal contented and more or less normal under such immobilised conditions. Apart from the inflammatory swelling in the broken limb, the three normal limbs were ever ready to swell due to circulatory stasis and resultant oedema. This necessitated bandaging and cold fomentation when the bandages were changed twice daily. The inflammatory swellings at the carpus and hock on the near side were successfully reduced by "Antiphlogistine" and cold irrigation. However, after the first two weeks the daily routine was more or less reduced

to cleaning out and grooming. All parts of the harness were removed piece by piece, cleaned and before being replaced the skin was cleaned and given a good massage. In this way, skin circulation was maintained and throughout the eleven weeks only one small gall developed.

Of equal importance with treatment was the maintenance of the mare's morale, and in this lump-sugar played its usual part. At least one conditioned reflex was developed. No matter how unco-operative Chaperone chose to be when bandaging had to be done, the rattle of lump sugar in a bottle was enough to have her on her three feet and looking expectantly until the bandages were on. Visits from owners, the frequent petting she received from Mr. Payten's wife and daughters, to say nothing of the everready cheery word from the men and boys about the stable all left Chaperone pretty well satisfied with life in a sling.

Her manger was always full and the menu continually changed to suit her pleasure. Of course, grain was reduced to a minimum, but she received two feeds a day in accordance with the stable's programme for spelling horses—the morning feed was made up of bran and oaten chaff with a handful of lucerne chaff and perhaps a few grains of oats. When this was finished the manger was filled with fresh green feed. While being groomed she was usually content to stand and contemplate, but the remainder of the day was spent either sleeping or eating, the manger being kept full of lucerne hay. The evening meal comprised hot bran, boiled feed (which included grain, peas and linseed) and chaff, etc. To this evening meal two ounces of cod liver oil was added.

Next to feeding, Hygiene was of most importance. Bedding was not used, the bare bricks being swept clean, faeces were removed as dropped. The walls and floor of the stall were hosed out twice daily, and a good D.D.T. spray and general cleanliness ensured freedom from flies. (Incidentally, I was sleeping in the stall). A record of the number of droppings, along with a note on their size and consistence, gave some check on the health of the patient. Of course rectal temperature was recorded twice daily. In this way and with constant observation any departure from normal became immediately obvious. (In fact, after a few weeks I think I could tell Chaperone how she was feeling).

After about five weeks callous formation was obvious and the limb, no longer useless, could take some weight. However, no risks were taken at this stage, it being decided to give the callous two more weeks to strengthen before risking a walk out of the crush.

In the meantime the limb was allowed to rest on the ground and the sling was lowered for gradually

increasing periods, until the mare was used to standing for up to three hours. Then on the 10th of March, Chaperone came out into the sunshine for the first time in seven weeks. By this time, considerable atrophy of all muscles had occurred and this was especially obvious in the near forelimb, where even the anti-gravity muscles had suffered disuse for almost seven weeks. On this occasion the mare was walked for only a few yards and immediately returned to the sling.

The exercise periods were gradually increased, and on the 27th March she was considered strong enough to be allowed loose in a sandyard. However, after this, her first roll, she needed all the help of three men to get her back on to her feet. Nevertheless, Chaperone left the sling for good less than a week after her first roll, and by the 20th April when she returned to stud at "Widden," she was able to get up unaided. Latest reports indicate that she is expected to be mated to the English sire, Al Wassat, when the breeding season opens in September.

Thus, Mr. Animal Lover, horses' bones will knit and hospitalisation need not be even suggestive of cruelty—yes, it's a lot of trouble, but at least one horse and her nurse enjoyed the process. However, if the process sounds too easy, then it is only because I have not made proper reference to all the help and assistance given by everyone in the Payten stables while I was living with them. In particular, the boys and Gordon Davidson, who were always helping in one way or another; Lionel Smith, and the others who had to awakened at 2 a.m. one wet morning when Chaperone, just out of the sling, got cast in an open sandyard; the evergreen Gerry Power (who strapped Chaperone while she was racing both here and in Melbourne)—he had other horses to tend, but was for ever bringing "some fresh green feed to build her up," often cutting milk thistles "for his old gal"—I wasn't the first boy he'd taught to bandage a horse; Charley, retired foreman, whose hints and advice I'll try to remember. The present foreman, Mr. Frank Selkrig, Mr. Payten and his family, who did everything they could to make my stay the pleasant memory that it is.

Finally my very sincere thanks are due to Mr. F. W. Thompson, of A. W. Thompson & Co., "Widden," and to Mr. E. N. Larkin, B.V.Sc., who made possible the gaining of such experience.

—A. C. J.

[This article was written as an informal factual account for the general interest of the readers of "Centaur," and it may not be quoted, in part or whole, without the permission of the author or the Veterinary Surgeon in charge of the case, Mr. E. N. Larkin, B.V.Sc.—Ed.]

W. Shakespeare — Zootechnician.

Round hoof'd, short-jointed, fetlocks shag and long,
Broad breast, full eye, small head, and nostril wide,
High crest, short ears, straight legs and passing strong,
Thin mane, thick tail, broad buttock, tender hide:
Look what a horse should have, he did not lack,
Save a proud rider on so proud a back.

(Venus and Adonis).

PASPALUM — Its Introduction to the North Coast

By GEORGE J. SKILLMAN (Year V)

In the year 1892, Edwin Seccombe grew the first plant of *Paspalum* on the North Coast of New South Wales. A few seeds of this plant were introduced, by him, from California, U.S.A., as an impurity in seed of a totally different plant. It was from these few seeds that he cultivated the plants, which were destined to be the forbears of the present day *paspalum* pastures in that district.

It has been recorded that the low keeping power of dairy products in the hot climate, and the unsuitability of the natural pastures retarded the development of dairying on the North Coast. Refrigeration and *Paspalum* surmounted these two difficulties. It is easily understood why, to-day, *paspalum* is known as the "National Flower" of the North Coast.

Paspalum was first grown in Australia by Dr. Von Mueller, in the Melbourne Botanical Gardens in 1885. Its true potentiality as a dairy pasture grass was not discovered until Edwin Seccombe grew it. As far as can be ascertained, the exact home of this grass is Buenos Aires in Argentine, South America. It spread from there farther north, and was found early in the southern parts of the United States.

There are three different species of *paspalum* of importance in Australia. *Paspalum dilatatum*, the common "*paspalum*," covers large areas of the North Coast of New South Wales and the coastal dairying districts of Queensland. *Paspalum distichum* (Water Couch) is a semi-aquatic grass valuable for wet lands subject to periodic immersion. It protects the soil from scouring during flooding and provides good grazing in between. *Paspalum scrobiculatum* is a species of great promise under Queensland conditions.

The introduction of *Paspalum* to the North Coast by Seccombe in 1892, was an accident, but he soon realised its great possibilities. For some years before 1892 he was experimenting with various grasses in plots on his property at Wollongbar for a grass which would be suitable for the district. He tried many species imported from India, Africa and America. Amongst the plants tried was Japanese Clover, the seed being imported from California, U.S.A. It was, as an impurity in this seed, that *Paspalum* was first planted. The rapid growth of this "invader" soon convinced Seccombe that his search for a suitable grass was ended, so the few plants grown accidentally were transferred to another plot and spread rapidly.

Not long after, in conjunction with the Mayor and Town Clerk of Lismore and another interested farmer, some specimens were planted on a small portion of the enclosure around the Council Chambers. Later the whole of the enclosure was planted. This experiment was an outstanding success. The fame of the grass soon spread throughout the district. Hundreds of people visited the Council Chambers to get a glimpse of the wonderful growth, and it is said that every artificer was employed to pull pieces of root through the fence.

Such was the simple beginning of *Paspalum*.

Edwin Seccombe was born at Ulladulla, near Milton, South Coast, in the year 1851. As a youth he worked on his father's dairy farm, interesting himself at an early age in Botany and Geology. He was always

experimenting as to the suitability of soil and climate for different species of grasses. This annoyed his father who regarded young Edwin as a dreamer and not a practical farmer. In 1878 he left Australia for Fiji. It is not known exactly what he did whilst in the Islands, but he amassed a fortune as well as acquiring a wide knowledge of tropical fruits and grasses. He returned to Ulladulla after three or more years' absence and later bought an hotel at Nowra. Finding the hotel life strenuous, he gave it up and settled at Wollongbar on the Richmond River, North Coast, about 1891. It was on his property, "Bau Farm," in this district that *Paspalum* was first grown. During the late 1890's he retired from farm life and came to Sydney. He died at Arncliffe in the year 1915.

It is hard for one these days, to imagine what settlers faced in pre-*paspalum* days. Around the Richmond River the land was covered with dense jungle, which had to be felled and burnt before anything could be done. After felling, farmers had to wait for nine months in order to get a good burn. Grass was sown as soon as possible after the burn. Weeds grew fast and dominated the sward even to the exclusion of the English grasses. The settlers, who were mainly from the South Coast, tried species to which they were accustomed. The main species tried were Rye Grass, Cocksfoot, Prairie Grass and Clovers. If they did grow, none would remain for more than twelve months. Because of its vigorous growth and its liking for the climate, *Paspalum* alone was able to survive.

One newspaper reporter records the change *paspalum* made to the district in an article reviewing the life of the "Parent of *Paspalum*" (Edwin Seccombe) in 1915.

"Our memories go back to the pre-*paspalum* days, when dairying was in a precarious infancy; how the little dairying that was done resulted often in disappointment; the hot weather often burning the rye grass out of the sod; then we remember the tremendous impetus that was given to the industry by the introduction of *paspalum* grass; we remember how the vigorous growth fought and conquered all; we see languishing acres suddenly springing into vitality and luxuriant verdancy; we hear the lowing of many cattle; we see small creameries rising up on every hand and giving place to wonderful factories; and recalling all this, we turn again and wonder just what we owe to Edwin Seccombe."

The future utilisation of *paspalum* pastures on the North Coast remains a big problem. A considerable part of this country has declined to one-third its original carrying capacity. The fertility maintenance is not a simple problem. During summer when *Paspalum* is growing rapidly, its feed value is good. There is reason to believe, however, that for long periods the protein content of the grass is well below 13 per cent. on a dry matter basis. This level is necessary for satisfactory milk production. The plants, after some years, become sodbound and fall off in palatability as they become rank and fibrous. Winter dormancy of *Paspalum* pastures is one severe drawback. At the moment there is no winter growing grass which will

accompany *Paspalum* in the pasture, as the vigorous growth of *Paspalum* eventually crowds out all other species.

The greatest improvement that could be effected would be to establish and maintain a strong growth of clover. This would improve the growth and the palatability of the pasture as well as increasing the protein content. But there are difficulties to be faced. Some *Paspalum* soils do not respond to phosphates, a stimulant for clover. Also there is no clover suitable generally for the district, although white clover forms a useful companion in some areas. Drastic cultivation is one method of renovation and short rotation with rye grass pasture can be established to provide winter feed.

There still remains great scope for research into utilisation of *Paspalum* pastures and the *Paspalum* country.

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THE ARID SHEEP RAISING AREAS OF SOUTH AUSTRALIA

It is becoming a platitude to say that that peculiar person, the average layman, knows nothing about the Interior of this continent. It is also untrue. He knows a lot but it is nearly all wrong. Mention the sparsely populated sheep country to him and you will start the train of thought—"undeveloped—under-populated—continual provocation to the crowded Asiatic—populate! develop or perish!" Or mention soil erosion in the Centre and start a different train, running, of course, on an entirely different branch line—"moving sandhills, engulf homesteads in a night (no, not avalanches, they're Swiss)—smothering good country—must be halted—urgent action—reafforestation—irrigation—T.V.A.—Bradfield Scheme—fill Lake Eyre—desert bloom like a rose." These, maybe, are easily recognisable as half truths and misconceptions, but even Veterinary students—enlightened experts in primary production—may hold other equally wrong ideas. So, while no doubt introducing quite a few absolutely absurd but quite new misconceptions ourselves, we shall try to write this article despite meagre knowledge, experience and ability.

The area under discussion is that part of South Australia inside the 10 inch isohyet line which is used for depasturing sheep. Taking Lake Eyre as a reference point, it includes two triangular areas; to the south and south west down to a line roughly west from Whyalla, which meets the sea about the head of the Bight and thereafter following the coast; and to the south east, to a line running, roughly again, from Renmark to the head of Spencer Gulf but excluding the higher rainfall areas of the Flinders Range. The other arid parts of South Australia are largely open country. The North West is unoccupied by pastoralists and is, every one knows, to be used for firing atom bombs at aborigines. The Far North East (with the exception of Simpson's Desert, north west of Lake Eyre—one of Australia's few true deserts) is mostly unfenced and held on cattle leases. (The dingo problem, now out of hand, and the droughts of recent years, have forced the one or two fenced sheep runs in the Innaminka area to turn to cattle).

Much of the latter country, apart from the fairly good flood plain country traversed by the channels of Cooper's Creek and the Diamantina, is similar to the arid sheep country and has many problems in

common. Incidentally, there are considerable arid sheep raising areas in the far West Darling district of New South Wales, and in parts of Western Australia, notably the Goldfields and lower North West districts, which are similar to those in South Australia.

To understand this "outside" country (so called despite its position in the "inside" of the continent) three cardinal points must be grasped.

The first is the importance of the perennial fodder plants, the saltbush-bluebush tribe, and the edible scrub and trees, notably the mulga. On the survival of this perennial vegetation depends the present pastoral system. Thus, more than once an old man drought has caused devastating losses on the rich comparatively high rainfall grass country of Queensland, but has left the South Australian semi-desert flocks almost unharmed, as they subsist on these perennials.

The second factor is rainfall. Our friend the layman fully appreciates that an average annual rainfall of under 10 inches is very dry. But he does tend to worship averages. Typical country has an "average" rainfall of seven inches. But an average rainfall is calculated from a series of recordings, and in this case they vary widely. An excellent example to drive the point home is "Murnpeowie" station, north of the Flinders Range, surely the driest fenced holding in the world. Here the average rainfall over 40 years is 4½ inches, but from 1924 to 1934 the total rainfall was 3½ inches. Though spectacular in its low "average," the variation in annual fall is typical. Almost every station throughout the area has registered a zero rainfall, and many can show successive years without a measurable fall. To maintain the impressive average of five to seven inches, every twelve years or so a flood occurs, sometimes a flood by any standards, with rivers running miles wide and drowning in hundreds the few stock surviving the preceding drought. The crux of the matter is that the normal condition of the country is drought, varying somewhat in degree, with a blasting drought and a flush season interspersed at ten to fifteen year intervals.

Arising mainly from the scanty irregular rainfall, in all but bumper years the limiting factor, is the third major point of land value. Bear in mind, it is unlikely that average saltbush country can carry more

than 20 to 25 sheep to the square mile (21 acres to the sheep if you like), and that while the very best may carry 40 sheep to the square mile, the very worst can carry very nearly nil. Thus the capital value of the land is very low.

One small fact, a corollary of those above, should be assimilated. That is the enormous, and incidentally necessarily enormous, areas of the holdings. (Even the layman can do this. He has a thought train for the occasion. "Outback station—enormous—colossal—thousands of acres—millions of acres—size of Belgium—size of France—size of U.S.S.R., etc."). However, 1000 to 2000 square miles may be taken as a normal reasonably sized holding (avoiding, for the moment, what we mean by "reasonably").

We are now in a position to point out a trap, obvious enough, but because it is more an attitude of mind than a statement which can be logically refuted, one into which many people fall. It is the fallacy of comparing "Inside" and "Outside" methods of pastoral management. If psychologists admit the existence of subconscious thought train it would be "640,000 acres, eh?—own 8,000 myself—suppose the place would be 80 times as hard to run?—plantations, bore drains, kitchen sink, etc., would have to be 80 times as big, eh?"

Probably at this stage it would be useful to concentrate for a time on a particular station and consider it as an example of pastoral holdings in this area. Actually it is situated west and north west of Broken Hill, but it is a typical enough holding, though probably better run and better improved than the average. It is about 3,000 square miles, and the shape of an elongated "L"—unwieldy to work, but a good shape in a district where an isolated half inch thunderstorm two miles wide may be the only rain in twelve months.

Our knowledge of Geology being even less than our knowledge of Pastoral Botany, we will pass over the logical starting point of a description, "soil types," in favour of "pastures." We have the superficial justification that the stock do eat, or rather do survive on, the pasture, not the soil.

Of the two broad divisions of perennial fodder, the 'bush is of greater importance. They may be subdivided into the two groups of saltbushes and bluebushes, with the less important cotton bush making up a third. The saltbushes comprise many species both annual and perennial, the latter being by far the more common and important in this area. The blue bushes are similar but generally larger and coarser, harder and more stemmy in consistency. Due, either to better adaptation to the country or to less attraction for stock, or more likely both, they seem to be harder than the saltbush.

The edible trees and scrub include, amongst others, myall, mulga, and sandalwood. The first was never very plentiful or as attractive to stock as the other two. The last is almost gone—it was scarce anyway, but provided too good a fodder to survive long. Mulga quantitatively and qualitatively, is of supreme importance. The adult trees are excellent, drought-resistant, sheep fodder. This property was lucky enough to have a total of almost 1000 square miles of mulga scrub, and during the drought which broke at the end of 1945, and I have no doubt all previous droughts, the sheep were kept entirely on the mulga, scrub-cutters feeding them regularly. The mulga coppices vigorously after cutting as soon as the rains come. It is interesting to note that, drought resistant as the adult mulga is, very large areas of mulga

south of Alice Springs, did die during the severe drought of 1924-1929.

The annuals, ephemerals and herbage after rain are very plentiful and in their way as well adapted as the perennials to the dry country. They sprout, grow, flower and seed extraordinarily rapidly, providing an unusably large bulk of excellent feed for a short time.

There are other plants, which may be generally grouped together, replacing bush and mulga when they disappear. Some of these, e.g., spear grasses, though virtually inedible, will hold drift sand, while others, e.g., the "bindi-is," short-lived perennials, are quite palatable when young. Others again are the totally inedible mallee, which has turned some of the higher rainfall country into a "green desert"; and the "Bathurst Burr," established along some of the water course flooded country.

So much for the plants. What of the country? First, there is undulating red soil carrying mulga scrub, replaced when the mulga dies by mallee, inedible shrubs and annuals. Secondly, slightly undulating chocolate brown loams carry the 'bush and often, at least originally, lightly timbered with black or desert oak. Thirdly, the low-lying flooded country, growing after good rain, a luxuriance of amazing selections of annuals, including marsh mallow, "spinach," and especially trefolls. Lastly, to the north, is typical sand-hill country. These sandhills react quickly to rain giving a good growth of annuals, and are, or more often were, stabilised at least partially by stunted oak and spear grass.

Since the unimproved land is unusable, improvements are fundamental to the working of a property. Many, possibly all, of the holdings are, on a land value basis, over-improved. Very commonly an enthusiast, taking up the land in a flush season, spent thousands on improvements, and sold out, bankrupt, at a fraction of their cost, after the first run of normal seasons.

Water in a naturally waterless land is of primary importance. Bores, where possible, and tanks, with long pipe lines constitute the water supply. Boundary fencing is the dog-proof 3ft. rabbit netting, topped by 2ft. 3in. marsupial netting. Decrease of the dingo (in this particular area) and increased costs have meant that only the northern boundary, abutting on the unfenced and usually unstocked cattle country, has been maintained dog-proof.

Subdivision fences are four strands of No. 12 low tensile wire. High tensile "Cyclone" and barbed wire of the crossbred country sound a tall story to the arid country Merino man. The paddocks are about five miles square, each with a water supply of a kind but in accordance with policy only about two-thirds of the holding has permanent water. The remaining one-third is "reserve" country, heavily stocked to spell the "permanent" country's sprouting bush when the current drought breaks.

Another interesting feature is the shearing plant. Never in the size class of the 72-stand Western Riverina sheds, the greater distances meant a tendency to several smaller sheds of 12 to 30 stands each. Even so, the holding paddocks and the routes to the sheds became, denuded of all cover, a howling wilderness of sand. Further, the sheep were often too weak to travel to the shed safely, or, as here, the scrub country was separated from the nearest shed by 30 miles of bare country. So a shearing camp modelled on the mustering camp system has been evolved and found very satisfactory. Portable gear from yards to

wool room and press are carted about on trucks from one group of paddocks to another, and shearing done on the spot.

This very superficial description may bring the problems of the area into clearer perspective. We can now consider these problems more generally.

All pastoral management, and all schemes of conservation are directed to one end, the economic production of wool. Yet the sheep are singularly unobtrusive, and not only neglected in theoretical discussion of the country, but are even unobtrusive in the country itself. Many people must have spent weeks touring through saltbush stations without sighting a single sheep.

You have seen the sheep in Sydney. You can't mistake them. They're bright red and slightly smaller than a bullock. What about the wool? We know the story of the Yass man who examined a South Australian Merino closely: "Marvellous sheep. Wonderful scale," he said, "but in our district we breed our Corriedales polled." We also know of the Adelaide wool-buyer who deplored the urban way of life: "I do love handling the North East clips," he said, "I feel that I am really in touch with the soil." All right. So the wool is a 58's (but a 58's Merino), and it does carry a little dust. But the wethers regularly cut 17 and more pounds, and the clean scoured yield is none too bad. And remember the conditions under which this fleece is produced, and don't talk too glibly of "constitution" and "massive cutters," you Peppin type advocates.

