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PRESIDENTIAL ADDRESS

The Veterinary Surgeon and Animal Production in New Zealand

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In considering the subject matter of this address, I found myself faced with the choice between a technical talk on livestock fertility or an attempt to suggest some of the ways in which the veterinary profession might in the future play a larger part in increasing the efficiency of New Zealand animal production. In deciding on the latter, I was guided by the facts that such a topic fits better with the theme of this Annual Conference, that during the last sixteen years I have had actual working experience in those few aspects of this large subject I have chosen to talk about and that it is the President's privilege, amounting almost to a duty, to direct his address to the unforeseeable future or to matters politic or philosophic.

That my thoughts should have turned to considering how best the veterinary surgeon might contribute to animal production in New Zealand is not surprising when one considers on the one hand the large and growing numbers of veterinary surgeons in this country and, on the other hand, how far existing farming practices lag behind our present knowledge due mainly to the small number of graduate agricultural scientists capable of extending and applying this knowledge.

Figures giving an idea of the expansion in veterinary services over the last ten years are interesting, particularly when compared with the numbers of students graduating from our two agricultural colleges in the same period.

Year	No. of Graduates			No. of Veterinary Surgeons.					
	Massey	Lincoln	Total	Govt.	Private	Club	Total		
1943		38	20	20	78		
1948		36	23	54	113		
1943-48	18	12	30	-2	3	34	35
<hr/>									
1953		40	46	126	212		
1948-53	75	85	160	4	23	72	99
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1943-53	93	97	190	2	26	106	134

During the five-year period 1943-48 Massey Agricultural College and Lincoln Agricultural College produced 18 and 12 graduates respectively: a total of 30, averaging six graduates for each year of the period. During the same period 35 veterinary surgeons commenced work—an average of seven for each year of the period. In the subsequent five-yearly period, 1948-53, Massey Agricultural College turned out 75 graduates and Lincoln Agricultural College 85, a total of 160, with an average of 32 for each year of the period. During the same period 99 veterinary surgeons commenced work, an average of 20 for each year of the period. The figures speak for themselves, although it is an interesting additional fact that at the present time there are vacancies for about 35 veterinarians in Government service or in practice.

Traditionally we look to the veterinary profession firstly to prevent the entry into the country of important plagues of livestock or to control and eradicate them if they do gain entry, and, secondly, to provide a readily available economic, clinical service for the prevention, cure and eradication of existing diseases. I, personally, would add to those the duty of extending to the farmer the most up-to-date knowledge on livestock breeding, feeding and management practices. This latter function is not at present expected of the veterinarian by the farmer nor, in general, accepted by the practising veterinary surgeon as a normal part of his duties.

The prevention, control and eradication of plagues of livestock was one of the first concerns of government and it is much to the credit of the Government and the past and present officials of the Livestock Division, now called the Animal Industry Division, that we have been so free from serious scourges and the few that have gained entry have been so adequately handled. With this aspect I will deal no further but will turn my attention to the clinical field and its necessary supporting services.

Maximal efficiency in a clinical service demands, among other things, a sufficient number of suitably trained veterinarians in possession of adequate knowledge of regional and national problems, backed by readily available academic, diagnostic, consultative and research institutions. Clinical services in New Zealand are at present provided substantially by 160 club veterinarians with the help of an important and growing number of private practitioners (about 60 in number at the present time). It is not my purpose to act as an historian but it would be doing less than justice if I did not mention our very great debt to the Veterinary Services Council who, by an enlightened policy, has assisted more than any other single factor in making the New Zealand farmer conscious of the services the veterinary profession can offer. The resulting demand for and rapid growth of clinical services has brought to light certain problems and defects and it is with some of these and possible ways of remedying them that I will devote the rest of this address. In my opinion, five of the main problems or defects can be briefly stated. They are:

- (a) Permanent and serious staff shortages.
- (b) The inadequacy of information about many important regional and national problems.
- (c) The lack of readily available consultative and diagnostic services.
- (d) The negative outlook of both the farmer and the veterinary surgeon towards the veterinarian as an extension worker.
- (e) Finally, the absence of academic leadership for the profession.