In fact, New South Welsh complacency should be disturbed a little. Stop now and then and wonder if you do really breed the best sheep in the world. Note the near monopoly South Australian blood has in the Western Australian flocks, and if you argue on the grounds of accessibility, ask yourself why some of Queensland's finest flocks import South Australian rams, despite local studs of bluest Peppin blood. Then look at the other end of the continent, Western Victoria, and the South East of South Australia, and note the demand for South Australian saltbush bred wethers. And note the reasons for this demand; the sheep thrive on natural or improved pastures, the wool fines down to a 60/64's, but they cut 14 to 15 pounds of it, and finally (in their dotage) they fatten to prime mutton.

Comparisons may be odious, but at least in this admittedly provocative and unscientific discussion, we have indicated the importance of the South Australian Merino and thus of the area which produces him, and so indicated the importance of the final topic, the future of this area.

Let us arrange our thoughts at this stage and state the problem in its simplest terms. The present pastoral system depends on the perennial vegetation. Thus the future of the area hinges on the future of the perennial vegetation, and so, throughout, this will be our main angle of attack.

A good start should be to examine the present state of the country. The picture is none too pleasant. Over enormous areas the 'bush has gone. Ratcliffe, who reported on the question for the South Australian Government, gives as his estimate that north east of the Barrier Ranges for instance, and in the West Darling, 90 per cent. of the 'bush has gone. Similar figures hold for the lower North East in South Australia. Everywhere in the sheep country serious deterioration has occurred. The mulga is disappearing just as rapidly.

Erosion is an inseparable part of the same picture,

and acts at once as a cause, an effect, and a distinct facet in the deterioration of the country.

We can start the story of erosion with the disappearance of the 'bush from a typical 'bush area, where it grows on a thin layer of light loamy soil. The wind begins to move the now unprotected soil in the form of dust, and finally the bare subsoil is unearthed. The soil type has changed, and the former plant association cannot re-establish itself.

The lighter topsoil has gone and the coarser particles now begin to move. Sand drifts and finally sandhills may be formed. At the same time disturbance of plant association (annuals, scattered oaks, spear grass, etc.) of the stabilised sandhills country means another contribution to the quota of driving sand, the spectacular part of erosion in the Inland.

The unpleasantness of sand is well recognised—drifts silt up dams and tanks, bury yards and vermin fences, pile against and even, in time, cover buildings; the wind-driven sand abrades existing vegetation, hastens its death and facilitates further erosion. But there is another aspect. Much of the sand of the Inland country will grow, after rain, annual fodder plants; a poor second to perennial country maybe, but the perennials depend on the light top soil which has usually gone before the sands begin to move, leaving a bare, totally infertile subsoil. So sand drifts very often convert totally useless, once "permanent," country into country carrying, at least after rain, some useful feed. The "Onward March of the Sands" is perhaps not a further deterioration, but a slight improvement in the progressive story of erosion, whose initial chapter, and whose central theme is the removal of the perennial vegetation.

The indigenous causes of the disappearance of 'bush and mulga may be grouped under two headings, drought, and the limitations of the plants themselves.

Take the mulga first. Treat mulga reasonably, don't lop it too hard or too often, and it will provide excellent drought fodder, and yet coppice vigorously after rain. But "all flesh is grass," and all higher life must die in time. When the existing mulga dies will it be replaced?

The mulga seeds quite freely and after a good season in mulga country quite a satisfactory crop of young trees may appear. But the mulga is a slow growing tree. While young 'bush may mature in a single year it takes very much longer for a young tree to reach the stage when it cannot be destroyed by a single hungry wether, or, for that matter, a few hungry rabbits. And that seems to close the discussion on the future of mulga in the sheep country. The answer is all too obvious.

The adult bush can withstand reasonable stocking in normal years. Further, its resistance to drought and consequent severe grazing by sheep is phenomenal. Salt bush in bad drought is reduced to bare blackened sticks, but the dormancy seems, if necessary, indefinitely long, and the majority of the 'bush will sprout again with the coming of the rain. This new growth must be given a chance. If eaten off immediately the bushes' resistance is seriously lowered, and a second eating off will almost certainly kill it.

Replacement is the second weakness. The 'bush does not seed prolifically, and for this reason alone rehabilitation of denuded areas would be slow. But to worsen the position the young bush, unlike the adult, is very delicate. Especially if the germinating rains are light, early grazing, or scorching wind can kill young seedlings.

Drought is worthy of separate consideration.

Adaptation to so severe a climate cannot be perfect. The margin of existence is thin and drought alone can, and has, killed adult perennials, both 'bush and mulga.

Man's contribution is, of course, the more important factor in the deterioration of the country. We have more hope of controlling and correcting man's action than nature's, and after all it was man's advent which disturbed the admittedly dynamic "balance of nature."

This exogenous factor may be summed up in the one word, stocking. Man introduced domestic stock and the rabbit, and drastically altered the overall stocking of the country. Further, man, by improvements, altered the distribution of stocking.

We could do worse than consider Nature's method of pastoral management. Nature's run extended the length and breadth of the 'bush country (to be strictly accurate it was limited only by the sea), but it comprised probably the most waterless stretch of non-desert country in the world. At the end of a good season the natural fauna would likely have been fairly plentiful. But when the drought returned and the temporary waters dried up the steadily decreasing numbers of survivors would concentrate on the few permanent waters, which, significantly, showed serious erosion when discovered by the white man. The animals tended to migrate then, as now, south and east in search of better pastures and waters. Thus the break of the drought would find most of the country unstocked, and total stock numbers drastically reduced. Breeding up and re-migration would take considerable time and allow the droughted country a prolonged spell in which to recover. Nature's methods, then, implied no continuity of stocking. Simply they consisted of relatively heavy stocking in flush seasons succeeded by prolonged rest during and following drought.

Man introduced domestic stock which, incidentally, have hard feet for pulverising light soil. He overstocked the country, often to quite ridiculous extremes, through ignorance and greed (either his own or his creditors). Examples of ignorance are the many old leases stipulating minimum stocking rates, and rating them as high as 100 sheep to the square mile. Another, was the failure to realise the importance of the 'bush compared with the spectacular, but transitory annuals and ephemerals. Astronomical stocking to "eat out the bloody 'bush and give the grass a chance" was common.

Even more important was man's alteration in the distribution, both spacial and temporal, of the stocking. He increased, as he had to, for a sheep's grazing range except in a flush season is about five miles, the number of permanent waters and fenced them in. Thus in a drought season the majority of the country was no longer spelled, and as long as anything edible remained the stock numbers were not decreased. The same principle applies to a single station. At first the bulk of any property was only served with temporary water, and had to be spelled in a drought. This principle of maintaining a proportion of "reserve" country, unstocked during drought but stocked when the rain comes, and thus spelling the "permanent" country, and its highly susceptible newly sprouted 'bush, is now recognised as sound." After all it is only an adaptation of Nature's methods; but then it was considered an unfortunate but temporary necessity. As soon as he could the landholder put in more permanent watering places. A drover, discussing the boss's action in putting a bore down in the centre

of a 200,000 acre previously waterless paddock, talked of "a forest of bloody windmills and drifting sand." He had the right idea.

Rabbits are important, if not vital, in any scheme to stabilise the country. A succession of two or three reasonably good seasons allows the rabbits, normally very scarce but always present, to breed up. As the country dries, lack of water and food starts them moving, and a rabbit plague on a scale unknown elsewhere, even in Australia, ensues. When rabbits pile so deeply along vermin-proof fences, that finally the latecomers can walk over the fence on the mound of suffocated bodies, it is absurd to talk of normal methods of control.

The importance of rabbits as a cause of existing deterioration is difficult to assess. Some portion to them almost the entire blame. This is debatable. In the midst of the flush season there is ample annual feed, and this mitigates, to some extent, the damage to 'bush and young mulga. As the drought returns the rabbits, unlike the sheep, can and do begin to migrate. Naturally the starving moving horde will do colossal damage. The young mulga, almost the only green thing at surface level, will be absolutely and completely destroyed. The 'bush, though, in its stage of dormancy is not so easily damaged. And finally, the increasing starvation death rate limits the damage. Thus rabbits, when the drought breaks again, are in negligible numbers and insufficient to damage the highly susceptible and newly sprouted 'bush.

The importance of the rabbit in any plan to halt the deterioration of the country is obvious. Even if not the principle cause in the disappearance of the perennials, he is a close second to domestic stock, and we have some hope of controlling domestic stocking, but little, if any, of controlling the rabbit.

Since the control of the rabbit is the *sine qua non* in stabilisation of the country, a consideration of ways and means of rabbit control could well preface a consideration of this problem.

Naturally control must prevent the plague. Once the plague occurs the damage is done and finally starvation is a quicker killer than any method man can devise. This means extermination of the few survivors who hang on, somehow, between plagues. All accepted methods are scarcely worthy of discussion (and in any case would have to be applied on a nationwide basis to be of any use). The enormous areas, very few rabbits, and low capital value of the land make the job impracticable as well as probably impossible. At the moment biological control, in the form of a specific infectious disease, seems to offer the only hope, and even here the scattered population would lessen the chances of even a highly infectious fatal disease proving efficient.

Stocking rates and methods can and must be controlled. It seems likely that none of the saltbush country should carry more than 35 sheep to the square mile, as an average of relatively high flush season stocking and low drought stocking. 20 to 25 sheep per square mile is a figure probably applicable to the bulk of the saltbush country. Certain methods, found effective in maintaining the 'bush should be universal. The "reserve" country system is the best example of this, and that reserve country should be at least one-third of the total area of the holding. Shearing in paddocks, a measure of sheer necessity when sheep are too weak to walk to the shed, has been proved practicable and should prevent further erosion along stock routes and in the holding paddocks.

Almost a corollary of these suggested methods of management, large holdings must be universal. Minimum leases should be in the region of at least 300 square miles. The saying is on the West Darling, when part of the property is resumed for closer settlement: "Never mind, we'll get it back in a year or two—over the fence." It is impossible on a small area with small capital to balance a budget based on a cycle of, say, six drought years of possibly breaking even; two super-drought years of staggering loss and two flush years of profit. The small man goes bankrupt, but in attempting to stave off the inevitable he ruins the land by overstocking. Actually it is impossible for the small holder, even were the capital available, to practice sound management. Much of the rain during the normal drought time is from scattered thunderstorms. One hundred square miles may easily miss these thunderstorms for years on end, and may enjoy a local super-drought in the midst of a normal season. This land should, obviously, be unstocked, as on a large property it could be, the sheep being moved to more favoured paddocks. But if the afflicted country makes up in itself one property, this course is impossible.

Land tenure deserves a mention here. Some security of tenure (conditional on good management if necessary) should be instituted, for the landholder must have some incentive to manage the place in such a way that the 'bush is preserved as a permanent asset. At present the reward of such efficient management is often termination of the lease and closer settlement of the holding. If the leasehold system must be maintained, the rentals should be reviewed, and, where necessary, reduced to allow these lowered stocking rates we have suggested.

These suggestions should at least help to preserve the country still carrying 'bush. What can be done to rehabilitate areas from which the 'bush has largely or completely disappeared, particularly "scalded" clay pan areas where the top soil has all been eroded?

To deal first with the most ambitious suggestion, the establishment of unstocked "soil conservation areas" of perennial plants as bulwarks to halt erosion. It should be obvious these must be rabbit-proofed. The cost of rabbit fencing in the Inland is about £30 a mile exclusive of maintenance costs. Any way normal rabbit fencing will not stop plague rabbits. While this plan is desirable around towns, as has been done at Broken Hill with such remarkable results, cost compared with land value rules out the idea as a general measure.

At least for small areas ploughing furrows at right angles to the direction of the wind is practicable and quite efficient. The furrow catches drifting soil and stray saltbush seeds, so that a line of vegetation will establish itself. An extension of this idea is actual sowing or broadcasting of 'bush seed along the furrow. Experimentally it is successful, but the cost makes its large scale use doubtfully practicable. Aerial broadcasting might reduce the cost of the sowing operation, but naturally not the high cost of seed harvesting. It is important to realise that all these regeneration schemes have one point in common: they must await suitable rains before results can be obtained.

An idea on a different track is the introduction of more resistant plants. Work is being done on this, and it deserves every encouragement. It is a botanists' preserve, on which we poach with diffidence, but it does seem unlikely that edible plants, better adapted

to the country than the natives, will be evolved or discovered. There is perhaps more chance of obtaining a drought-resistant inedible plant as a wind-break and a soil-holding plant for "soil conservation areas," and for stabilising sandhills. The difficulty in this case is one of biological balance. The plant would have to propagate itself vigorously—it could obviously not be hand-planted—yet it must not dominate the plant association to the exclusion of the edible species, for, after all, a perfectly stabilised area completely covered in inedible vegetation is hardly better than one seriously eroded.

A final practicable suggestion should be recorded. A permanent Research Station, on a typical large area of inland country, should be established. Here conservation schemes could be evolved and tested under severely practical conditions.

Since everyone has heard something of them, we shall have to, we suppose, mention dreams of "Irrigating the Inland of South Australia." These schemes all aim at filling Lake Eyre and thus changing the climate of this arid region—not even the wildest visionaries suggest actual irrigation on a large scale of inland South Australia. Assuming, then, although it is by no means proved, an increase in rainfall would result were Lake Eyre filled, we can discuss ways and means.

The Bradfield or Idriess schemes are worth investigation as a means of irrigating parts of South West Queensland. However, as a means of filling Lake Eyre they may, at the present time, be dismissed. That water diverted down the Georgina, Diamantina or Coopers Creek, in any quantities that it might be practicable, or even possible, to deliver it, could ever reach Lake Eyre, let alone fill it, seems almost inconceivable. Since 1918 when Coopers Creek water last reached the Lake, siltation of the channels has been immense. Since cheap, unlimited atomic power, even controlled atomic power, is a possibility for the future, it would be futile to say these schemes, and others such as filling Lake Eyre from the sea, will always be impossible. But we cannot afford to await these problematical grandiose schemes. We must attempt conservation now by more prosaic means, for even with an ideal rainfall it is somewhat difficult, and a rather specialised technique, to grow plants without soil.

We have tried to indicate the importance of this area. We hope to have given some idea of the present condition of the country, and the causes of the deterioration. We have set out a few suggestions for halting or reversing this deterioration. But we have hinted that our best efforts in this direction might only slow down the degenerative process, at least while the rabbit exists in this country. So it remains to attempt to forecast the fate of the country should the perennial flora sooner or later disappear entirely. The annuals and ephemerals, on the sandhills, would then provide the sole fodder available, and permanent stocking when the feed exists only six months in as many years would obviously be impossible. There would be no point in maintaining fences, and the country, those parts used at all, would be held on cattle leases and only stocked in flush years. This has happened already to certain areas of 'bush country.

So the alternative is not very pretty, and the lesson should be fairly plain. Conservation of the perennial flora of the arid country is an essential and an urgent problem.

AN OPEN LETTER TO SOCIETY MEMBERS

This year the privilege of writing this letter is mine, and although from my point of view the present is not a suitable time—since my term of office is scarcely half completed—it means touching on many things that are as yet unfinished—any action calculated to interfere with the Editor's determination to produce Centaur before the year ends, would come ill from me.

The Veterinary Society is something more than an association of Undergraduates. It is an integral part of the Faculty, serving as a link between the students as individuals, the Staff and other Faculties. As such, the chain of which we form a link is no stronger than we ourselves are. The society is a responsibility which the fresher inherits the moment he enrolls, and he must be prepared to shoulder it throughout the whole of his career at the "School at the foot of the hill."

Though social activities are not by any means the major part of our work, they serve the very important function of bridging the lecturer's bench and allowing him to meet his students on common ground; but more important still, they help us to maintain contact with those who have passed through this and other schools. Further, they act as a reminder that study is not the sole purpose of University life and allow students themselves to become acquainted in an atmosphere of good fellowship. With the present expanding size of the Faculty and the very limited leisure time the various years tend to be segregated and even the atmosphere of easy friendship within any Year, once inevitable, is now in danger.

So long as the Faculty remains, just so long will there be a Society to carry on the traditions laid down by its founders, but it must not be allowed to remain static, either in thought or action. Changing times bring changing needs and to fail to adjust ourselves accordingly would be to allow the Constitution to become our master instead of our servant.

Membership this year is another record, a reflex of the heavy post-war enrolments and faithful work on the part of the Year Representatives. This has naturally made organising more difficult, and without the loyal support of a hard-working Secretary and energetic sub-committees it would have been an impossible task. At this point I would like to acknowledge the co-operation of the Sports Club in conducting the Sports Day at the end of Lent term.

It is very satisfying to know that the War Memorial Fund has been established and that already payments are being made regularly to it. In this venture we welcome the opportunity to work with the Australian Veterinary Association. A job started is a job half-

finished, and whatever may be the ultimate form of the Memorial, it will be a fitting tribute to those who fell.

Attendances at the Friday afternoon addresses are a matter for some concern, as numbers have averaged no higher than when the Faculty was half its present size. I do not believe this matter can be brushed aside as "apathy," which in any case is only a symptom; nor do I think the reason lies in the separation of business meetings from addresses, which was done with the dual object of saving guest speakers the necessity of sitting through proceedings which could not interest them, and to overcome the tendency to rush business through without proper discussion. If the afternoon meeting time is no longer suitable to the majority of members it can easily enough be altered to lunch hour, though it may not then be so easy to obtain speakers.

I have made a point of inviting a proportion of speakers on subjects other than veterinary, in the conviction that one of the most useful functions the Society can fulfil is that of providing the opportunity for members to hear something about how the "other half" lives, and to meet representatives of the men with whom much of our future work is intimately concerned. Five years spent within the walls of a Faculty such as ours gives little opportunity to learn the other fellow's viewpoint, and what is probably of greater significance, stimulates little interest in it. A drift towards insularity is the natural consequence and this can only react to the detriment of all concerned.

Whatever is the reason for the falling off in attendance, it is a problem that future Executives will have to face and solve.

The Dance Committee is to be congratulated on the success of the Freshers' Welcome and the Faculty Ball. Before the year ends I hope the Dinner will have been recorded as equally successful and that the new Constitution will be adopted. The Executive status to be given to Year Representatives will be of great assistance in increasing organising efficiency and maintaining contact throughout the Faculty.

On your behalf may I extend a hearty welcome to the newest group to be formed within the school—the Genetic Society, under the leadership of Dr. Finlay. We wish him every success.

In closing may I once more urge you to give the Society your full support. You cannot take out more than you put in.

Yours sincerely,

JOHN S. POTTER,
President, S.U.V.S., 1947.

A story missed by the Australian Wool Board reaches us from Yorkshire. The true son of Bradford who overheard in a crowded tavern the market tip, "Buy yarn, Barney Banks," would have been richer to-day had he realised he was listening to an American recite the first line of Loch Lomond.

In the rapidly approaching bureaucrat's paradise Directorates, to direct matters, will play a large part. We foresee also the pressing need for a body to anticipate things, known, of course, as an Expectorate.

Thirty-fourth Annual Report of the Sydney University Veterinary Society

It is with great pleasure that I present this the thirty-fourth annual report of the Sydney University Veterinary Society.

The activities of the Society during the year 1946 have been characterised by marked progress and achievement as well as by innovations. It has been encouraging to note the consistently large attendances and keen interest of both the staff of the Veterinary School and the student body in the meetings throughout the year, indicating appreciation of the efforts of the executive to make the society of some practical benefit to its members.

The year has seen the return of some members of the armed forces. We gladly honour them for their response to the call of the Empire and wish them a speedy and successful completion of their interrupted studies. Their wider experience of life and more mature outlook will enable them to make a weightier contribution to the affairs of the Society.

It is with regret that we have to record the loss to the Veterinary School during the year of our distinguished and highly esteemed Dean—Professor I. Clunies Ross. We congratulate him on his well-deserved appointment as a member of the Executive Committee of C.S.I.R.

We welcome the new Dean, Dr. H. R. Carne, whose long-continued and helpful interest in the Society is so well-known as hardly to need special mention.

It would not be fitting to fail to mention the services to the Society of Miss Black, who through ill health has been forced to sever her connections with the Veterinary Faculty.

The Society's meetings during the year were as follow:—12th April, 1946, 34th Annual General Meeting. Professor I. Clunies Ross was in the Chair and the following Office-bearers were elected:

Patrons: Hon. Minister of Agriculture, Professor I. Clunies Ross, Professor J. D. Stewart, Members of the Staff.

President: Mr. W. J. Wilkie.
 Vice-Presidents: Messrs. R. D. Hartwell (ex-officio), T. Wallace, L. Williams.
 Hon. Secretary: Mr. W. L. C. Purdie.
 Hon. Graduate Secretary: Miss V. Osborne, B.V.Sc.
 Asst. Hon. Secretary: Mr. F. W. Evans.
 Treasurer: Mr. P. Brydon.
 Editors of Centaur: Messrs. B. Frecker, G. Haszard.
 Librarian: Miss A. Gubbins.
 Publicity Officer: Mr. D. Rees.
 Asst. Publicity Officer: Mr. G. Manefield.
 Executive Committee: Miss B. Smith, Messrs. T. A. Thompson, R. W. Hewetson, R. Dun.
 Dinner Committee: Miss A. Gubbins, Messrs. J. Johnston, J. Ryan, A. Glover.
 Float Committee: Miss P. Yardley, Messrs. J. Springhall, G. McGrath, A. Eedy, W. Whatmore, W. McClure.

Debates Committee: Miss J. Stainforth, Messrs. A. J. Chittick and K. Kelly.

Dance Committee: Misses A. Francis, J. Edols, N. Wright, and Messrs. N. R. McDonald and J. Howes.

Year Representatives: 1st year, B. Downey; 2nd year, J. Barnes; 3rd year, W. Lawrence; 4th year, G. Swinburn; 5th year, G. H. Royle.

The general Meetings held during the year were:

April 21: Business, Annual Subscriptions, same as preceding years. Farewell to Dean. Informal Dance in Lent Term.

May 9: Business, Letter from Evening Students' Association.

May 10: Address by Mr. Rushford (5th year), "Essays and Projects required by the Faculty during Fifth Year."

May 17: Address by Mr. T. G. Hungerford, B.V.Sc., H.D.A., "Blunders of a Practitioner."

June 14: Address by Major Larkin, "Observations made during Eleven Years of Veterinary Practice."

June 28: Address by Mr. Boyer, Chairman of A.B.C., "The A.B.C. in its Relationship to the Community."

July 8: Film, through the courtesy of Mr. Jones, of Watson Victor Ltd., and Commentary by Mr. Charteris, B.V.Sc., "The Use of the Stader Splint in Private Practice."

July 19: Address by Dr. Belschner, "The Buffalo Fly."

August 2: Address by Mr. Sawtell, "Waters for the Inland."

August 9, 1.10 p.m.: Business, Motion of Censure of Executive Committee. Motion withdrawn.

August 9, 4.15 p.m.: Address by Mr. Pursell, "Small Animal Practice."

September 27: Address and Film by Professor F. Cotton, "Blackout Suit."

October 11: Address by Professor Ashby, "Student Life in Russia."

October 18: Address by Dr. Gunn, "History of the Veterinary Profession."

October 25: Address by Mr. Sawtell, "The Life and Habits of the Australian Aborigines."

November 1: Business.—Election of Orientation Sub-Committee to comprise representatives from each year and one women's representative. Discussion of proposal by the Australian Veterinary Association that each member of the Society receive the A.V.J.

An attempt was made throughout the year to hold a meeting on every available Friday afternoon and to have present at these meetings a distinguished speaker whose qualifications enabled him to give us an informative address on some subject of interest and of practical benefit. We were indeed fortunate in the wide range of distinguished men who gave up their time to come and speak to us and in the exceptional quality of their addresses. We are grateful to the Faculty for its co-operation in making it possible for members to attend these meetings. Purely business meetings were confined as far as possible to lunch-hour meetings.

Two notable innovations in the activities of the Society this year were the Orientation Course and the showing of documentary films.

The Orientation Course was held at the beginning of the year during the week preceding the commencement of lectures. The object of the course was to give freshmen an introduction into University life in general and in particular to the Veterinary Society and to the possibilities and advantages of participation in University sport, social activities and clubs and societies. Conducted tours through the University were held, demonstrations were given and talks presented by members of the staff and student body. A

booklet entitled "An Introduction" was prepared to summarise and supplement these talks and to cater for those who were unable to attend them.

Documentary films incorporating subjects of both Veterinary and general interest were shown on Tuesdays during lunch hours. The extremely large attendances at these were an adequate indication of their popularity.

Social activities during the year included a Supper Dance and informal evening held during Lent Term, the Annual Ball and Annual Dinner during Trinity Term and the Dean's farewell on 21st June.

The Supper Dance at the Coronet and Annual Ball at the Grace Auditorium, were as usual an outstanding success socially. Financially, however, it was the same old story.

The Annual Dinner, held in the Union Refectory, was also a social success, but it was disappointing not to see a larger percentage of the Society's members at such an important annual event. A number of final year were able to make the trip down from the Farm for this occasion, and we are glad to be able to take this opportunity of congratulating them on their success over the last hurdle and of wishing them every success in their lives of useful service to the community.

In the field of sport, Veterinary Science has this year maintained its record of successes and fine sporting spirit. The "esprit de corps" and comradeship which is such a marked feature of the Veterinary Faculty is undoubtedly due in no small measure to the Faculty spirit developed on the playing field.

In football we were the winners of the Inter-Faculty competition. The team was undefeated and won the seven games it played. 164 points were scored by the team to 21 points scored against it. We congratulate the team on this outstanding success.

In cricket two games were played, the team defeating Agriculture, but losing to Science.

Two teams were entered in the inter-Faculty tennis. The B Grade team reached the final but was defeated in this by Dentistry.

In basketball we were also the winners of the Inter-Faculty Competition. Six games were won and one lost.

In soccer the team was undefeated and was placed second in the competition.

Representatives were fielded in all events of the Swimming Sports, but here success was lacking.

In Athletics we were runners-up to Engineering and were this year surprisingly defeated in the tug-of-war.

Our two outstanding sporting stars were this year Les McKeand and Peter Fallon. Les McKeand represented N.S.W. in the Australian Championships at Perth and represented Sydney in the Inter-Varsity Athletics at Hobart. He was also winner of the Harvey Sutton Cup.

Peter Fallon was a worthy representative of the University 1st XV, and was voted the team's most consistent forward.

A record such as this should stimulate each member to active participation in the field of sport, and where this is not possible, to hearty support from the sideline.

The activities of the Debating Club were this year limited to one inter-Faculty debate and several intra-Faculty debates.

It is unfortunate that Centaur could not be published as was anticipated before the end of the year, but this was in no way the fault of the two hard-working editors, Mr. Frecker and Mr. Haszard, who did everything in their power to have it ready for issue in time.

In conclusion, I wish to thank members of the executive committee and the various sub-committees for their willing co-operation and support during the year and hope that the incoming secretary will receive the same support.

W. L. CAMERON PURDIE,
Honorary Secretary.

NOTES FROM COMMITTEES

DANCE

That both the Informal Dance and the Annual Ball were a success this year, both socially and financially, was due to the wholehearted support given by members of the faculty to their committee.

The customary short notice prevented obtaining a suitable place for either function on a Friday or Saturday night, when even larger numbers might have been reasonably expected. The committee's recommendation that they be permitted to book a place for next year's Ball has already been approved by a general meeting of the Society and should be of considerable assistance to their successors.

All the members of this committee were in the same year, which proved a considerable disadvantage, and as they may not be readily available next year much valuable experience may be lost.

An effort was made to appoint a man in each year to take charge of the sale of tickets in his year. This spared the already over-burdened Year Rep., and proved fairly successful. It is therefore recommended

that some effort be made at least to nominate students from each year for the dance committee.

The Informal Dance in the Union Bevery was attended by nearly 250 revellers, with whom the staff mixed as usual with some conviviality.

Among the 540 at the Annual Ball held in the Grace Auditorium, it was pleasant to notice a fair sprinkling of graduates in addition to those on the staff, as it is through them that our contact with the A.V.A. and the traditions of the Ball are maintained. The unavoidable absence of the Dean was much regretted.

The thanks of the committee are due to the staff and to the Executive of the Society for their kind assistance.

DEBATES

It is a pity that debating and allied indoor activities have always been the poor relation of the sports in which this Society takes an interest. There has been this year, as in other years, a paucity of participants, and also of people sufficiently interested

to come and watch and so encourage the debaters.

This year there was unfortunately only one intra-faculty debate-cum-symposium before the interfaculty debates commenced. Mr. Walden put the motion, "That this University is no place for the Veterinary School," and Mr. Chittick opened the case against. The subject was then thrown open to the house. Those present—few indeed—were asked to speak. The poor attendance limited the number available for selection to the committee, which, however, is proud to say that they were able to enter two teams to represent the faculty.

The first interfaculty debate was between our B team and Agriculture A. Messrs. Robson (leader), Walden and Wijekoon represented us, and were narrowly beaten on the subject, "That World War II was not worth winning." It may be said that the highlight of this debate was the "oratory, eloquence and humour" of Mr. St. Elmo Wijekoon.

Also in the first round our A team defeated Agriculture B. In this debate our speakers were Messrs. Springhall (leader), Deakin and Chittick (whip), who opposed the motion, "That Tradition is a Pernicious Influence." There were no less than seven Vet. spectators—a record!

As it was a knockout contest, Vet. Science A met, Agriculture A in the second round. This time we were the Government and we put the motion, "That he who hesitates is lost." We did not hesitate, but unfortunately—and irrevocably—we lost. This debate was characterised by the good speaking of our team, both individually and as a team, so that at one stage Vet. Science "really looked a good thing."

The committee and the debaters would like to thank Mr. A. W. Banks, our coach, guide and counsellor, for his untiring assistance to us, both as individuals and as teams.

We also thank all those who so willingly gave up their time to debating. In doing so they did credit not only to their faculty but also to themselves.

FLOAT

This year our efforts were prompted by the plea for "serious" floats from the organisers and S.R.C.

The committee was satisfied with the effort. We trust that the Faculty felt well represented, even though the judges were not impressed.

The total cost amounted to £3/13/-, of which the S.R.C. paid £2, leaving the society to pay £1/13/-. We thank the society for their liberal grant, all of which fortunately, we did not require.

We wish to express our appreciation of the society's vote of thanks expressed at the last general meeting.

Our thanks are due to several members of the

Faculty and to people outside it who assisted us so willingly.

We thank Isabell Gant for her printing, Jim Collier for his carpentering, and Bill McCulloch, Peter Stellingwerf, John Springhall and Bruce Payne for their help.

We also wish to thank Mr. McCoffry, of Sugar Cartage, for the lorry, Mr. L. Thornton for the bullocks and sheep's heads, Mr. Cormie for the timber, and Mr. Wilson, of Grazcos, for the wool.

We are especially grateful to Miss Turner, without whose untiring help and guidance the float would not have been achieved, and to Dr. Carne, Mr. H. Gordon, and other members of the Staff, for their earnest co-operation.

LUNCH HOUR FILMS

A committee comprising Mr. Ensor, Mr. Springhall, and Mr. Sefton, have done stalwart work in providing lunch hour film sessions this year. Particularly catholic in the wide variety of subject matter, the titles ranged from "Power in the Highlands" (Hydro-electricity projects in Scotland) to "Fish oddities in the Great Barrier Reef" (including studies of egg production in turtles).

Our thanks are due to the operators, and to the Public Library, the U.K. Information Office and I.C.I. for supplying the films.

ORIENTATION WEEK

This year Orientation Week was based on the answers to last year's Student Questionnaire and was attended by more than forty students.

The course began with a tour of the University, the Faculty supplying its own guides. New students were welcomed by the Dean, inspected the Veterinary School and the McMaster Laboratories, and attended an informal afternoon tea with members of the staff and senior students.

On the Tuesday, Mr. Ensor spoke on "The S.U.V.S. and other organisations in the Veterinary School." Retiring fourth year students demonstrated Methods of Restraint of the domestic animals on the Wednesday. "Veterinary Science—Its Aim and Position in Society," was the subject chosen by Dr. Carne for his Thursday address, followed in the afternoon by a discussion, "First Year Problems," by Mr. Downey (First Year Rep., 1946). On the Friday morning the Dean spoke on "The Approach to Study Within the University," and films were shown in the main lecture theatre that afternoon.

The course concluded with a picnic visit to the University Farm at Badgery's Creek on the Saturday.

Students were encouraged to wear name cards throughout the week and an information bureau staffed by last year's first year students, was open daily.

(Continued from page 22).

with its own particular merits. The surplus Sudan grass could then either be ensiled or made into hay, and also an odd crop of sweet sorghum for ensilage purposes could be included in the programme. Something, I think, should be done in this direction for haystacks and silos were the exception rather than the rule on nearly all the properties I visited.

The wheat farmer has most of his capital invested in his plant and machinery, and only a little in the form of seed wheat. This means that there is only a small amount invested in the current year, so that in the event of a bad season his loss of capital is small, his plant and machinery being unaffected. But the dairy farmer (or anyone carrying stock) has far more invested in the results of the current year, for

his herd is included in the capital invested for that particular year. In the event of a failure for which he is not prepared, he is forced either to reduce his numbers, or pay high prices for drought feeding, both leading to higher costs of production.

Therefore, until a suitable pasture legume is developed to enable the establishment of permanent pastures which in turn will improve the prospects for fodder conservation, the farmer must make full use of crops like lucerne, and even field peas to overcome the present dearth of protein in available pasture growth. When such pastures are developed the cost of production will be considerably reduced, for it is a well-known fact that the cost of home-grown pastures is lower than that of cereal crops.

—J. H. Bray, Year III.

WAR MEMORIAL

At the first Ordinary General Meeting of the Sydney University Veterinary Society this year, held on Tuesday the 22nd April, the question of a War Memorial was discussed. A motion was finally passed to the effect:

- (1) That a committee be formed, after consultation with the A.V.A., to control the War Memorial project.
- (2) That the names on the Memorial include those of all graduates and undergraduates killed in action or on active service.

At a subsequent S.U.V.S. meeting on May 9 the committee was elected.

At an S.U.V.S. meeting on May 21 the War Memorial Fund was established and a collection was authorised.

The Committee comprises:—Messrs. R. M. Webb, B.V.Sc., H. McL. Gordon, B.V.Sc., J. Marley, A. Campbell, R. Chatham, H. Bray.

The committee met on 31st August and decided on the following plan of action:—

- (1) That a War Memorial Prize Foundation be established at the Sydney University Veterinary School.
- (2) That the aim be a minimum of £100.
- (3) That the prize be awarded at the end of third year of the course.
- (4) That a commemorative plaque listing the names be erected in the main corridor of the Veterinary School.

Finance: Subscription, £20; Entertainments, £5/0/8; Total, £25/0/8.

The Society is to continue entertainments. It is proposed to seek a grant from the funds of the N.S.W. Division of the A.V.A. and to open a subscription list amongst all graduates of the Sydney School. For this purpose publicity space will be sought in the Australian Veterinary Journal.



EXECUTIVE COMMITTEE, 1947.

Back Row.—A. Green, W. B. Mitchell, W. Lawrence, J. E. Barnes

Front Row.—A. Packham, Miss B. Smith, J. S. Potter, P. D. Dwyer, P. Brydon.

PROGRESS REPORT

Overcrowding, occupational disease of contemporary university students, has not by-passed the Veterinary School. Steps have been taken, and further steps are projected, to meet the challenge.



The Old Order changeth

The new **Pathology and Bacteriology Building** was occupied last year. In this building are preparation rooms and offices for the Pathology and Bacteriology staff, and also a fine post-mortem room. The latter allows the rightful owners to resume full use of the McMaster P.M. room.

The Dodd Lecture Room's conversion to a **Library** is almost complete. It will house the Faculty Branch of Fisher Library, and rules will be the same as those of Fisher. It is possible that the A.V.A. Library, at present accommodated in the McMaster Laboratory, will ultimately be moved to the Veterinary School, too.

When the new library is available, congestion in the McMaster Library should be relieved. Students make full use of the McMaster Library and are appreciative of this privilege.

In the "fibro" building at our end of Science Road, the Veterinary Faculty at present use one lecture room. Recently, however, the entire **Ross Street Wing** of this building was allotted to the Veterinary School. It is to house the Veterinary Physiology and Biochemistry Department (for which great things are planned). There will be two large laboratories and preparation rooms, a lecture theatre, and a small research section.

In recent years the value of the wooden hut known as the **Clinic** has become almost solely historical. Its diaphanous roof admitted sunshine and rain with impartiality worthy of a better cause. So the new clinic, temporary though it is intended to be, will be particularly welcome. It will provide decent facilities for examination of the patients, treatment, dispensing and dark room eye examination. Unfortunately, overcrowding will not be entirely eliminated. The clinic had been designed for a post-war fourth year of forty or fifty students, but the lag between blueprint and production has somewhat outdated those estimates, for 1948's Fourth Year will be more than sixty, and the following year larger still.

Projected for the near future is a **New Hospital**. This is almost as badly needed as the new clinic.

Final Year arrangements merit mention. This year the Australian men students were out at the Farm in First Term, and the New Zealanders and the women students in Second Term. A full appraisal at this stage is impossible, but as an emergency measure, to handle 38 students with facilities for a maximum of about 20, it appears to have worked surprisingly well.

STAFF ADDITIONS

The S.U.V.S. takes this opportunity to welcome the following new members of the staff of the Veterinary School:—

Mr. D. C. Dodd, B.V.Sc.:
Junior House Surgeon.

Mrs. K. Ferguson, B.V.Sc.:
Teaching Fellow in Parasitology.

Miss P. Keller.
Junior Librarian.

Mrs. W. J. McFadden, B.V.Sc.:
Teaching Fellow in Veterinary Pathology and Bacteriology.

Miss P. McGruer, B.V.Sc.:
Teaching Fellow in Veterinary Anatomy.

Mr. C. S. Sapsford, B.V.Sc.:
Teaching Fellow in Veterinary Anatomy.

Mr. D. A. Titchen, B.V.Sc.:
Junior House Surgeon.



. . . . but the Show must go on.

THE AUSTRALIAN VETERINARY JOURNAL

This year the subscription to the Sydney University Veterinary Society has been raised to 8/-. The extra 2/- provides each member of the year with the A.V.J. This is a concrete and very valuable expression of the desire of the A.V.A. to further undergraduate education. To the A.V.A. for making the Journal available at this nominal cost, the students are very grateful.

WOMEN'S NOTES

As evidence of the popularity of Vet. Science as a career for women, we have an increase of seven over last year's number of women students. We are now thirty-three strong.

A valuable acquisition to the staff of the faculty are last year's women graduates. Congratulations to them on their success in their final examinations and on their appointments, which are as follows:—

Helen Ferguson—Research Staff, McMaster Laboratory.

Laurie McFadden—Teaching Fellow in Bacteriology.

Pat McGruer—Teaching Fellow in Anatomy.

Worthy of very special mention was Laurie's fine effort in winning the Symon's Prize for the best clinical student.

Since graduation Helen McVicar has married Ken Ferguson, who is on the research staff of the McMaster Laboratory. Laurie Stewart and Jim McFadden, also a '46 vintage graduate, were married recently. Jim is Assistant Keeper of the Stud Book. We should like to wish you and your husbands every happiness and success in the future.

The distinction of being the first woman to win the

Baker & Ridley prize for animal husbandry goes to Jennifer Edols. Well done, Jenny!

Latest excitement is the engagement of Betty Maiden to fourth year's able rep., Alf Green. Congratulations to you both.

From London comes news of Angela Francis, lost to us during 1946. Her fiance has at last received his discharge from the Navy, and while he is doing a post-graduate medical course, Angela has been going to the International and Olympic Horse Shows and was hoping to go to Dublin for a big show there.

Diana Beeby has forsaken us and there are now only three girls in third year.

Congratulations to Jean McMahon (nee Clayton). She has a son and heir. Congratulations, too, to Pat Cameron (nee Stuart) who has also accomplished this fine achievement.

As a part-time reporter, Gwen Peck is doing good work in her attempts to break down the prejudice of the press against students. Our commendation, too, to Anne Gubbins, who has been doing a good job for Food for Britain.

Joan Stringer has very ably taken over the position of sports representative.

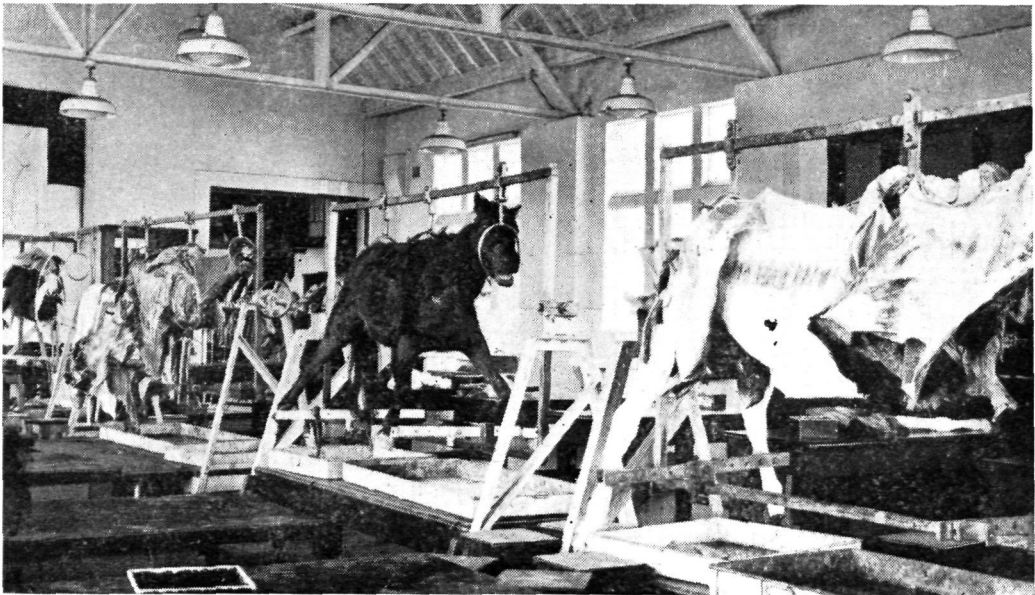
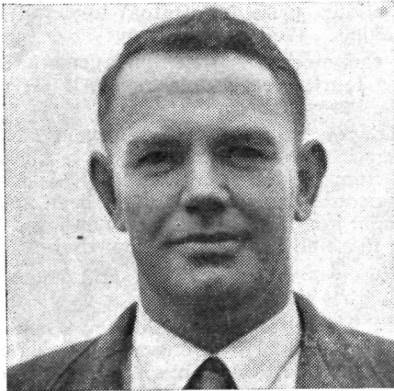


PHOTO FINISH

MEMBERS OF FINAL YEAR, 1947

**ANDERSON, J. F., B.Sc.**

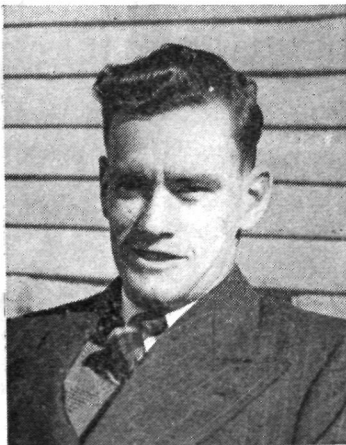
Maorilander, who has loomed large among us for many years. Always prominent in football as a first grader, Jim was a capable Club Captain for University in 1946, when he declared himself "too old for the game." Jim served with the A.I.F. and has recently assumed paternal duties.