The provision of sufficient veterinarians to meet the demand of a rapidly growing service must at all times be difficult and at no time has the supply been sufficient despite active steps having been taken to attract graduates from Britain, South Africa, Holland and Australia and to train New Zealand-born men in Sydney. The logical answer to meeting our own demands would appear to be the creation of a Veterinary Faculty within the University of New Zealand. This, however, is no immediate answer as, even with the best will and most rapid action, no graduates could be expected from such a faculty in under seven to ten years. It would appear from the knowledge that we now have that those who opposed the formation of a Veterinary School when a Government Committee sat in 1945 were too cautious and the minority who submitted a separate report in support of immediate action were substantially more accurate in the assessment of the future growth of the profession. A wiser decision by this committee at that time could have meant that the first New Zealand-

trained graduates would now be coming available and expansion of teaching facilities to meet the present demands would not have been difficult.

Turning for a time to the question of the adequacy of available knowledge of main national and regional disease-wastage problems, the finding by the Diagnostic Section at Wallaceville of 29 or more diseases of livestock not previously confirmed in the laboratory as occurring in New Zealand shows much remained to be done in this field in 1947 and suggests that still more remains. The probable existence of further unrecognised diseases is emphasised by the fact that such confirmations were mainly the result of the examination of routine material and not the result of systematic approach to the problem of mapping the distribution and economic importance of diseases or groups of diseases. An accurate diagnosis on which is based efficient prevention, cure and eradication of disease is arrived at by obtaining an accurate history of the disease by observing the signs of the disease and by eliminating other possible diseases, i.e. differential diagnosis. Without adequate knowledge of the main diseases likely to be encountered, accurate diagnosis becomes more and more difficult and the practitioner may find himself treating problems empirically, putting his trust in broad spectrum antibiotics or "vis medicatrix naturae." Such knowledge is only partially available at present and it is unlikely that the position will be improved until systematic disease surveys are carried out on a regional basis and the facts so obtained co-related on a national basis. This may appear to some to be an unduly pessimistic outlook on the state of our current knowledge and so I would like to mention a few large fields where such deficiencies are obvious.

Firstly, I would remind you of the 29 diseases confirmed for the first time during the last six years, all undoubtedly having existed, unrecognised in New Zealand, for many years, and some of them of great national importance, such as leptospirosis, causing redwater in calves and sheep and abortion in both dairy and run cows, as well as infecting human beings. Brucellosis of sheep is another disease of great importance, causing abortion in an unknown proportion of our national ewe flock and orchitis, epididymitis, tunica vaginalitis in about 10 per cent. of the national ram flock. Some recognised diseases of great potential importance, such as vibriosis, brucellosis, trichomoniasis and leptospirosis, accepted causes of abortion and infertility are known to occur in our national beef and dairy herds in which infertility is probably the main disease problem and yet we have no adequate factual knowledge of the incidence or importance of those diseases. Death of the young prior to, during or immediately after birth is a serious national loss in cattle and sheep, the mortality lying somewhere between 10 per cent. and 20 per cent. of all young born. A similar or higher figure could be used in the case of pigs, where it is interesting to note that recent work at Ruakura has shown that by adopting a few advanced and relatively simple management practices this loss can be reduced to below 5 per cent.—a very great advance, but possibly not as good as the pig-owner has a right to expect from his professional scientists. Despite the magnitude of neonatal losses, we have little factual information on the nature or causes of the deaths. That a more detailed examination of neonatal mortality problems might lead to worthwhile results is shown by figures obtained during a survey of lamb neonatal mortality in the Gisborne area in the 1953 lambing, where about a thousand lambs were autopsied with the findings shown in the Table I. As can be seen from this, there are four main groups. Twenty-four

TABLE I.