We hope you will enjoy a successful future, Jim, no matter which side of the Tasman you make your home.

**BALDRY, A. A. M.**

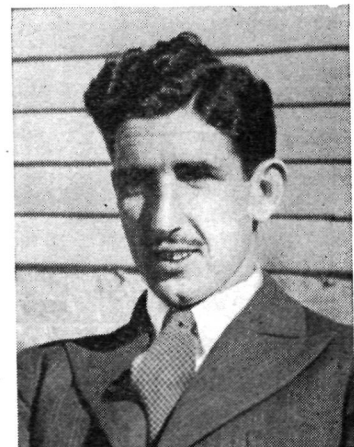
A tall, handsome lad from the south-west slopes with an inquiring mind and the true scientific outlook. Alec interrupted a very successful academic career to serve in the A.I.F. and returned in 1945 to resume his academic successes and distribute his infectious laugh throughout the mob.

Best of luck, Alec, we feel sure you will succeed.

**DAVENPORT, P. G.**

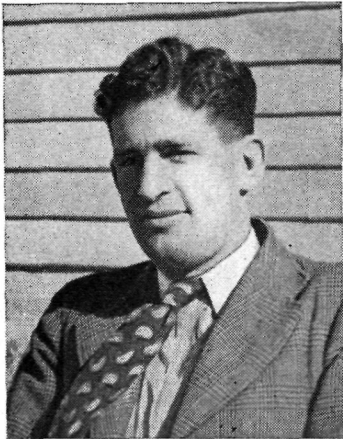
Originally hailed from Auckland but now from Dunedin.

Peter has acted as Treasurer and Secretary to the Sports Club and played an important part in the Faculty football success, being a consistent scorer from the breakaway position. Best of luck, Pete, whether it's Ascarids or Hookworms you meet in the future.

**EVANS, J. V.**

Jack started his University career at Victoria in N.Z., and had only the odd subject to complete B.Sc. when he entered the Forces. Early in the course at Sydney he showed a leaning to the research side and was awarded the Elizabeth Walker Animal Husbandry Prize in 3rd Year. Jack has turned out for the Faculty XV on several occasions.

We wish him luck in his future research.

MEMBERS OF FINAL YEAR, 1947.**FALLON, P.**

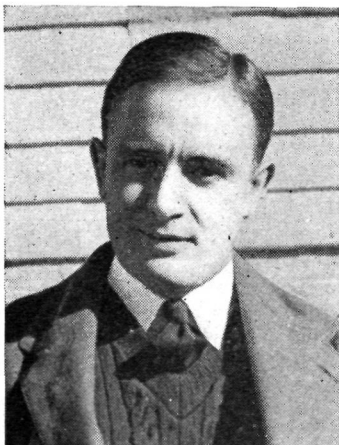
A Canterbury College and Lincoln old boy, Peter is the unconscious humorist of the year, thanks to his Irish ancestry. Quote: "I can hear everything you say, but I just can't keep my eyes open." His other achievements include being a "blood and guts" shearer and star footballer of the year. He gained his "blue" and played in the Uni. 1st XV for three years.

If success depends on confidence and a sense of humour, Peter must succeed.

**FRECKER, B. N., B.Sc.**

Bruce is also ex-A.I.F. A vigorous and engaging personality who has taken an active part in S.U.V.S. affairs. He was an enthusiastic vice-president in '45 and an executive committeeman and editor last year. As editor of Centaur he set a standard which his successors must strive to maintain.

It is understood that on graduation Bruce will specialise in automobiles—here's wishing him all the best.

**GLOVER, A. F.**

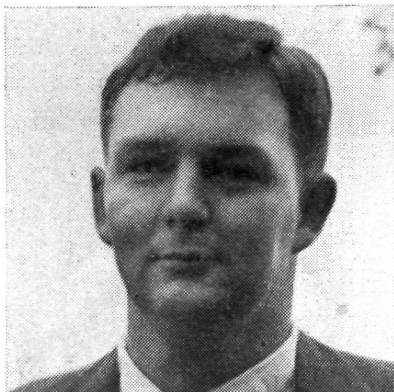
Arthur terminated a promising career at Lincoln Ag. College to cross the Tasman in 1940. Continued travels in 1942 as member of H.M. Air Force, and, after extensive service in European and Mediterranean theatres, completed the round trip home at the end of '45.

Chief Pilot of Final Year.

We wish you all the best in that temporary sojourn in N.Z. which you contemplate on graduation.

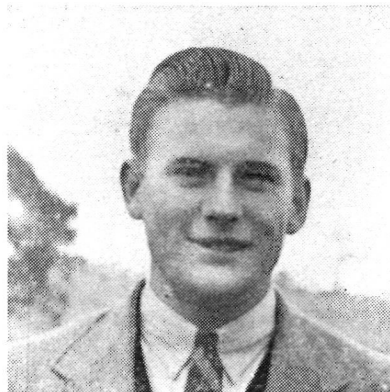
**HASZARD, G. G.**

George completed his first year at Auckland in 1942. The following year he also "resided" at Lincoln intending to study Agriculture, but good intentions do not make good deeds, they say. He was a member of the Rugby 1st XV at Auckland University and Lincoln, and captain of the Vet. team in 1945 and 1946. We thank George for his work as Assistant Editor of "Centaur" last year and wish him the best of luck in his career.

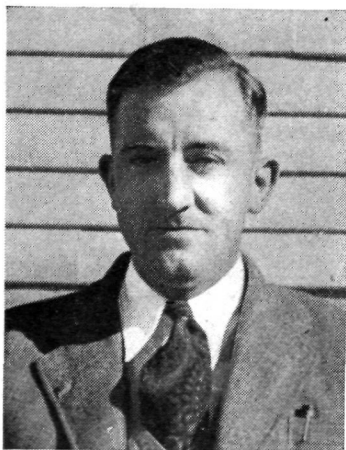
MEMBERS OF FINAL YEAR, 1947.**HEWETSON, R. W., H.D.A.**

Dick served with the 6th Division and was back in the fold in '44. He was a quietly efficient S.U.V.S. secretary in 1945, and a useful executive in the following year.

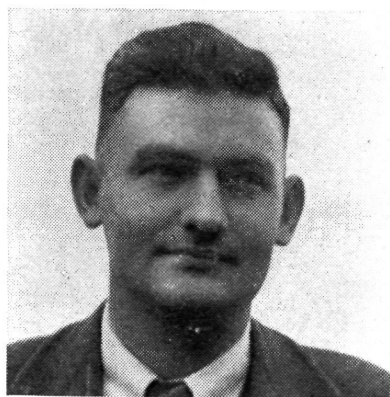
He represented the faculty in football, tennis and swimming, and took a keen interest in all other phases of sport. With all this, and a cheerful smile as a weapon of repartee, he should have no fears for the future.

**HUTCHINS, D.**

The youngest of the gang, the quietest and the most cheerful, Dave has contrived to build up a sound academic record, and at the same time acquired a profound turf knowledge. He has an ever ready list of "good things" up his sleeve, but wisely seldom commits himself. Good punting, Dave, we feel sure that success will come home.

**JOHNSTON, J. R.**

Jack left us in 1940, after a distinguished boxing career, to become an integral part of the senior service. Survived the hazards of shipwreck to return in 1946 in ranks of Benedicts. General practice appears to be his destiny (around Waikato). Best of luck, Jack!

**KEOGH, J.**

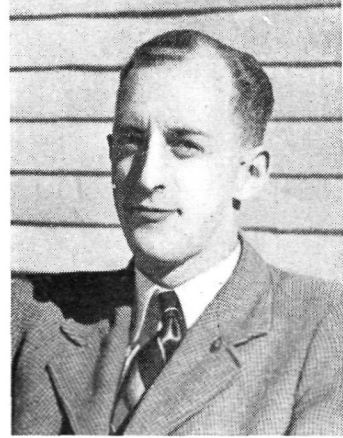
The essence of enthusiasm, Jack has great practical ability—as evidenced by his operation of the picture projector in '46, his efforts in connection with the Farm Dance in first term and his hoof stripping technique.

Also, his ability to hold the floor is well noted. All the best to you, Jack!

MEMBERS OF FINAL YEAR, 1947.**KNIGHT, R. P.**

An extremely keen and energetic type with a great capacity for detail, which latter has stood him in good stead. One who has more than a passing interest in society affairs, Rupe is no mean spokesman. In addition, he feels keenly on some points of lay ignorance. (Cf. C. '46).

We wish him good fortune, especially in championing the cause of the misinformed public.

**LOWE, J. S.**

A graduate in Science from Victoria University and an ex-member of the Air Force, John is a walking encyclopaedia of scientific knowledge and can be relied upon for anything from correct weather forecasts to the alcoholic content of different beverages.

We wish John all the best wherever his wandering feet may take him.

**MACKINTOSH, F.**

Foster had several years as a civil servant in N.Z. before entering the Army and gaining a commission. Although a keen worker on various Dance Committees and a vociferous supporter on all sports days, Mac is noted more for his enjoyable piano sessions, something which we will all miss when we part. But then we will have our reunions if Mac has any say, so here's hoping.

**MAIDEN, B.**

Betty has undergone a marked metamorphosis since entering the Faculty, to emerge as a force to be reckoned with.

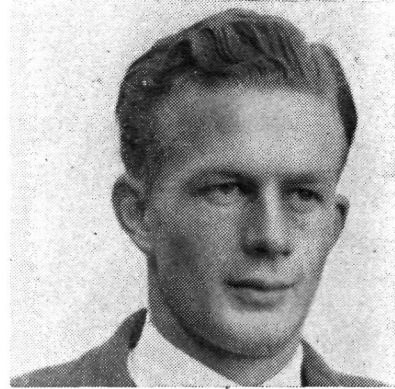
She represented the Vet. School in swimming, hockey basketball and has also developed into a keen clinician.

We congratulate her on becoming engaged and wish her success and happiness in her selected sphere.

MEMBERS OF FINAL YEAR, 1947.**MILLS, W. R.**

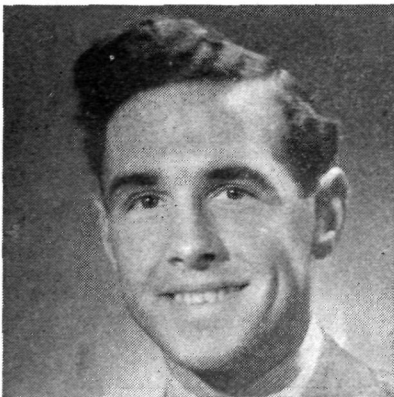
A Kiwi of note and one of the more mature members of the year, Wally completed third year before joining the R.A.A.F. Five years later he brought back a distinguished record, having won the D.F.C. and A.F.C.

He was, pre-war, a player, organiser, and captain of the faculty football team, and played first grade for University. Last year Wally very ably carried out the duties of fourth year rep., but this year he purchased a motor cycle whilst at the farm and hasn't been seen much since. Good luck to you, Wally.

**PRESCOTT, C. W.**

Charlie hurriedly completed third year in '41 to go down to the sea in ships. He represented the faculty in football, basketball and swimming, and was a member of the University Water Polo team, and a University Swimming Blue. On top of this he was Faculty Rep. on the Union House Committee.

As a legacy of the years afloat, Charlie has retained the ability to produce a naval anecdote to suit his company. He also is married. For the future we wish him a fair wind.

**PURDIE, C. W. L.**

Cam. proved to be an outstanding Secretary of the Society last year, and is to be congratulated for this.

On the football field he proved himself equally capable as a full-back, and many times saved the game by his coolness.

Whether he returns to his native haunts at Christchurch or not, Cam. should have no trouble organising a successful life.

**REES, D.**

Dave interrupted a very full academic life to join the A.I.F. He has ably held the positions of Treasurer (1941), Publicity Officer (1946), and Year Rep. in third and final years.

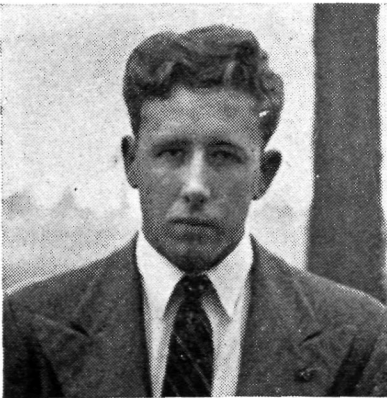
At various times he has worn the colours in football, cricket, athletics, swimming and basketball, and was the University half-miler. Dave is now married and the father of a daughter. We wish him an equally successful future.

MEMBERS OF FINAL YEAR, 1947.**RYAN, J.**

Pre- and post-war at the Vet. School, represented Faculty in football and interested in all sporting activities. Donned khaki for four years and with experience of Pacific and Mediterranean sunshine will take his well-earned place in the sun somewhere in New Zealand in 1948.

**SCRIVENER, W. P.**

The typical dark horse. One doesn't hear much from Walt till he hobs up with the goods. His extra-curricular activities were mainly concentrated in the field of athletics—pole-vaulting in particular. Walt has been a University representative for the last two years and we are certain he will end up in high places.

**SINCLAIR, A. N.**

A shuffling gait and a shaggy mien do not effectively hide Algy's mental alertness. His creditable career as a student is balanced by a distinctly artistic turn and his role of sole ivory-twiddler at the farm was greatly appreciated. Although Algy has a gadget which he assures us is a motor bike, we feel sure that his success will be continued.

**SKILLMAN, G. H.**

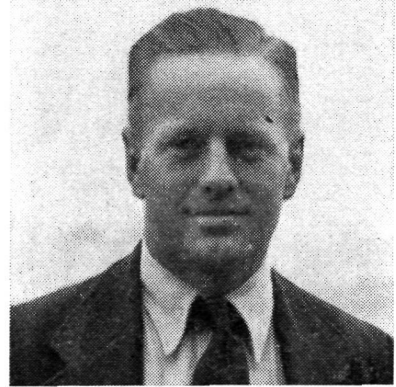
One of those heading for the Department, George is among the harder workers. He turned up trumps as a Pastoral Botany authority while at the farm.

We wish him all the best in the future which, it appears, will not be spent alone for long.

MEMBERS OF FINAL YEAR, 1947.**SQUIRES, P. J.**

An ex-R.A.A.F. type who was mentioned in despatches and whose additional claims to fame are extreme length and fineness of form and an inexhaustible repertoire of typical R.A.A.F. and therefore questionable ditties.

We congratulate Phil on being the fifth member of final year to enter the paternal ranks, and wish him a happy future.

**STEPHENS, W. H.**

A foreigner from down under and a veritable mine of information on that stretch of terra firma. Bill saw service with the R.A.A.F., then returned to fourth year to become an S.U.V.S. student again. He is the most domesticated husband and the proudest father either side of the black stump. He has been classed as the original funny man, and as such will be sadly missed.

**STEPHENS, L. A.**

Ex-A.I.F., Lindsay is the complete idealist. He returned to third year in '43 and has forged ahead without a hitch. He has maintained a lively interest in society and sporting affairs and will present the pros and cons of every form of post-graduate activity at the slightest provocation.

A ready tongue makes him the perfect foil for his Tasmanian namesake.

Good luck to you, Lindsay, and every success in your career.

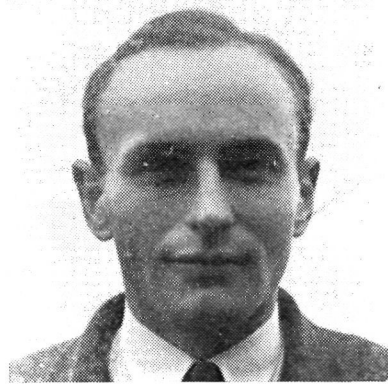
**STAINFORTH, J.**

Josie completed first year in Melbourne and came to Sydney in '44. She has proved herself a stalwart in all fields of sport, being a member of all the women's teams at the Vet. School and representing the University in Cricket in 1945.

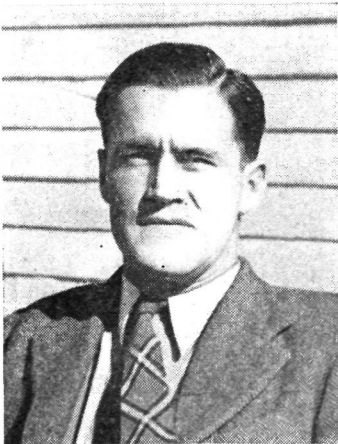
She has proved herself extremely competent throughout the course and will be a valuable acquisition to the Profession in Victoria.

MEMBERS OF FINAL YEAR, 1947.**STUART, M. F.**

On discharge from the R.A.N., Mal crossed the border and came south to enter fourth year as our only Queensland representative. He is distinctly reserved, but given sufficient stimulation is irrepressible. Though his past is shrouded in mystery we will back a successful future for him.

**THOMPSON, T. A.**

Abe, one of our married eight, has been the mainstay of the faculty XV as our bustling outside-centre, both before and after his A.I.F. service. His sporting activities also included basketball and cricket and culminated in his election to the presidency of the Sports Club last year. The executive committee also claimed his services in that year. We feel sure he will be a valuable acquisition to the Profession.

**SWINBURN, G. R.**

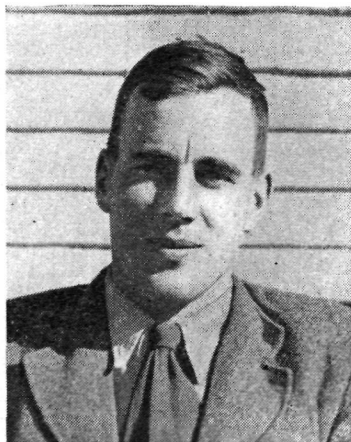
Gerry worked his way across the Tasman in 1943 after completing his first year at Victoria College. An active member of Faculty life, he was Year Rep. in 2nd and 3rd year, member of the Exec. in 1944 and Vice-President in 1945. As a footballer, he represented both Victoria College and the Faculty, and as an athlete he won the Walking Championship of the University in 1945 and again in 1946.

"Under that tattered 'Lord Tony' there beats a heart of gold."

**TRACY, T.**

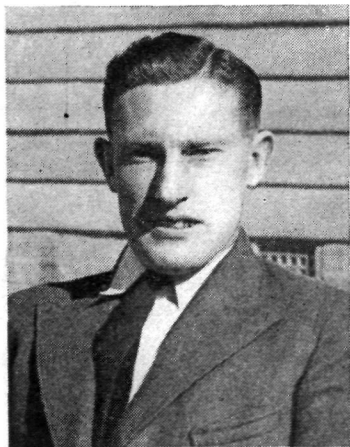
Very interested in dairy science in his serious moments, Terry has always been a keen supporter of Faculty affairs.

He is an ex-member of the staff of Lincoln College, and did 1st Year at Christchurch. However, it is expected he will move into the more progressive dairying districts of the North Island in the future, where we hope he will enjoy every success.

MEMBERS OF FINAL YEAR, 1947.**TURNBULL, A. H.**

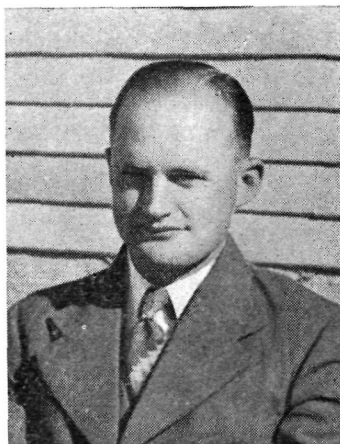
Hailing from the rolling plains of North Canterbury, New Zealand, Alan is of pre-war vintage. Played front row in the 1941 football team and left to follow a "labourer's course," terminating in a major battle at Trieste.

Returned in 1946 and contemplates field work in New Zealand on graduation, in which we wish him every success.

**WHYTE, S. L.**

After first year at Otago, Stuart enjoyed a year's "residence" at Lincoln College studying B.Agr.Sc. While there he excelled at athletics and football, but Stuart seems to have found the climate too warm this side of the Tasman to show his real form. Nevertheless, he played some excellent games for the Faculty XV.

As he firmly believes that "any man is potentially capable of turning into anything at all," we have no fears of Stuart not laughingly adjusting himself to his future environment.

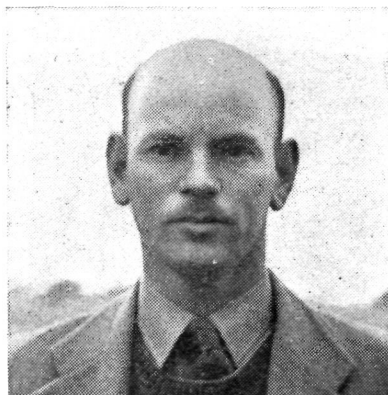
**WALLACE, T.**

From the Waikato, Tom is the dairy cow enthusiast of the year. Before commencing this course he gained a Diploma of Agriculture at Massey College and served 15 months in uniform.

In 1945 he was elected to the Executive, and in 1946 became a Vice-President.

On the sporting side Tom has been a winger for the Vet. XV for three seasons.

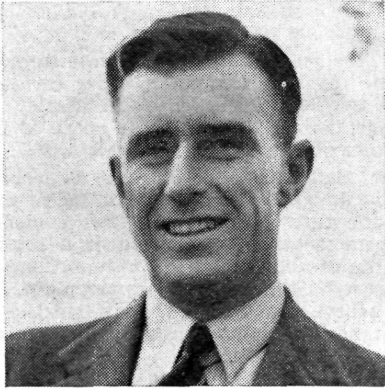
We expect Tom to make a successful future life, "where the dairy cow is Queen."

**WILKIE, W.**

Five years in the A.I.F. did not weaken Bill's enthusiasm for faculty affairs in which he has always been a driving force. On his return in 1945 he took up the duties of Hon. Treasurer of S.U.V.S. and the subsequent year, as President, infused new life into the society. Congratulations to Bill on the birth of a son last year.

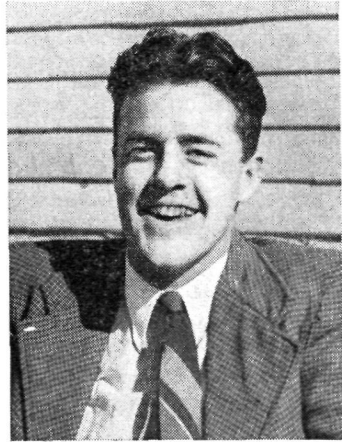
Our most mature member can always turn on the odd ditty or anecdote appropriate to the occasion. All the best, Bill.

MEMBERS OF FINAL YEAR, 1947.



WILLIAMS, L. G.

A tall, comely type, whose main fault is a tendency to sobriety on all occasions, Lloyd has capably filled the positions of Assistant Secretary (1945) and Vice-President of S.U.V.S. last year. Debating and tennis have also claimed his support and at the farm he was an unbeatable exponent of the art of ping-pong. His main interest is at the other end of the telephone and where "pigs is pigs" he'll succeed. "Its good stuff"

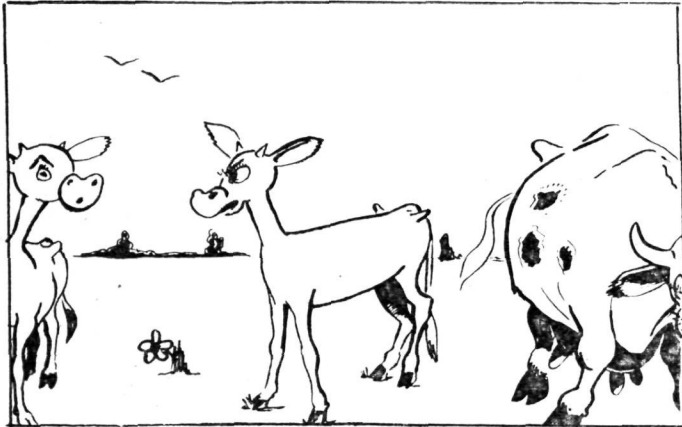


YOUNG, J. S.

Jim hails from Southland, but hasn't had any trouble acclimatizing himself to the Sydney "atmosphere"—a really adaptable type!

As a hard-working front-rower and a master at dribbling, Jim played for the 1st XV at Lincoln College and also for the Faculty team.

An aspiring Club practitioner, we wish him well in the future.



"Personally I think this stork story's all bull."

YEAR NOTES

All years of the faculty join in extending our warmest congratulations to the Dean, Professor Carne, and to Professor Gunn on their recent appointments. For many years they have served the faculty, and we know that they will continue to do so in their new positions. It is but a fitting and well-merited recognition of their many services.

FINAL YEAR

We would like to thank Mr. Geddes and all members of the Farm Staff for making our sojourn there so pleasant.

Our thanks are also extended to Dr. Gunn for his consideration in arranging our extra-mural work.

To all members of other years, we wish you good sailing and a bright future as members of the Profession.

FOURTH YEAR NOTES

The year began in the usual carefree manner, but, as time wore on this lightness wore off. Thought became more sober and the pallor which is the hallmark of many students, returned to some faces.

There are fifty-five in the year and this must make it about the largest of all time. It's made up of much the same polyglot crew as last year and all importations seem to be assimilated, or is it vice versa? All the same, a passing shot at that earthy paradise, Hawke's Bay or the mighty River Yarra can be counted on to bring something to the surface.

We wish to congratulate Laurie McFadden, Helen Ferguson, Ken Ferguson and David Dodd for their enterprise in joining the happy minority. Another who merits honourable mention in this respect is John Keep. The Army Veterinary Corps taught men, at least Johnny, strange things. His new horse-casting technique should earn him a job at Wirth's any time he likes. The basic principle appears to be that the shortest distance between two points is a straight line, and, associated with this, is the Army expression "over the top." Bet you can't do it again.

The position of S.U.V.S. President has fallen to the lot of John Potter, our senior man. He has had some excellent films screened and some very informative addresses delivered, as well as carrying out his presidential duties in a most competent manner.

Alf Green deserves special mention. He is not only our very able Year Rep., but has finally managed to ensnare for himself a fiancée. Betty Maiden is the lucky lass, and as Alf is the "keen Pathology student" of last year the guarded prognosis (C.1946) now becomes favourable. We wish them the very best of luck in a happy future.

To turn to sport. Joan Stringer was prominent in the women's sport. A keen hockey player, she also shows a fine turn of speed in the athletics. Joan represents the University at the Australian University Women's Hockey Tournament in Melbourne. Congratulations, Joan, keep it up!

We are regularly represented in the Faculty football team by Wally Te Punga, Ash Jacobs, John Jebson and Ian Pearson. Wally does all the goal kicking for the team, and Ian plays half, while Ash and John dash about like two-year-olds. However, they all do a solid job.

That dark, handsome man, Paul Brydon is one of the leading lights of the basketball team. Other enthusiasts are Geoff Manefield, Bob Titcher and Bruce Forsyth.

Soccer provides light luncheon entertainment, and even if the boys are not perfect they certainly made up for it by their keenness. Jim Marley and Bob Titcher participated in the noble sport of boxing in the interests of the faculty.

The Vet. Ball was a success and we were well represented. Judging from the wan faces and empty seats in the next two days, it was evidently some night. A memento of the event is a most artistic study by the candid camera. A presentation was made and we trust that it finds its proper place. Incidentally, we believe that Mr. Steel has had the lining of the breast pocket on his white coat reinforced since his return from the States.

We apologise to Mr. Banks for allowing him to run a losing race on Monday afternoons against the faculty football, at any rate as far as entertainment value is concerned. We are not sure if this is good or bad, but it goes by the name of "Faculty Spirit."

Friday afternoon from five till six is mighty important to some of our returned men. Depending on the tram service, it's either a walk up Parramatta Road or a ride down it. Doubtless a heavy week is responsible for the pressing need.

Our favourite funny men are those bright lads, Dave, always to be relied on to produce bright and sometimes amusing comments on life in general. There are some, though very few, who never laugh at their "jokes," but what of that!

In conclusion, we find Fourth Year as decent a crowd as can be found anywhere, and hope we shall all be together again (in Fifth Year) next year.

THIRD YEAR NOTES

It was good to see familiar faces at the commencement of the year, but unfortunately some from last year are missing. The several "strangers" have now been absorbed in our midst, and there are now 69 in the year. With the further year of association, most of us are now familiar with christian names.

Thirty of us spent a day at the farm under the tutelage of Mr. Geddes, and we wish to thank him for his hospitality and interesting discourse. Do you always use girls to round up your herd, Mr. Geddes? Must try it at home.

The Faculty Survey produced constructive criticism and the interest shown was very gratifying. Whether our discussion produces results or not, some satisfaction was gained by airing our grievances.

Three of our number, namely, Bill Doole, Angus Packham, and Doug. Skerman, returned to us married men, and we extend to them our best wishes. The way they cut that last hour of practical work makes me think there might be something in this matrimony business.

Members of the year are taking an active part in Vet. Society affairs, which augurs well for next year. The major positions of the Hon. Secretary, Hon. Treasurer and Executive Member are held by Pat Dwyer, Angus Packham and Jim Barnes respectively. In Bruce Mitchell we have the Assistant Hon. Secretary and John Springhall, the Society Publicity Officer.

We are represented on:—Debates Committee, Aub. Juleff; Dinner Committee, Greg. McGrath; Float Committee, Mick Robinson, Barry Rutledge, Harry Spira and Kevin Tuckey.

In the Sports Club we have Fred Evans as President, and a heady soccer player to boot; Bruce Mitchell as Secretary and Ken Hart as Executive Member.

Football:—Col. Petherbridge, John McNab, Rus Dun, Basil Forsyth, Sam Jones, Doug. Crawshaw, Don Lamond, Arthur Eedy, Ken Armstrong and Bill Doole (married, too). Congratulations on repping for University 1st XV, Col.

Soccer:—Harry Spira, Fred Evans, Frank Austen.

Athletics:—John Swinden, Lloyd Brown, Bill McClure, Stuart Guthrie and John McNab, with John Swinden showing usual good form. Oh, yes, and there's Alison Kyle, who ran a classy third leg in the women's relay.

Rowing:—Jim Barnes, Len Tomlinson and Dave Rutherford. Young Jimmy had the distinction of coxing the victorious University Eight, but he returned from the regatta with a damaged foot—nasty, rough game.

Shooting—Doug. Skerman and John Springhall (the latter is good—I've heard his "line").

John Springhall and Daryl Sefton have also been doing a good job with the lunch-hour films.

Dick Doyle has been elected the Vet. Society's S.R.C. rep., and has made a favourable start by furnishing a report on S.R.C. affairs. Keep it up, Dick!

Apropos of nothing in particular, we learnt to-day that lack of inhibiting factors leads to colouring. So that's where you got that ruddy complexion, Bill—we thought it was beer.

We close, wishing the best of luck to all in the examinations at the end of the year.

SECOND YEAR NOTES

I think we'll make a start!

We resumed work this year with many new faces among us. We hope the interstate people and "furriners" have by now become accustomed to us. The numbers have increased to 117—a record for any year.

Among the students from last year who were married during the long vacation, was Pam Barton, who married Mr. S. Emory, of Nowra, and so left our ranks. Rex Butterfield is well on the way to walking up the aisle, the big day is to occur in January.

Many of our second year students have played prominent parts in interfaculty sport. In the rowing, "Dusty" Rhodes and Tom O'Byrne, both experienced oarsmen, considerably helped our eight.

On the Rugby field Jeff Mansfield, "Blue" Staunton, "Chook" Roberts, Don Kontze, Bob Gilchrist, Alan Fisher, and Neville Beasley have all represented the faculty. Congratulations to "Chook" on also winning the intrafaculty tennis. Real versatile is Mrs. Roberts' red-headed little boy.

Unfortunately, we have a number of traitors in our midst, who play Aussie Rules. Humble, Pryor, Letts, Gee and Fitzpatrick all seem to prefer the "National Game."

John May won the welterweight boxing semi-final for Vet, and was shaping well for the final when a bad bout of flu got him on a T.K.O.

Largely due to the efforts of Cho Chak Nam we managed to give fourth year a lesson in basketball.

Golf also seems to claim some attention, especially from our older generation. "Jock" seems to have a great deal of trouble at the nineteenth. He rarely holes out in less than fifteen.

Our Year Rep., Mr. B. P. A. Saunders to the uninitiated, has guarded our interests well. He has also discovered that sailing is a pleasant diversion from delving into dogs and hacking into horses.

Some of the women have figured prominently in the sporting line. Ena Dexter won the swimming championship for the faculty and continues to show fine form on the hockey field playing for Varsity Seconds. Julie Miles represents us in tennis and basketball.

We were well represented at the Ball and noticed our dark lass from the Pacific doing the Hula Hula with the solid, silent man from Down Under.

In a more serious vein, we quote:—

"You should know all about this, it will be worth a couple of quid."

"... The viruses—if that man in the fifth row knows all about this he can GET OUT—have the peculiar property of reproduction . . ."

"When I was a student I knew all about this."

Yes well, by and large, we had better be off to bed in preparation for our supplementary sleep in the Wallace at some unearthly hour in the morning.

FIRST YEAR NOTES

The freshers of 1947 wish to express their gratitude for the untiring efforts and kindness shown them by the Orientation Committee. The year opened well for us when on "D Day" of Orientation Week we were welcomed by students of other years at a delightful afternoon tea. The week which followed was crammed with "showing us round" and tossing us "clues." The culmination of this was an all day visit to the McGarvie Smith Farm. That the outing was as enjoyable as it was interesting was due to the efforts of Mr. Geddes, Mr. Blood, Mr. Larsen and all other members of the staff at the farm. Once again, thanks to the Orientation Committee and especially Gwen Peck.

Term commenced and so, we are told, work, but this didn't prevent us having a great night at the Freshers' Welcome, which was so capably organised by the Dance Committee. The night gave us further opportunity to become acquainted and we freshers were welcomed in fine style.

First year sporting stars have played a considerable part in the faculty's sporting activities. Neil Mortimer broke the ice for us by representing Vet. in the Inter-Faculty swimming early in the year, and from then on we've been in almost everything. We had four seats in the Vet. eight at the Varsity Regatta, and two and a half teams in the women's pair oars.

On the football field "Ginger" MacDiarmid plays for the faculty, and we especially congratulate him on making the University 1st XV. We also have our representatives in the faculty soccer, basketball, men's and women's hockey and tennis. Among the women, Shirley throws a mean discus.

The year comes to a close all too quickly, but almost everyone knowing almost everyone, we can only wish each other all the very best in the examinations.

We hope to see ninety-seven bright and shining faces in Vet II in 1948.

VETERINARY SCIENCE SPORTS CLUB

OFFICE-BEARERS, 1947.

Patron: Professor J. D. Stewart.
President: Mr. F. W. Evans.
Hon. Secretary: Mr. W. B. Mitchell.
Hon. Treasurer: Mr. G. W. Manefield.
Executive Committee: Messrs. J. D. Hardy, W. H. Te Punga, K. Hart.
Delegate to Inter-Faculty Sports Committee: Mr. C. Petherbridge.
Athletics: Messrs. L. H. McKeand, J. Swinden, W. McClure.
Basketball: Messrs. F. Ricketts, P. Brydon, L. Brown.
Boxing: Messrs. W. J. Doole, J. E. Barnes.
Crickets: Messrs. L. H. McKeand, R. J. McKay, C. Widdows.
Football: Messrs. F. Austen, C. Petherbridge, D. Walker.
Rifle Shooting: Messrs. D. Skerman, J. Springhall, B. Saunders.
Rowing: Messrs. J. E. Barnes, D. Rutherford, R. Coward.
Soccer: Messrs. R. J. McKay, K. Haughey, C. Widdows.
Swimming: Messrs. C. Petherbridge, J. McIndoe, F. Austen.
Tennis: Messrs. C. Roberts, M. Foote, C. Thompson.
Women's Sports Representative: Miss J. M. Stringer.

At the annual general meeting of the Club this year a surprising degree of interest was displayed, not only in the election of officers, but also in efforts to improve the conditions for, and the standard of, sport in the faculty. This interest bodes well for sport in the future.

Since the origin of a Faculty of Veterinary Science in this University, the members of the faculty have entered into as many sporting activities as their numbers would permit. In the past, veterinary students, both men and women, have been praised for the way they have played the game. Let us make every endeavour to ensure that our present good reputation will be enhanced.

We now have a numerical strength greater than ever before; let us use these numbers, avoiding all tendencies to lose our individual enthusiasm, and enter into all the variety of sports within this, our University.

Women's Sport.

The year has seen Vet. women, as usual, taking part in all phases of sport. Unfortunately they have not met with the success hoped for, but nevertheless, have always been well supported on the sideline. Our congratulations go to Joan Stringer, Joint Women's Athletics Champion of the University last year and more than ever the mainstay of our sporting activities.

When the hockey tournament started our team lacked practice, and consequently was eliminated by Science, 2-0, in the first round.

We were represented by Alison Kyle and Joan Stringer, Julie Miles and Jenny Edols in the Inter-Faculty Tennis Doubles. In the two matches played Vet. was successful over Agriculture, 6-5, 1-6; 6-2, 6-3, but Arts in the second round were the team's downfall, 7-9; 1-6, 2-6.

When the Basketball Team met Arts the tables were turned, and Vet. walked off the field with a 9-7 lead. However, Med. I, in defeating us 18-3, put the kibosh on any hopes we may have entertained of surviving

to the finals. We had two teams competing in the Women's Pair Oar Championship held on Regatta Day. Isobel Gant and Mary Campbell, both of First Year, did well to row Vet. into third place of the Finals, while Val Archer and Mary Bardsley, of Second Year, rowed the 220 yards with less success.

The Lady Wallace Cup for Inter-Faculty Athletics was returned to Agriculture, the only faculty with a full team, who had no difficulty in piling up the points.

Joan Stringer's win in the 50 yards, her second in the 100 yards, and the third placings of both Tunnel Ball and Relay teams enabled Vet. to finish as runners-up, though a long way behind the titleholders.

Athletics.

Veterinary Science gained a very mediocre fifth place in the Inter-Faculty competition this year, and our congratulations go to the Engineers on retaining the title. Our poor showing was possibly related to the postponement of the meeting till Trinity Term, when the team was less formidable than was anticipated. However, we are grateful to those who competed. Talent was not lacking, but faculty enthusiasm and support were well buried.

Jack Swinden, our outstanding all-rounder and an excellent State performer, was handicapped by ill health and consequently was not up to his usual standard. This was a blow for Vet. Nevertheless, Jack was runner-up in the high jump. W. Gee performed well to gain second places in both 120 and 220 yards hurdles, but was unable to compete in the final. Baker and Manson breasted the tape, third and fourth respectively, in the mile walk. The leaders were not far ahead of our men in the race which was run in record time. Elliot proved a good second string to Swinden in the high jump. Bill McClure contested the 100 yards sprint, broad jump and hop, step and jump creditably.

John May was the dark horse of the day. He hurled the javelin into second place without previous training in the art. His enterprise and spirit is worthy of special note as an example to those who know they can't because they haven't tried.

The tug-'o-war team was well selected, but many failed to arrive on the day. Our scratch inclusions, ill-dressed for the occasion though they were, did a sterling job, but the team went down to Engineering by two pulls to one.

The main criticism of Vet's. effort is levelled at the small numbers of representatives and lack of training. It is essential that both deficiencies are corrected before the Athletics honours will come our way.

Basketball.

This year, with greater emphasis on the science of the game than in former years, our standard of play has improved considerably.

Last year our unbroken record of honours in Inter-Faculty Basketball, since its inception, was continued and indications are that there is very little likelihood of other faculties displacing Vet. this year.

In the first round of the competition we decisively defeated Agriculture by 62-8 goals.

As the season progresses better play will be expected of the team as its members become familiar with individual play and combinations can be perfected.

Several of our number are members of University

firsts, and outstanding in the faculty team are Lloyd Brown and Cho Chak Nam. Nor can the rest of the team be dismissed lightly: Ricketts, Mullarvey, McCulloch, Manefield, Titcher, Bruce Forsyth and Brydon are regulars. As many of the members are in the junior years, we are assured of plenty of talent in the future.

Boxing.

This year we were again poorly represented in numbers, as we managed to find entrants for only three of the weights; namely, J. Marley for the Middleweight, J. May for the Welterweight, and R. Titcher for the Heavyweight Division. Each fought his way to the finals, all with good hard fights, but it was then that disaster overtook us. The first blow fell when John May, who had gallantly entered the ring after suffering from influenza during the week preceding the contest, found that the semi-final had taken too much out of him, and so was not able to compete the following day.

Jim Marley, who had won his semi-final so very convincingly, was defeated in the final, and Bob Titcher then completed our run of bad luck by being defeated by a narrow margin in his final bout. Unfortunately, Jim Barnes, who was to have represented us in the Bantamweight, hurt his leg prior to the contest and was thus unable to compete.

Vet. managed to finish an equal fourth in this contest, but we might easily have won if we had had a few more entries, so next year if you can fight at all please enter.

Those who competed this year would like to take this opportunity to thank those who came along to cheer. It did help and they are duly grateful and appreciative.

Cricket.

Veterinary Science entered a fairly strong team in the 1946 Inter-Faculty competition, but met with only moderate success.

In our first game v. Agriculture, we ran out easy winners. Our second match was against Science. Losing the toss we were forced to chase 150 runs in two hours. Largely due to the efforts of Burfit, Murtagh and McKeand, we closed within fifteen runs of the required total.

The teams comprised: McKeand, Grono (capt.), Telford, Neilson, Ratchcliffe, Robson, MacKay, Murtagh, Burfit, Rees, Alcorn, Mansfield, and Lamond.

This year we have a very promising line up, and with any sort of luck anticipate a successful season.

Football.