	No.	% of lambs examined.	% of all lambs born.
Lamb showing signs of underdevelopment.	224	24 %	3.6%
Died before commencement of birth process.	27	2.9%	0.4%
Died during birth process due to difficult birth.	213	22.8%	3.5%
Died during birth process: causes unknown.	46	4.9%	0.7%
Died after completion of birth process: not breathed.	20	2.1%	0.3%
Died after completion of birth process: breathed not walked.	16	1.7%	0.2%
Died after completion of birth process: walked not fed.	239	25.6%	3.9%
Died after completion of birth process: fed + navel infection.	90	9.6%	1.5%
Died after completion of birth process: miscellaneous causes.	60	6.4%	1.0%
	935	100.0%	15.1%

per cent. of all lambs examined showed evidence of immaturity, due possibly to abortion or to inadequate intrauterine nutrition. Twenty-three per cent died during the birth process due to difficult birth. Twenty-six per cent. survived birth, walked but failed to obtain food and ten per cent. lived and obtained food to die subsequently of navel infection. The solution of any one of these problems would be of definite economic importance.

A final inadequately charted problem I would like to bring to your notice is that of morbidity and mortality in sheep in the first year of their lives (excluding, of course, neonatal mortality). This hogget unthrift and hogget loss are serious national problems. Work at our main research centres has helped to clarify the position to some extent and has emphasised the many facets of this problem. The nature of hogget feed, the control of internal parasites, the roles of vitamin D, copper, molybdenum, cobalt and management practices are all known to be important. It would be of great help to those of us who have to try to assist sheepfarmers if we knew what are the main factors causing hogget wastage in our own regions. Despite the value of work at present being done, there will be considerable doubt as to whether a solution of the hogget-rearing problem on the Raglan hills or the Waikato flats will work as well on the crop-fed hoggets of the South Island or those of our East Coast sheep-breeding country.

To some of you it may appear that I have dwelt too long and laid too much stress on the need for survey work in relation to animal disease wastage. One of my deepest convictions, stemming from a varied experience of teaching, diagnostic work, research, survey and general veterinary practice is that an accurate assessment of the number, nature and economic importance of our main disease wastage problems is an essential prerequisite for good teaching, efficient general practice and for the intelligent application of research resources which must always be less than the research workers would wish. Put another way, in the absence of that knowledge which can only be obtained from efficient survey work I would ask whether the teacher can be sure he is giving his student a sound basis for their future careers in practice or research, whether the practitioner feels capable of rendering an adequate herd, flock and regional animal health service or whether the research worker can be sure that his problem is sufficiently important in relation to others to justify the expenditure of time and money on it. The importance of survey work to assist in the choice of research projects and to provide adequate knowledge for efficient servicing of an industry is generally accepted in theory and practice in many overseas countries. In New Zealand many accept it in theory but the records show that in practice, while industry has carried out survey work, the professional scientist has to a large extent neglected it. The New Zealand scientist is fond of pointing out how far farming practice is behind scientific knowledge. I wish to point out how far New Zealand science is behind the best overseas practice in the application of survey techniques.

Survey work of this kind demands a preliminary selection of main problems, regional collection of a sufficient number of suitable specimens and, in many cases, subsequent laboratory examination of such specimens. The final steps seem to be a correlation of regional surveys to give a national picture.

This envisages a central authority for the primary selection of problems and the final correlation of results, a regional organisation to plan the collection of material with the assistance of local veterinarians and farmers and the existence of satisfactory laboratory services. Our ability to conduct good survey work will, I feel, depend almost entirely on whether or not a sufficient number of regional

diagnostic centres are established, for in this way, and possibly in this way only, can the necessary regional personnel and laboratory facilities be provided.