A keen team on the field and the whole faculty on the sideline was not sufficient to beat Arts in the Final of the Inter-Faculty Competition this year. We congratulate Arts on their hard-won victory.

The standard of Inter-Faculty Football was considerably higher than for some years past. This was largely due to the enthusiasm whipped up by other faculties, as was indicated by the number of first-grade players who turned out and the increased number of supporters each faculty team had. The strong support given to the Vet. team was greatly appreciated. College and Grade Football, injuries and pressure of work played their part in modifying the

team as the season progressed. As a result, little opportunity was found to strike a combination. We were fortunate in having ten tough and vigorous forwards from whom a useful pack could be fielded. This was the major factor in the team's creditable performances. The position in the backs was not quite so easy; though many were available, few were outstanding.

Results of matches were:—

Versus Agriculture: Drawn, 10-10. First match of the season and taken a bit lightly.

Versus Pharmacy: Won by default.

Versus Arts: Won, 15-9. A well merited win, aided by good goal kicking.

Versus Law: Won, 13-6. Characterised by good forward play.

Versus Medicine: Lost, 5-8. An off day. Med. snatched victory on the bell.

Versus Dentistry: Won, 15-3. Team at its peak. Backs attacked and defended vigorously and the forwards scored the tries.

Versus Architecture: Won, 17-0. Forwards played their usual sterling game and scoring honours went to the backs.

Versus Science: Won, 39-3. A field day for all.

Versus Engineering: Drawn, 3-3. The team though weakened put up a good fight.

Versus Economics: Won by default.

Semi-final, v. Dentistry: Won, 16-5. The team performed very well in spite of three fairly serious injuries, which prevented Te Punga, Pearson and Evans from playing in the final.

Final, v. Arts: Lost, 15-9. Arts scored one goal, one field goal and two penalty goals. Our points were obtained from three penalty goals. Vet. made a bad start and was unable to catch Arts' early lead.

Those who played in the Final were: McNab, Staunton, Bas. Forsyth, Eedy, Beasley, Downes and McDiarmid in the backs; Doole, Roberts, Dun, Petherbridge (capt.), Fisher, Jebson, Jacobs, Gilchrist, and Jones in the forwards.

Golf.

This year we have attempted to revive the interest of the faculty in the royal and ancient game. On the first Monday of May vacation we held a golf day at Gordon. It was to have been held in conjunction with tennis on adjacent courts, but because of the weather the tennis enthusiasts ended up at Roseville. Consequently we were unable to meet them at lunch, as originally planned. The day was far more perfect than the scores, but everyone thoroughly enjoyed themselves, including the members of the Staff who joined us. By Michaelmas Term the Inter-Faculty golf will be well under way, and we hope to defend the faculty's honour by entering a team.

After the war years' lapse the McNamamy Cup is again available to the Vet. most proficient in use of iron and wood. It is expected that sufficient faculty interest will be apparent to make the event, once, more, an annual fixture.

Rifle Shooting.

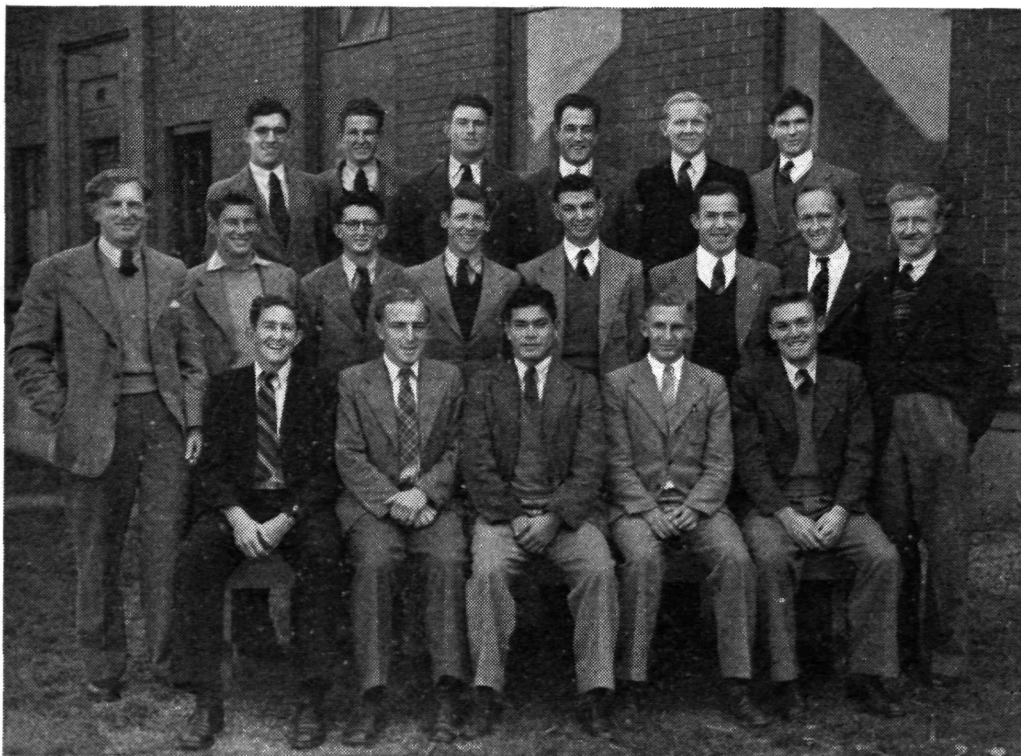
With the revival of Rifle Club activities this year, Vet. Science is well represented with Messrs. Saunders and Skerman on the Rifle Club Committee. Many difficulties had to be overcome in the early stages but the club now functions smoothly, and our Inter-Faculty shoot has been planned early in third term. The Inter-Faculty Sports Committee invited the Rifle Club to conduct this match, the points counting towards the Penfold Shield.

As five Vets. are rated among the club's twenty best averages, we have high hopes of shooting the opposition to pieces.

Rowing.

Attendant on the return to University peace-time activities was the revival of the annual regatta. This was held on Parramatta River at Anzac week-end. The Inter-Faculty eights events were rowed over half a mile.

Though the crew lack nothing in enthusiasm, late selection curtailed training and it could not hope to attain the fine degree of co-ordination fundamental to this sport. Nevertheless Vet., in a very even first heat of the competition, rowed into third place, one and a quarter lengths behind Dentistry, with Law in second place.



FOOTBALL TEAM, 1947.

Back Row.—K. J. Armstrong, N. Beasley, C. J. Roberts, W. J. Doole, J. L. Jebson, N. Downes.

Middle Row.—K. E. Hart (selector), D. Kontze, B. L. Divett, F. R. Staunton, J. McNab, C. Petherbridge, R. Gilchrist, F. Austen (selector).

Front Row.—D. Lamonde, D. Crawshaw, W. Te Punga (captain), I. Pearson, J. Howes.

The crew were: Coward, Rhodes, Carter, Dick, Juleff, O'Byrne, Rutherford, Sinclair and Tomlinson (cox). Others who came along for the practice rows but were not chosen showed very commendable spirit. Haberfield Rowing Club earns our gratitude for having put their shed and Practice VIII at our disposal during our few training rows. Thanks are also due to Sydney Rowing Club for the use of their shed on the day and Jim Barnes deserves special mention for his able coaching.

Having made a good start in rowing this year, we have a sound nucleus round which to build a crew which, with training, may gain the regatta honours.

Soccer.

Although in its infancy as a faculty sport, Soccer has proved itself to be not only a source of post-prandial entertainment, but also a points winner for the Penfold Shield.

The team has well maintained the reputation set by the faculty last year. Its members were largely inexperienced but were unified by the sprinkling of "Professionals" such as its captain, Fred Widdows, whose experience and ability were a major factor in developing the team as the season progressed.

At the time of going to press, the competition has just been finished, but Vet. had an unassailable lead before the final game. Its fine record was undefeated.

Regular members of the team were: Widdows (capt.), Collier, Mathieson, Te Punga, Manefield, MacKay, Manson, Spira, Brooks, Evans, Wilkinson, Skelton, Austen and Goldfinch.

Results of the matches to date: v. Engineering, won 2-0; v. Science, won 3-0; v. Medicine, drawn, 1-1; v. Architecture, won 3-0; v. Arts, won by default; v. Dentistry, drawn, 0-0. Goals for, 9; against, 1.

The popularity of Soccer ensures that it will retain its newly-found position as a major sport of the faculty.

Tennis.

Encouraging interest in tennis has again been displayed by the faculty. Tennis activities commenced

with a pleasant social gathering, and we hope will terminate for the year with success in the forthcoming Inter-Faculty competition.

About twenty-seven enthusiasts gathered at Gordon on May 26, and then removed to Roseville, where a dry court was obtained. Although play was limited to one court before lunch, all played several sets of tennis through the day. The early organisation of rounders, of the pick handle variety, on the adjacent oval provided endless amusement and kept the ball rolling between sets. We welcomed the presence of those married (both staff and students) with their wives and families. Their participation made the function more valuable and emphasises the necessity for a similar excursion each year.

The Intra-Faculty Championships were marked by the large number of entries in both singles and doubles sections. In the singles, thirty-nine contestants were eliminated before Chook Roberts met Merv. Foote in the final. Chook outplayed Merv. 6-2, 6-2, and in doing so retained the singles championship.

For the fourth successive year Fred Evans' name will appear on the Brettington-Moore Shield for the doubles championship. This time he was ably partnered by M. Eade and the combination proved superior to Chook Roberts and Doug. Crawshaw (2-6, 7-5, 6-3) who were the other finalists of the twenty-seven entries.

Swimming.

In an endeavour to field a strong team in the Inter-Faculty Swimming Carnival, recruiting was commenced at a much earlier date than in former years.

It is very disappointing to have to report that though there was ample time for training in the various events, only five men volunteered their services. Consequently, this small handful was forced to contest more events than could fairly be expected of it.

Our thanks to those men who, though outclassed by stronger swimmers from other faculties, did see to it that Vet. Science was at least represented in every event.

Battle Hymn of the Posterior Pituitary.

From my secluded quarter,
I control the body's water,
And without me
You
And you can't stop when you oughter.

I heard a sound as I turned me round—
The scound of hurrying feet—
As an old guy with a rheumy eye
Came dashing along the street.
Have they passed this way? I heard him say.
We haven't a moment to lose.
They're not in their pen,
There goes Big Ben,
We've lost the nine o'clock gnus.

GENESIS OF GENETICS

And he said, What shall I give thee? And Jacob said, Thou shalt not give me any thing: if thou wilt do this thing for me, I will again feed and keep thy flock.

I will pass through all thy flock to day, removing from thence all the speckled and spotted cattle, and all the brown cattle among the sheep, and the spotted and speckled among the goats: and of such shall be my hire.

So shall my righteousness answer for me in time to come, when it shall come for my hire before thy face: every one that is not speckled and spotted among the goats, and brown among the sheep, that shall be counted stolen with me.

And Laban said, Behold, I would it might be according to thy word.

And he removed that day the he goats that were ringstraked and spotted, and all the she goats that were speckled and spotted, and every one that had some white in it, and all the brown among the sheep, and gave them into the hand of his sons.

And he set three days' journey betwixt himself and Jacob: and Jacob fed the rest of Laban's flocks.

And Jacob took him rods of green poplar, and of the hazel and chestnut tree; and pilled white strakes

in them, and made the white appear which was in the rods.

And he set the rods which he pilled before the flocks in the gutters in the watering troughs when the flocks came to drink, that they should conceive when they came to drink.

And the flocks conceived before the rods, and brought forth cattle ringstraked, speckled, and spotted.

And Jacob did separate the lambs, and set the faces of the flocks toward the ringstraked, and all the brown in the flock of Laban; and he put his own flocks by themselves, and put them not unto Laban's cattle.

And it came to pass, whensoever the stronger cattle did conceive, that Jacob laid the rods before the eyes of the cattle in the gutters, that they might conceive among the rods.

But when the cattle were feeble, he put them not in: so the feebler were Laban's and the stronger Jacob's.

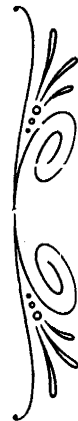
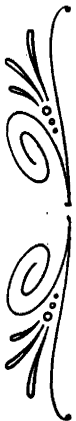
And the man increased exceedingly, and had much cattle, and maidservants, and menservants, and camels, and asses.

References: Anon. (B.C. 800). Genesis 30 : 31-43.

AUTUMN RAINS

The tall grey trees are stark and spare;
 Around, the hard brown earth is bare
 Of grass that's withered up and gone,
 For this, and more, the drought has done.
 These trees, that once before were clad
 In golden leaves, are bowed and sad;
 But now the dull and sullen grey
 Of rain has slaked the thirst of day.
 The brown earth starts to show a sheen
 Of fine grass tops of brilliant green,
 That brighten up and cheer the lands,
 So that the white of new-born lambs
 Stands out against the emerald sward,
 That covers up the dry brown board
 Of this great earth's hard crumbling face,
 To make of it a better place.
 And so the rain has come again,
 And from the trees has washed the stain
 Of summer's dust and dirt and heat,
 And soaked the ground around their feet.
 The autumn leaves, they fall and sail,
 The poplar's lost its coat of mail,
 That soon lies golden on the ground.
 The breeze is now the only sound:
 That cool and gusty Northern breeze
 That ruffles all the pools and trees.
 Pale autumn sun shines faintly through
 The thin white clouds that mark the blue,
 And brush the distant mountain tops;
 The breeze that started, suddenly stops.
 And now the land's a fresher place,
 When it's had rain upon its face.

—D. A. Rutherford.



HIGH COUNTRY WEEK-END

Although New Zealand is comparatively small in area, there are large tracts of country either so heavily bush clad or at such an altitude that the pastoralist finds it useless for the running of sheep and cattle. On much of the open country, sheep were run in the latter part of last century, but with the advent of the fat lamb industry the country has been left to remain under a mantle of snow in the winter and in the summer burned by the hot sun undisturbed by sheep and cattle.

In South Westland the country is heavily bushed, mountains running up to 10,000 feet and the topography roughened by fiords which run inland between precipitous mountains for many miles and gorges wherein flow raging torrents. This country is depicted in maps of the area as unexplored. Running up the centre of both islands is a chain of high mountains which are covered with close vegetation up to a height of 4,000-5,000 feet. Above this are countless acres of rugged country covered with rock, snow and a coarse grass known locally as snow grass.

Many regard these areas the "back country," as marginal country to be classed as liability rather than asset amongst the actual and potential resources of the Dominion. To the Department of Agriculture, for instance, it is a problem in erosion and a reservoir for noxious weeds such as the Nassella tussock, but for a few of us it conjures up both pleasant and profitable memories.

To one who is no longer with us to share these memories I dedicate this story.

The early New Zealand settlers came from a country where shooting played a large part in their leisure hours. After they had wrested a few acres of land from the bush and driven the last wooden peg into their slab huts, they gathered together and sympathised with each other at their inability to demonstrate their prowess with powder and shot, or rod and reel. From this the Acclimatisation Society came into being and in the 1880's with the aid of the Government introduced the first Red Deer into New Zealand. A few years prior to this, however, trout had been liberated. From this date many and varied species of trout and deer were introduced into the country, until the early part of the century when most rivers and lakes were fairly heavily stocked with fish. The deer were not numerous but had gained a firm foothold.

The results of these importations have provided the present generations of New Zealanders with sport which is unequalled in any part of the world.

The species of deer comprise, Red Deer, Fallow Deer, Virginian Deer, Sambur from India, Wapiti, Moose, Chamois and Thar. The fresh water fish include brown trout, rainbow trout, steelhead, perch and quinnat salmon.

Deer stalking is not a rich man's hobby. On the contrary, it can be very lucrative and was particularly so during the war years.

There is no licence fee to shoot any of the deer, however a licence is required to fish for any of the above species; usually about twenty-five or thirty shillings a year.

The Red Deer are the most numerous and their habitat is mainly more accessible than that of the other deer and can usually be reached in a few hours by car from any of the larger cities.

Week-end trips are very common. Perhaps you would be interested to read of one. We had planned this trip in late March to coincide with the rutting season when the stags roar and the deer congregate in mobs of a dozen or so and appear to seek the country above the bush line rather than the heavy bush and scrubby river flats.

On Friday night we load our gear into the car. Not very much gear, just our packs, some tinned food, sleeping bags, rifles and fishing rods. It is a fine, clear, starry night, probably a slight frost which we imagine makes the stags more virile and less cautious. This makes us very optimistic and we fortify our optimism with stories of fellow deer-stalkers who had outstanding success the previous week-end and just missed getting a twelve-pointer, because he winded them and kept beyond range. We have every chance of running up against this one, or even his royal sire, which we feel sure would carry twice the timber. Soon we leave the plains and begin the slow drive through the foothills. We cross a small pass and eventually arrive at Lake Lyndon. Here we halt, and as we stand by the lakeside a heavy rainbow surfaces and flaps his tail as he submerges so that the ripples lap at our feet. In the distance a stag roars and it sounds eerie in the frosty midnight stillness. The roaring makes us excited, as it is a year since we heard a stag roar, but distant stags have greater spreads, so we climb into the car, arrange our coats and rugs and drive on. As we swing around a bend a deer jumps into the headlights, his eyes flashing green. We stop the car and disentangle ourselves—of course the rifles are beneath everything, so we watch him clattering up a dry creek bed enveloped in the white vapour of his breath. Since we can't shoot him we don't feel frustrated, but rather regard him as a friend, as he has provided us with our first glimpse of the bay redness of deer and this makes us very happy. On again, and soon we leave the main road and drive for a couple of miles through Matagauri scrub to the Snowflake Hut. Frost glistens on the corrugated iron roof, and as we stop the only noise is the crackling of the cooling engine and the deep gurgle of water running beneath the ice in the creek behind the hut. The hut is open and beneath the beds is a good pile of dry wood. We soon have the fire going and over a cup of tea discuss our plans for the morning. As a few hours of darkness still remain, we lay out our sleeping bags in the beds, and all is still and quiet again; and as I try to suppress my excitement, I watch the flames of the dying fire cast strange shadows on the wall. In the distance two deer are calling each other and then a stag joins in the conversation. At least there are deer about.

We breakfast and set off loaded down with our packs. There is the river to cross, and although it is only knee deep the swirl of the water wets us to the waist and it is icy cold.

We have tossed a coin to see who has first shot. This is the best way as the winner can decide when he will shoot and how he will carry out the stalk. I lose. Dave lights a match and we see that the wind is blowing down towards us. This is good. Soon the valley closes in and we follow an old pack track in the bush on the edge of the river for several miles. The going is not hard, just a gentle climb, and the

track is soft and springy beneath and fine to walk upon. By now the sun is creeping into our narrow valley, and on a lightning shattered tree almost enveloped in the morning mist, a kaka screeches and enjoys the warm sun. Suddenly Dave stops, and as I lift my head I see a pair of antlers swing towards us and with a crash disappear down a bank on the edge of the river. We rush forward through the bush and the stag is running along beside the narrow river looking for a place to ford. There is a roar from Dave's rifle and the stag crashes—quite a heavy beast with a fairish head. He is quite dead and blood oozes from a pulpy mass between his fine limbs. We skin him and decide the skin will dry out at about eight pounds. This is important, as we are not rich and this will bring us two pounds to help cover the expenses of the trip. We stretch the skin out to dry in a place in the bush where a kea won't find it and tear it to pieces.

Soon we leave the river and follow a deer track up a spur which is a long pull with a steep grade, so we rest frequently. Gradually the bush becomes less dense and we leave the heavy timber and pass through a zone of gnarled beech with thick strong stubby limbs which, during the winter, support several feet of snow. We are getting near the open country now above the bush line, so before showing ourselves we have a boil up and have a meal. As we eat a stag roars in the distance and is answered by another, much closer, who ends his challenge with a grunt. Knowing this is indicative of an old warrior, we collect rifles and packs and move on. We pass out of the beech and in the distance at eye level we see mile after mile of semi-plateau country broken by snowy peaks and covered with snow grass, turp wood and yellow pine two or three feet high. In the next ten minutes we plod doggedly up through an uphill swamp which theoretically should not exist. We gain our object, a high rocky outcrop, which commands a wide field of vision. From here we carefully examine every prominence and depression, but can see no sign of movement. All at once below, only fifty yards away, there is a crash followed by a roar, and a heavy stag walks nonchalantly into view. I have a rest in the rock so waste little time in bringing up my rifle. He drops like a log as I place a bullet behind his shoulder. From this moment on the scrub is alive with deer and we have no opportunity to differentiate between hind and stags, but fire as the

first glimpse of each crosses the beads of our fore-sights. When the survivors are beyond range we take stock of our tallys. Dave has killed two, and I also have two, excluding the original stag. Skinning is not a pleasant task, but we feel that we cannot leave the equivalent of ten crisp pound notes lying on the ground, so set about the task. At this spot we make our camp, which consists of clearing the ground of rock and spreading our sleeping bags over cut scrub tips, which make a surprisingly comfortable and springy bed. Although our shooting has probably alarmed all deer within the locality we decide to make a fast trip up to the head of the valley to see what lies beyond. Our path skirts around the edge of a tarn of about ten acres, and much to our annoyance a flock of paradise ducks fly ahead of us, honking at our approach.

The head of the gully is a pass and from it arises a small trickle of water which flows westwards into the mountainous torrents of Westland. Below us in the cold evening shade lies a dark green timbered valley which opens out on the shores of the Tasman Sea a few miles down. Our shooting is over and we return to our bivouac, boil up once again and sleep.

Next morning we retrace our footsteps of yesterday. Down hill to the river, and down the river to the hut.

It is early, so we plan to drive back to Lake Lyndon and see if the rainbow are biting.

Dave is a much better fisherman than I. He casts a long line and can place his fly on the water as softly as thistledown. For a while I fish but a stormy southerly blowing into our faces makes it much more pleasant for me to admire Dave's tenacity and casting ability. Soon there is a swirl, the reel buzzes and the line sings through the water. The fish surfaces and tries to flick the line with his tail, but the angler is just as cunning, and by keeping the line taut drives the hook deeper into the jaw. At last the fish is netted and we admire him on the bank—a five-pound jack rainbow.

This encourages me, but the fish must be feeding well off shore, as neither of us touch any more.

Fishing is over for the day, and so too is our week-end's sport, for we must return home. But, short though the trip was, the much maligned back country, and the enterprise of our ancestors have combined to make it at once profitable and enjoyable.

—Erewhon, Yr. IV.

Praise Indeed

General Sturdee said that in England he talked with the scientific adviser to the new Ministry for Defence (Sir Henry Tizard). "He is the most rational scientist with whom I have ever spoken," General Sturdee said.

—"Sun," 16/6/47.

:: :: ::

Dear Gardening Editor,

Can't seem to get anything to grow in my garden—do you think it is because I have worms?

Definitions.

Breech presentation of twins—an upset of digestion.
Hernia—a drop of the doings.
Therapeutic Abortion—a miscarriage of justice.

:: :: ::

Client to clinician: "Well, last week it was either X-rayed or ultra-violated."

:: :: ::

The shaggy dog had taken his owner to the pictures. When the lights came up a patronising busybody asked, "Well, and did your dog enjoy the show?"

"Not much," said the dog, "but I loved the book."

THE GREEN YEARS

RANDOM THOUGHTS ON THE VETERINARY SCIENCE COURSE

Having surmounted all but the last hurdle in this "the only course," it seems fitting, if quite unnecessary, to put pen to paper and give some impressions of it.

Veterinary students are odd types, a random selection of their generation, from which they are drawn by chance (ref. "chance" cf. tossing a penny by Miss Spinner, 1946). The probable error of a veterinary undergraduate is very large (Dr. Pistol, 1946). This P.E. never seems to decrease very much, even where (1-q) is very small (when q represents the number who fail).

Many fail. In the first year, where comparatively simple things like the turgidity of the dandelion and the integrity of the cell of the root tip of the onion (Prof. de la Zouche, 1938), mass action (Prof. Grinds, 1938), direct action (Honi Soit, any year), and impossible motor cars moving in ever-decreasing circles at 186,000 m.p.s., until they finally disappear under a wheatstone bridge (Dr. Lurv, 1938), have to be dealt with, as well as important social problems like the love life of Rana (Dr. H. Ypo-soln., 1938), not to mention early travail with the collected works of Mr. Blanc-maison (it takes three years to collect the works of Mr. Blanc-maison). Many fail (circa 50 per cent).

Still, there were always the Union pictures. It was possible to get a seat then, and the valuable part of the entertainment, the comment, was audible.

Second year is not so bad—of course, it is here that one begins to hear, "You'll fail" (Mr. Spider, 1939, 1945), as one throws an unwanted lung to or at a friend. These things can be so readily misunderstood. Lately life has had a softer hue, my children (Miss Os Bone, 1945), and after all you might get by in Anatomy I. Then if you can explain why it is impossible to ride a bicycle ergometer up a staircase while wearing a Douglas bag, without going into a tetanic contraction, you'll do all right in Physiology I. It's only a matter of knowing all the facts, making adequate observations, and there's a big chance you'll arrive at the right deduction (Dr. C. Wool, 1939, 1945). Biochemistry proves that fat will float on warm water (Dr. Take-care, 1939), and Histology is only a matter of looking down a "mike" at pretty pictures: Miss Caution (no relation of Lemmy) could explain it all. In second year also little things in Animal Husbandry take on a new significance. Now you see 'em, and now you don't (Mr. Blanc-maison, 1939).

It must be admitted that the prophecy in re failing (*vide supra*) does not apply to all, and some do get into Third Year—and here, "You'll be sorry" really does have a meaning. Here's the list. Pathology: your

first introduction to the writing of a scientific report, Gentlemen, and you will need a white coat (Dr. Halroy, 1940, 1945). Nutrition is not all beer and skittles; the "standards" the thing (Dr. Fran Key, 1945), and there is practically a New Zealand side to it (Mr. G. Eddies, 1945). Physiology takes on a new interest—do pycnics make the best clients—and why does the little red hen peck? (Mr. Abbits-morris, 1945). Bacteriology is all right; there is no exam till next year.

Genetics, the final volume of the collected works of Mr. Blanc-maison (the B is soft as in white) leaves one in no doubt of the lack of truth in Jacob's theory as to the cause of spotted calves—but what does cause 'em?—and isn't it lucky a bull can't be his own grand mother. There is also Anatomy II—you know, "You'll Fail" (Mr. Spider, all years), and after that (1-q) (see para. 2) gets smaller as one moves into Fourth Year. And REALLY gets stuck into it.

Most people moving into Fourth Year are a little scared of Surgery—it's easy—if you know your Anatomy, Physiology, Histology, Biochemistry, Pathology, Bacteriology, Pharmacology, and just a little Parasitology. All you have to do is learn your Surgery. It is surprising how few do (Dr. Pistol, 1946), even graduates, who forget it anyway. Medicine is easy, too—if you know your Physiology, Biochemistry, Pharmacology—oh, you know the list. All you need are the fundamentals of Medicine (Mr. U.S.A. Ferrous, 1945, 1946). Therapeutics is easy, if, etc.—anyway, it's easy (Mr. Oldgo, 1946), but Parasites are little understood, need more research officers, and are largely a matter of nutrition, DDT, 666, and oats (Mr. McHell-Gee, 1946); worms and bugs come into it, too. Do you remember Bacteriology? (not many do); there was no exam in Third Year, but here it is. However, don't worry, you don't have to memorise Topley and Wilson (Mr. Shore, 1945, 1946). Meat Inspection demands some thought, and attention is drawn to the strong position of the Institute of Health Lookers-After. There is special reference to fares, handkerchiefs, etc.

And here it is.—"Final Year"—but wouldn't it—I still have to clear that last hurdle. Until then I have no time for Random Thoughts.

—Anon., May, 1947.

Footnote 1: All references quoted in the text are private or personal communications, or public utterances.

Footnote 2: Any resemblance of any of the authorities quoted above to lecturers at the Sydney University is quite intentional. The author can accept no responsibility for this. He is only a student (ref. the above authorities).

"When I use a word," Humpty Dumpty said in rather a scornful tone, "it means just what I choose it to mean—neither more nor less."

"The question is," said Alice, "whether you can make words mean so many different things."

"The question is," said Humpty Dumpty, "which is to be Master—that's all."

—"Through the Looking Glass," Lewis Carroll.

HOW DAMNED COLD IT WAS!

When we were told that we would be accepted in this outlandish place—at least it seemed like that to us—we were warned, never before had women been there, and all the men who had served a time there warned us of the intense cold.—“Quite the worst time to go, you know.” “It’s the coldest place on earth.” “They treat you like slaves—you’ll have no time for sleeping.” These were only some of the remarks—none very encouraging.

Determined not to be put off, we armed ourselves with sleeping bags, saucepans and all our winter woollies. We joined the train and were almost forced to push all the occupants out, such was the quantity of our luggage.

All train trips are slow and monotonous, but that night seemed worse than any other. We were terrified we’d fall asleep and not wake till Moree, or some equally dreadful and ghastly fate.

Our first stumbling block in our trip came at M—. We had asked for a room in a pub till the dawn, but we were told that the rooms were being painted—“hoping it did not inconvenience us.” Not feeling the slightest bit inconvenienced we, two shy and timid females, entered the waiting room of the railway station and crouched with our luggage, some ten soldiers, ten other odd males, over a tiny coal fire till came the dawn. Oh, chilly dawn, how cold and bleak! as we, sleepless and dirty, surveyed the town and marvelled at the two lovers who cooed together at the street corner as the lad held his bike in one arm and the girl in the other. While admiring such enthusiasm, we decided that there was a time and place for such things, and this was certainly neither.

Ultimately the bus arrived. Again, with suspicious looks from the other travellers, we climbed into our seats, being firmly instructed to sit behind the driver. The men sat in the backmost seats. As we travelled along the frosty countryside we were given the morning paper and listened to Major Hatfield on the wireless—marvellous to have such comfort so far from home!

At D— we managed to find our way to a pub, and, after knocking on doors marked “Private” and “Bar,” and ringing endless bells which didn’t work, an unshaven man in a sleeveless pullover let us in and said, “Cook will probably have you.” We were planted in the best parlour, with a wireless, little realising that here was our last remaining thread with civilisation. We listened to the quarter to eight news, and in due course were told that we could eat. We did.

Our next travelling companion was the mail contractor. He regarded us with extreme caution, and I don’t blame him. We did look wrecks. Finally he accepted us and by the end of the long trip we were firm friends, having found common friends and places we both knew.

When we got into the “Tiger” country we rather thought we had made a mistake, but taking our courage in both hands we pressed on regardless, and ultimately reached the splendid country about which we had heard so much.

The Boss greeted us, apologised for inadequate accommodation, and introduced us to our new abode,

a garage—a very superior garage. It had a cement floor, three and a half walls, and a tin roof. A creek ran past about 80 yards from our mansion.

After meeting the other fellows with whom we were to work, we installed ourselves, got a fire going in the open hearth and organised the camp stretchers which were provided.

At five it began to darken, so after grilling a superb steak we decided to retire. The bearer of the steak told us that there might be a few dingos around but no wolves. We did not care what were around, we got into bed after setting the alarm for 7.15, thinking that would be early enough to get up in the morn. We were asleep and snoring by 6.15.

We were dead with sleep when an hour later the alarm started madly. Have you ever been dead asleep in a sleeping bag and tried to get out in a hurry? It took the two of us about ten minutes to chase the clock to earth. Then we turned over to resume our slumber, but oh, no! We two strangers were nearly chilled to the marrow by the eeriest of all sounds—the dingos in the hills just across the valley.

We were tired, we slept. But nature was unkind to us. We woke, purple with cold in the small hours, unable to move, frozen in every joint. I know I prayed for the dawn and so did my companion. And there, when it came, was the first frost of the year—and what a frost!

Now, our means of crossing the creek was by a post and rail fence. There were two rails about a foot apart. Being in full view of the homestead we caused great amusement for the builders on the roof. Our feet were barely eight inches from our hands. We are both tall. Try bending over and see what the effect is. It’s rather rare. That’s what the builders thought.

We crossed our bridge every day going to work in the morning and coming back in the afternoon, and my companion used to do the extra trip for the milk in the morning while I cooked the meals.

We became fully organised after our sleep and arranged empty oat bags as a mattress under the sleeping bags, for the following night. The cockroaches didn’t worry us unduly.

The men about the place were very nice to us, but the doctrine of male superiority, in manual work at least, died hard in their breast. Before we left we were handling the foals with the best of them.

In the course of time the Boss told me that a dingo had killed a sheep in our little home over the creek a few weeks ago. We spent the remaining time wondering who would come and see us.

After a week of residence in the garage we moved into a cottage which we shared with an old pensioned couple. We had about four rooms—and felt utterly lost—and a stove to cook in, and running water in a tap, instead of in a creek. And no creek to cross! The builders were quite upset.

But the place and the horses had got under our skins and the time flew past. Our two weeks were up and we had to return. We had suffered the freezing nights, the white frosts which crackled under our feet as we went over to work, for what—the most perfect days of pure unadulterated sunshine and all the rest of the fun and enjoyment each day brought.

Feeling sorry for ourselves, we said goodbye, and one of the kind souls drove us back to M—, where

we had a meal and returned to the waiting room and the same little fire. But the night was yet young and a dance was on. Into the room rolled many a merry fellow who had been celebrating, and again there were the soldiers. Again we were the only women. Again the hostile looks, but the merry ones wanted to be chatty. Then numerous greyhounds were brought in to join the happy throng and we busied ourselves studying their conformation. Among the 30-odd men of all sorts and sizes, we were but two girls, and if we learnt nothing more while we

were away, we did decide that women, if they existed in M—, never travelled on trains. The entire two visits to M— revealed no women except the waitresses in the R.R.R. and the abovementioned coo-ee.

When we came back all we could say was that we wanted to go back, and laughed at many things people had said (not publishable) and other reminiscences. But we did enjoy ourselves, even though we had been told by the men, "We had been told that two women were coming, but we didn't know what to expect."

—Anon.

ALLERGY IN A COUNTRY COWYARD

Lo in the painted oriel of the East
 The rising sun heralds another morn,
 The toil worn milkie struggles from his bunk,
 Wishing in vain he never had been born.
 By the dim aid of flickering candlelight
 He dons his garments moist and caked with mud,
 And staggers out to greet another day
 Of sweat, and toll, and anguish, mixed with blood.
 Gone are those dreams of ease and affluence,
 Of potentates and others of their ilk—
 Whate'er their station in this life may be,
 Certain it always is they must have milk.
 In days gone by most any sort of fluid,
 Reasonably clean, devoid of residue,
 Would satisfy the lactic minded critic,
 Without official test of methyl blue.
 But nowadays you scientific gentry
 Have fixed a standard that you deem quite healthy,
 Regardless of the fact that you've gone and blocked
 Any cow cocky from becoming wealthy.
 Don't think from this we bear you any malice,,
 We don't milk cows with any thought of profit.
 If you chaps hadn't put us in the bag,
 Ben Chifley would, in any case, have got it.

—"Dapple."



THE POWER OF THE DOG

The mob were stringing out into the paddock in a casual disorganised scatter, contrasting with the mad rush of the single line of sheep through the gate. I stopped the car, got out, and walked over to the yards where old Bob Jamison was counting out the last of the mob.

I liked old Bob. He was a quiet old chap something over fifty, a bit bent, a bit slow on his feet with rheumatism, and more than a bit short-sighted, despite the spectacles he always wore. But he knew sheep and he knew how to handle them. And most of all he knew sheep dogs.

Bob wasn't generally popular in the district. The very antithesis of the romantic station ideal, he yet did a much more efficient job than its exponents who acted to a hundreds of thousands of acres self-conceived pattern on holdings long since reduced to a few thousand acres isolated among hundred-acre farmers' blocks. He disturbed their conceit with his success at his job "despite" his unspectacular appearance and methods. They had a sneaking feeling Bob showed them up for what the Americans call "dudes."

A case in point was Bob's big bay lop-eared gelding, Punch. Punch was a placid, dopey-looking animal, always fat, but with a canter like an armchair, and so quiet the boss's kids had learnt to ride on him. He offended the eyes of the users of nervy near-thoroughbreds, which fizzed about and pig rooted just enough to give their owners a wonderful opinion of themselves as rough riders. So Bob's incompetence with and fear of horses became accepted as a fact, and a standing joke. If taxed with it, he pointed out, as is perfectly true, that a horse is the most convenient method of doing a certain job. Naturally therefore, the quietest most comfortable horse allowed the job to be done most efficiently. I agreed with Bob entirely. The more so because I happen to know Bob in his young days was contract breaker to the stations over the border when the horse and mule trade with India was a paying business.

Bob led Punch through and closed the gate. "Nice evening," he said. "If you want to see the boss he's gone over to the homestead with Mr. Tyrell."

"Tyrell?" I said. "Was he buying these sheep?" I looked over the fence to a mob still in the yard. "Yeah. He gave the boss thirty bob for them." We exchanged a smile. The sheep were off shears, full mouthed wethers, worth maybe 25/-.

"You haven't much time for Tyrell, have you?" I ventured.

"Bit of a know-all, maybe." Bob left it at that.

I looked over at Bob's three dogs. The two adult dogs, Trixie and Ace, I knew. The three parts grown red pup I presumed to be a representative of their last litter.

"How's he coming along, Bob?" I asked, indicating the pup.

"Fair enough. Bit more experience and he'll be a useful dog."

I was thinking. "Didn't you keep two of that litter?" I said.

Bob smiled slowly. He bent to light his pipe; then he smiled again. "I did keep two," he said.

He smoked awhile. I waited.

"But now I've only this one here. Sold the other to Mr. Tyrell just now."

I raised my eyebrows.

"Mr. Tyrell came over early," said Bob, "while we were still bringing the sheep up to the yards. He walked across to me, had a screw at my dogs, then gave me a general lecture on how to train sheep dogs. After a bit he finished and asked me whether I'd a likely sort of working dog for sale. He went on to spin a hard luck tale about accidents to his two super-dogs. Actually I wanted to get rid of one of the youngsters. I've old Lassie at home and five dogs are really too many for this place. Besides I was sorry for Mr. Tyrell—no one should have to work sheep without dogs, especially those scrubber sheep he runs.

"I had the two pups with me. I'd been working them right through shearing. This red pup was never any trouble. Took to it naturally enough like a son of these two should. The black dog had been a problem though. You know that lead dog of Dan Dooley's?"

I did. Dan had done quite a bit of droving for us.

"Well, I bred him. Right from the word go that dog would only lead—get there in front of the sheep and stay there, and nothing I could do would break him of it. Naturally he was useless as a paddock dog, so I gave him to Dan. Well, this black pup was something the same. He'd cast as pretty as a picture, then, spite all Hell, go on round the end of the mob and turn into it, come straight through the middle and right back to your feet and look as pleased and proud as you like. Do you think I could get him out of it? I simply hadn't a hope. I'd yelled myself hoarse and even tried belting the daylight out of him. I suppose you might call it a strong sheep-working instinct gone wrong. It might be almost as hard to stop this red cove here working properly.

"Anyhow, to get back to this afternoon. I asked Mr. Tyrell what he thought of the red pup, called back the two old dogs and let him work the mob himself. Now that pup's an honest capable worker. Perhaps he isn't brilliant yet, but he's damned sound. I suggested £5 as a reasonable price, but you can believe me I could get £10 for him anywhere."

He could have. Ace and Trixie were probably the best dogs in the district.

"But Mr. Tyrell started right in and pulled him to pieces. He criticised every move he made. He good as told me he might take a chance on his own good training working miracles, and offered 10/- as a take it or leave it price. I was just a little annoyed.

"I called the pup behind. By this time we were at the gate and I purposely let the sheep break away. Then I sent Ace round them. You've seen Ace work. When he got the sheep back and into the yard, Mr. Tyrell said, 'Nice enough work. Pity the dog isn't younger, he might have been made into a really outstanding dog. I'll give you £10 for him.'

"You can understand I was a little more annoyed. 'Mr. Tyrell,' I said, 'I don't think I want to sell any of my dogs after all.'

"What about the black pup?" he said.

"Look, Mr. Tyrell," I said, "that pup will cost you £15, take it or leave it." He looked interested."

Bob stopped.

"Did he take it?" I asked.

Bob smiled.

"He was falling over himself to take it. Couldn't find the money quick enough."

I waited for Bob to explain.

"After I made the proposition we walked back to the sheep paddock where we were holding the second mob. 'I'll give you a demonstration,' I said. 'I see

you wouldn't be impressed by ordinary paddock working, but I think you'll see this dog is something special.'

"I signalled to the black pup. He shot out and round in a perfect cast. I watched him closely. He went on round the end of the mob, and as he came squarely in front, I put my hands to my mouth and yelled out, 'Split!'

"Straight as a die he came through the mob right to my feet. There were the sheep, near as damn all in two exactly equal mobs."

—J. G. R.



A hare in your soup, sir?"

BLOODY SPORTS

An unseasonable and untoward decline in rape, adultery and sudden death in this second city of the Empire, plus a simultaneous (and probably unrelated) fall in Gromyko's veto rate recently left our evening press with even less than usual to put between columnist and sports section. Frenzied editors in search of daily bread hit on an old favourite: "Outrage rampant in our midst." Hence the great outcry against live hare coursing and other "Blood Sports." Letters have been pouring in from "Kind-hearted," "Animal Lover," etc. Let us examine this subject from a rational aspect—a hitherto unattempted task.

A blood sport may be defined for the purposes of this article as one which is essentially based on the possibility of mutilation or killing of animals. Examples are "huntin', shootin', fishin'," coursing and some others, such as bull-fighting, etc., which I do not propose to discuss, as they are not practised in this country.

The case against blood sports rests on two contentions. They are wanton killing and unnecessary cruelty.

The accusation of wanton killing is the easier to dispose of, so I shall deal with it first. This argument holds only until we examine the value we place on the life of an animal, both to us and to itself. We must realise that animals have no conception of life and death as such, and so any fear shown by an animal is fear of pain rather than death. Thus the value of life to the animal itself is zero, as the animal cannot know it is being deprived of life. As regards the value of the animal's life to us, except in the case of rare and useful fauna, it is negligible, and thus well worth sacrificing for the undeniable pleasure some of us at least get out of blood sports. This accusation of wanton killing is therefore illogical and can be dismissed as sentimentality.

The accusation of unnecessary cruelty is a much harder one to refute, and it is at this stage that

the argument usually degenerates to mutual abuse. To suggest that the fish is cold-blooded and so does not feel the hook is merely a happy self-delusion. There are two answers to this accusation.

The first answer is an analysis of the degree of pain inflicted and in what proportion of cases death is not instantaneous. Taking coursing as an example, in the vast majority of cases death is immediate. I have not conducted an extensive survey of organised coursing, but I have seen plenty of hares and rabbits run down in the country by good kangaroo dogs, and a good dog IS lethal. There is no mauling about. The dog simply picks up its quarry by the back, gives a quick shake and it's all over. The few dogs I have seen course have been equally efficient. I cannot believe that a less efficient dog would be worth keeping for coursing. Equally, a shooter who wounds any great proportion of the game he shoots at without killing it is a lousy shot. There are not as many duffers about as all that.

The second answer to the accusation is a counter-accusation of hypocrisy, or at the very least of inconsistency. It is impossible to go through life without committing some cruelties, but a lot of these are avoidable. The only person completely justified in accusing the sportsmen of cruelty is a complete vegetarian who would not have screening on the windows of his house for fear of inflicting a feeling of frustration on the flies. No one who has seen a sheep killed in an abattoir can deny that a degree of cruelty is present. On top of this are the appalling conditions under which sheep railed to the abattoirs have to travel. This cruelty is all unnecessary. We can survive quite well on a vegetarian diet. However, few vegetarians are really completely vegetarian. As Professor Priestley points out most vegetarians wear shoes, drink milk and eat eggs (true vegetarians generally look the part) and every time we boil an egg we perform an abortion. Other examples of wanton cruelty which have so far passed without much criticism from our humanitarians are the trapping of rabbits and also poisoning them with strychnine—the latter is not a pretty death.

Some of the above arguments will be disputed by humanitarians who, taking specific cases such as the poisoning of rabbits, will point out that rabbits are pests. This is entirely irrelevant—the cruelty committed is extreme and not strictly necessary. This "pest" argument is used as an excuse by humanitarians who shoot rabbits. They, however, are probably improving the strain of rabbits by killing off the more stupid ones and certainly not significantly decreasing the total population.

Although somewhat irrelevant, I feel I might include here the only argument against coursing in particular which, I think, carries the greatest weight. It may be noted that this criticism is one that may be levelled at nearly any sport, notable exceptions being, rather significantly, the other blood sports. For this criticism is that coursing is primarily a spectator sport, calling for no effort or initiative on the spectator's part. He, in an attempt to feel a participant, purchases an interest in a dog by putting his shirt on it.

We have considered the case against, and tried to put forward counter arguments. Let us now turn to the case for.

The case for blood sports can also be resolved into two parts. The first is that I personally and, apparently, plenty of other people enjoy them. Possibly we are satisfying our blood-lust, which we might otherwise satisfy by beating our wives. It is hard to put this on a scientific basis. There is the feel of the kick of the gun and duck rocketing to earth, the thrill of a strike, the poetry and lethal grace of the hound as it leans over and sweeps down its jaws. There is the almost equal exhilaration of seeing the game escape unharmed. The only unpleasant phase is the feeling of remorse (varying with the temperament of the hunter) when the game is wounded but not killed, and escapes to prolong its misery. This last, however, does not often occur, and, when it does, stimulates the hunter to improve his skill and prevent its recurrence.

The second point in favour of blood sports is that they develop both skill in hunting and an appreciation of that skill. After all it is not so long ago archaeologically when a man's dinner and survival depended on that skill. The skill and timing required to bring down a flying bird is considerable as is that needed to cast a good fly. So equally does a good dog require a high degree of skill attained by breeding, training and practice. It seems a little tame to rely for our meat entirely on abattoir-killed animals. This skill developed for hunting engenders a strong competitive spirit. This keenness to become a better shot, to breed and train a better pack of hounds is a worthy inducement to a fascinating hobby and weigh heavily in the favour of these sports.

So it seems to me that the final verdict is in favour of blood sports. I intend to go on participating in those I follow until I am forcibly stopped, which will be a blood sport in itself.

—G. S.

EDITOR'S REPORT!

Once upon a time, and not very long ago as calendars measure time, but countless aeons in terms of blood, sweat and tears, we in our dewy-eyed innocence had Faith in our Fellow Man. Early in our journalistic career, Cynicism raised its ugly head, and soon was stamping about on its ugly flat feet trumpeting. We haven't seen Faith since.

Then there was Charity. Poor Charity. Her frail frame received some hard knocks in our first few days in office. So tragic. At first we noticed nothing amiss, but soon her halo began to atrophy and she grew horns—also a spiked tail and hoofs. Endocrinology published our report in full.

Hope did not stay with us for long. Contrary to the experience of other workers, we found Hope does not spring eternal in the human breast. In fact, continual knocking back over a very few weeks discourages it permanently. Hope simply disappeared. We appealed to U.N.O. for extradition, but of course Molotov vetoed it. We learn with sorrow from New York that competent observers now pronounce Hope dead.

We remember as if it were only yesterday, and not those countless aeons ago, the times when we believed in Faith, Hope, Charity and Santa Claus. Why, in these innocent days we scarcely ever turned

widows and orphans out into the cold, cold snow, and we accepted with wide-eyed trust the hard luck stories or promises from potential contributors.

Alas, disillusionment was inevitable and swift. The first stunning shock numbed us to the uttermost depths of our being. But as the days passed and peripheral sensation gradually returned, we realised we had learnt a lesson in the Hard World of Experience.

So it was we took a correspondence course in Bribery, Coercion, and Blackmail, with part-time study in Misrepresentation, Deceit and Advanced Falsehoods. Determined to atone for lost time we arranged skilled tuition from an N.K.V.D. operative. We read the personal memoirs of Al. Capone. We opened a subscription to the Sing Sing Gazette. We went to see the "Killers."

But all to no avail. We passed of course, but we needed so much more than a mere pass. The Chief Examiner, an old S.S. man, was kind, "Fine, boys, fine," he said at the graduation ceremony, "ask me for a reference any time."

Timidly we mentioned editing "Centaur." His scarred face softened from diamond to granite:

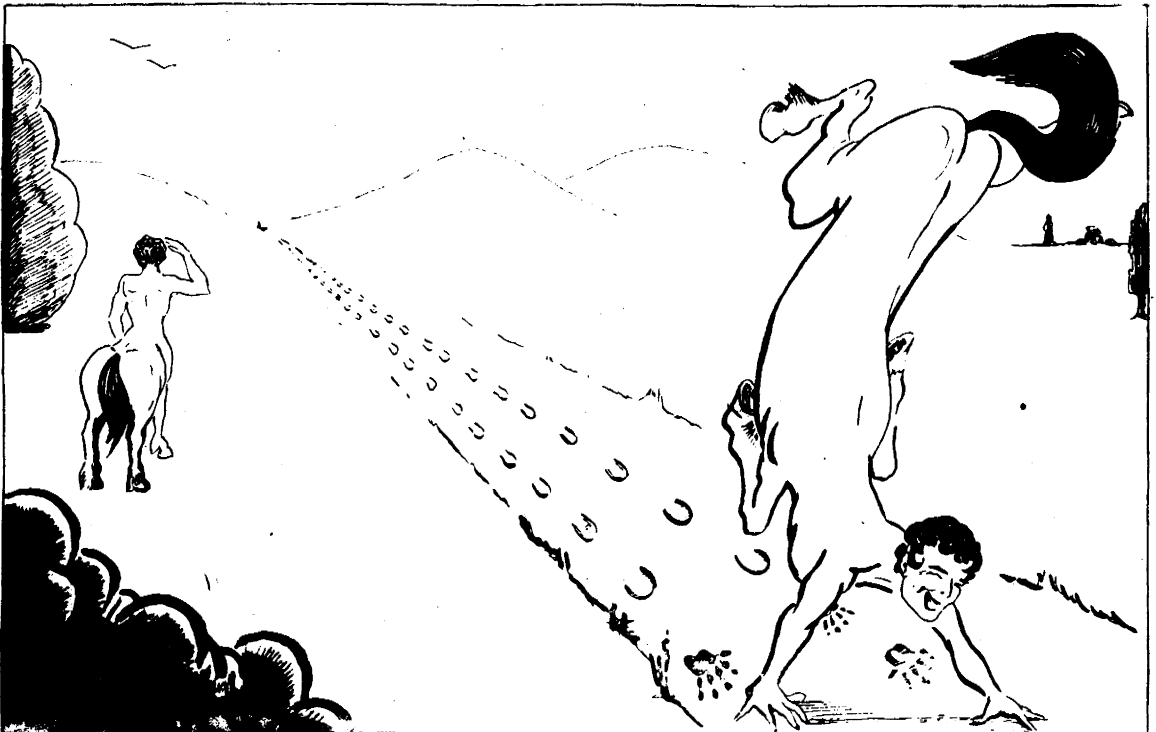
"I'm sorry, lads," he said, "now a routine assignment like Bank Robbery, Armed Assault, Third Degree Application, Extortion with Threats, Swindle, or a Con. job, that'd be different. But this . . ." he shook his head sadly.

We refused to be beaten. We read "Getting Blood from a Stone" by J. B. Chifley, from cover to cover. But sometimes, in sombre moments between the darkness and the dawn we knew the Examiner had been right. Now and then, in moments of depression, we wished we'd taken the sinecures offered us in Irgun, or France's Secret Police, or that job offered us in the States as Stand Over Men in a Protection Racket. But it was too late now, we had to carry on.

Carry on . . . defeated men banging our heads on a brick wall. Carry on . . . When we had to listen to the naive ravings of would-be comforters, innocent and trusting as we so recently had been. "Faculty spirit" they spluttered, "You'll see, they'll co-operate." "Four hundred in the Faculty," they slobbered. "Most surely more than half will contribute." "They realise its valuable experience in descriptive writing," they drooled, "you'll get contributions to burn."

"Simply haven't the time," they dribbled. "Why they wont have the hide to offer that excuse to you."

We retire broken men. Years hence, if three shaking, hollow-eyed beachcombers confront you on some forlorn Pacific shore, spare a sentimental thought and three double brandies for old times sake. Still the stirrings of your conscience with a kind word; with news of homes they've never written to and the Homeland they never visit, and three more double brandies.



EXTRA-MURAL WORK

FIRST, SECOND AND THIRD YEARS

The following information is included in "Centaur" for the knowledge and the reference of all Society members. These lists will, however, also allow students in the early years to take an active part in the planning of their own vacational extra-mural work.

First, second and third year students should firstly devote their vacational periods to the acquiring of an adequate standard of knowledge and ability in the normal methods of all types of farm and animal husbandry; this work to be arranged in consultation with Mr. Whitehouse. After this, they should take advantage of all available weeks and spend them in the company of Stock Inspectors.

Time spent with Inspectors of Stock is very valuable, not only as an introduction to this type of work and life, but also the general and widespread nature of the field work is a practical introduction to subjects to be studied in later years. The student will also, in an easy way, become acquainted with the various Stock Acts.

More specialised periods with Private Practitioners should be left until fourth and fifth years, when the student's knowledge of manipulations, restraint and clinical procedures, permit these periods, reciprocally, to be of greater value to both men.

There are also selected pastoral properties to which students are acceptable; in fact, invited. Information concerning these will be given at any time on enquiry to the Dean.

Extra-Mural work should be thought of, discussed, planned and arranged well back in the preceding term. It is impossible to over-estimate the value of this work towards the final production of the reasonably proficient graduate.

Finally, mention must be made of the ready enthusiasm and co-operation given by most Veterinarians in this State in allowing students to accompany them in their duties.

—B. N. F.

(1) TOWNS IN WHICH DISTRICT VETERINARY OFFICERS ARE SITUATED

Grafton
Armidale
Newcastle

Orange
Goulburn
Cootamundra

Armidale.—Pastures Protection Districts of Armidale, Glen Innes, Inverell, Moree, Narrabri, Pilliga, Tamworth, Tenterfield, Walgett, Walgett North and Warialda.

Newcastle.—Pastures Protection Districts of Denman, Singleton, Gloucester, Maitland, Merriwa, and Upper Hunter.

Orange.—Pastures Protection Districts of Bathurst, Carcoar, Canonba, Condobolin, Coonamble, Coonabarabran, Dubbo, Forbes, Molong and Mudgee.

Cootamundra.—Pastures Protection Districts of Albury, Corowa, Urana, Deniliquin, Gundagai, Hay, Hume, Jerilderie, Moulamein, Narrandera, Wagga and Young.

Goulburn.—Pastures Protection Districts of Goulburn, Berrima, Picton, Kiama, Eden, Braidwood, Cooma, Bombala, Yass.

Name of District Veterinary Officer

Grafton.—Mr. R. A. Hall, B.V.Sc.
Armidale.—Mr. R. G. Denyer, B.V.Sc. (Acting).
Newcastle.—Mr. G. S. Fisher, B.V.Sc. (Acting).
Orange.—Mr. J. N. Henry, B.V.Sc.
Cootamundra.—Mr. B. C. Veech, B.V.Sc.
Goulburn.—Mr. J. S. Healey, B.V.Sc.

Definition of Extent of Each District Veterinary Officer District

Grafton.—Pastures Protection Districts of Grafton, Casino, Port Macquarie and Tweed-Lismore.

(2) INFORMATION REGARDING STOCK INSPECTORS

District and Headquarters.	Name	Qualifications
Albury	Johnston, J. G.	*
Armidale	O'Neill, G. J.	*
Balranald and Moulamein (Moulamein)	Ware, H. M.	B.V.Sc.
Bathurst	Beardwood, J. C.	B.V.Sc.
Berrima, Picton and Kiama (Kiama)	Phillips, S.	*
Bombala	Clarke, F. L.	B.V.Sc.
Bourke	Irvine, J. H.	B.V.Sc.
Braidwood	Fairfax, R. E.	B.V.Sc.
Brewarrina	Irvine, J. H.	B.V.Sc.
Canonba (Nyngan)	Anderson, M. S.	B.V.Sc.
Carcoar	Charles, G. E.	B.V.Sc.
Casino	Harding, W. B.	B.V.Sc.
Cobar and Wilcannia (Cobar)	Arthur, P. W. V.	*
Condobolin	Mayer, R. P.	B.V.Sc.
Cooma	Walker, D. J.	B.V.Sc.
Coonabarabran	Gilder, R. P.	B.V.Sc.
Coonamble	Low, E. G.	B.V.Sc.

District and Headquarters.	Name	Qualifications
Corowa and Urana (Urana)	Wilshire, M. (Acting)	*
Cumberland (Flemington)	McCulloch, J. N.	*
Deniliquin	Rogers, E. S.	B.V.Sc.
Dubbo	Ellis, A. T.	*
Eden (Bega)	Mumford, D. H.	B.V.Sc.
Forbes	Jones, T. R.	B.V.Sc.
Glen Innes	Tuohy, E. R.	B.V.Sc.
Gloucester	Freeman, V. P.	*
Goulburn	Hildred, F.	*
Grafton	Hanlon, G.	*
Gundagal	Peisley, H. R.	B.V.Sc.
Hay	Bray, K. S. F.	B.V.Sc.
Hillston	Loel, B. B. (Acting)	*
Hume (Holbrook)	McBarron, E. J.	B.V.Sc.
Inverell	Rennel, D.	B.V.Sc.
Jerilderie	Fielder, G. L. C. (Acting)	*
Maitland	Lucas, E. A.	*
Menindie (Broken Hill)	Cantello, J. E.	B.V.Sc.
Merriwa	Warburton, H. M.	*
Milparinka and Wanaaring (Tibooburra)	Forster, F. F.	*
Molong	Lockerby, W. J.	B.V.Sc.
Moree	Yeoman, F. T.	*
Mudgee	Warburton, H. M.	*
Narrandera	Byrne, K. V.	B.V.Sc.
Narrabri	Crogan, W. E.	B.V.Sc.
Pilliga (Burren Junction)	Irvine, R. D.	B.V.Sc.
Port Macquarie (Kempsey)	McNiven, A. R.	*
Singleton	West, J. W.	B.V.Sc.
Tamworth	Madden, F. J.	*
Tenterfield	Jones, N. L. C.	*
Tweed-Lismore (Lismore)	Quinn, E. J.	*
Upper Hunter (Scone)	Berriman, J. A.	B.V.Sc.
Wagga Wagga	Ryan, T. K.	*
Walgett and Walgett North (Walgett)	Farleigh, E. A. M.	B.V.Sc.
Wartaldra	Mactier, L. A. W.	B.V.Sc.
Wentworth	Vacant.	
Yass	Doust, A.	*
Young	Litchfield, N. H.	*

(N.B.—Headquarters shown in brackets where different to name of district). * These men do not hold degree of Bachelor of Veterinary Science, but were appointed on Certificate of Stock Board of Examiners.

The following is a list of the towns in New South Wales in which there is a practising graduate Veterinary Surgeon.

Albury.—Mr. Berry, B.V.Sc.

Bowral.—Mr. Laurie-Rhodes, B.V.Sc.

Camden.—Mr. Sidman, B.V.Sc.

Goulburn.—Mr. McNiven, B.V.Sc.

Kempsey.—Mr. Strakosch, B.V.Sc., Farmer Veterinary Service.

Kiama.—Mr. Cartwright, B.V.Sc., Farmer Veterinary Service.

Lismore.—Mr. Churchward, B.V.Sc.

Maitland.—Mr. McTackett, B.V.Sc.

Miranda.—Mr. Sleeman, B.V.Sc.

Newcastle.—Mr. Marshall, B.V.Sc., Mr. Sanders, B.V.Sc., Mr. Trevitt, B.V.Sc.

Orange.—Mr. Heath, B.V.Sc.

Penrith.—Mr. Hungerford, B.V.Sc., H.D.A.

Scone.—Mr. Hartwell, B.V.Sc.

Singleton.—Mr. Bentley, B.V.Sc.

Tamworth.—Mr. Chapel, B.V.Sc., Mr. Coughlan, B.V.Sc.

Wagga Wagga.—Mr. Johns, B.V.Sc.

Wollongong.—Mr. Taylor, B.V.Sc.

Young.—Mr. Cooper, B.V.Sc.



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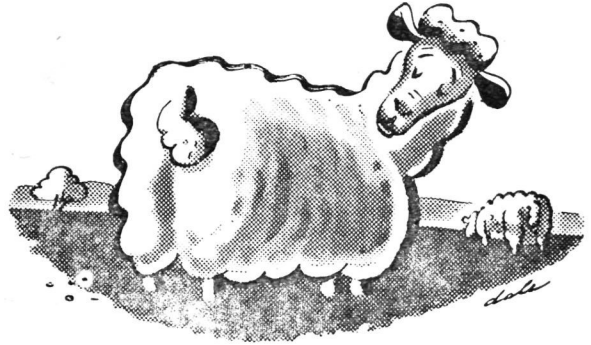
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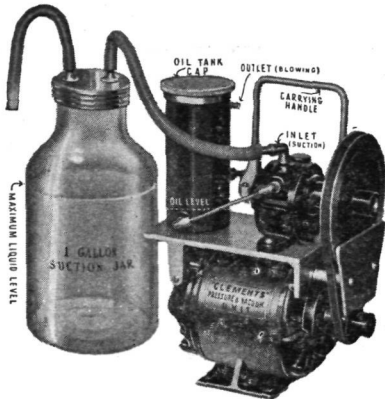
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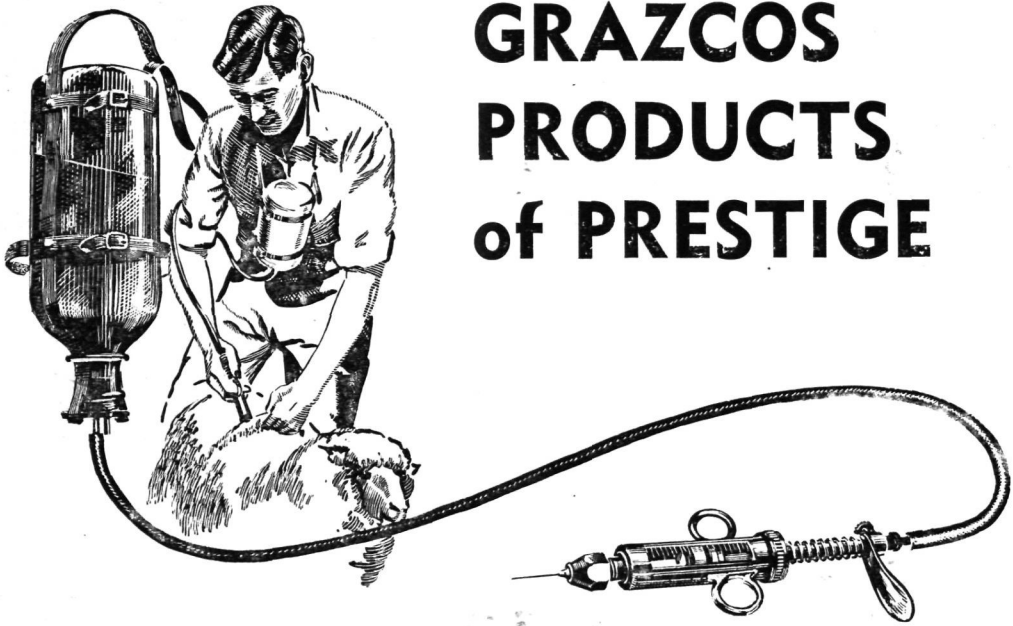
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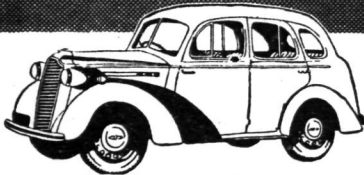
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