At this stage it seems appropriate to consider the place of diagnostic and consultative services in relation to the efficiency of veterinary general practice. Previously I have emphasised the importance of the practitioner having adequate knowledge of the occurrence and nature of main regional and national disease-wastage problems to arrive at an accurate diagnosis. Since an accurate diagnosis is the essential basis for efficient prevention, cure and eradication of disease, I would now add to the above requirement the necessity for each practitioner to have reasonable access to laboratory and consultative services. Modern therapeutic treatment and some of the flock and herd disease control measures are expensive and most clinicians like to confirm a diagnosis involving an expensive treatment even if reasonably happy about it and all want laboratory-consultant assistance in cases where any doubt or difficulty exists. It seems strange to have to enlarge on the value of laboratory and consultant services to the practitioner at a time when their value has been so clearly recognised in Great Britain by the creation of an extensive and much appreciated Veterinary Investigational Officer Service and when, for many years, it has been the accepted structure of medical practice throughout the world. The three main things a practitioner wants from or in a laboratory service are ease of access, a rapid reply and an officer readily available to help him on a consultative basis in different problems, particularly those of flocks and herds. At present the main laboratory facilities available to the veterinary surgeon are those of Wallaceville Animal Research Station. Wallaceville gives a comprehensive service and it is a great pity that, with a competent staff and adequate techniques, it is so located geographically that it is difficult of access, is subject to variable and often long transit delays and that it is removed by many miles from any main centre of primary production and thus of practising veterinarians. During my term of office as Chief Diagnostic Officer I learned from examination of records that ease of access, either to a railhead or more particularly to Wallaceville Animal Research Station itself, was a great inducement to send material. Delays in the post or rail could not be overcome and the isolation and with it the difficulty of helping one's colleagues with their problems in the field was all too keenly felt, but again, as far as I could see, the difficulties were largely insuperable. However, it was not until I entered Club service and required laboratory aid that I appreciated to the full the importance of ease of access to and rapid replies from the laboratory. To show that difficulty of access and prolonged delays are pressing problems, I would like to give you a few figures illustrating those points and to this end I have gone through the files of the Gisborne Veterinary Club and have worked out the delays between the collection of samples in Gisborne and their receipt at Wallaceville, laboratory handling times and total intervals between the submission of material by the clinical staff of the Gisborne Veterinary Club to Wallaceville Animal Research Station and the receipt of an answer. During much of this time I was responsible for the diagnostic work in question. The delays between collection of the samples in Gisborne and their receipt at Wallaceville Animal Research Station averaged four to five days. This is not all postal or transit delays as occasionally specimens have to be held in the refrigerator for 24 to 48 hours until those days on which a train is running. In this respect we do not differ greatly from many other regions in New Zealand. Four to five days is sufficiently long to render much urgent bacteriology useless, with the result that little of this important type of material is submitted from Gisborne. Laboratory handling time varies from three days for a smear, five days for parasitology, six days for contagious abortion, seven days for general culture, ten days for toxicology, 14 to 21 days for trichomoniasis and

vibrio foetus tests and for histology. If three days are allowed for return postage (this includes a proportion in post over a week-end), then it will be seen that 10 to 11 days is the quickest we can expect a reply with a more usual time of 14 to 21 days. Delays of this length mean that the grazer cannot keep his stock close to the yards for treatment which may depend on receipt of replies and that in the case (for example) of herd fertility problems, nearly a whole oestrus cycle may be lost while awaiting a reply; a matter of considerable economic importance in a country where a limited seasonal breeding period is the rule.

There are several aspects of regional diagnostic centre organisation on which I would like to comment constructively but as this matter is at present under consideration by a Veterinary Services Council committee of which I am a member, I will say little more. The importance of effective survey, diagnostic and consultative work as an aid to the efficiency of veterinary service can hardly be doubted and I hope that it will be possible for those concerned to hasten by all means the establishment of a sufficient number of such regional centres.

The importance of extending existing knowledge to the farmer and seeing it in operation as current farming practice is an urgent task. The main difficulty in achieving this is, by general agreement, a shortage of trained staff. For this reason it has appeared to me that the large and rapidly-growing veterinary profession must be encouraged to play their full part, not only because of their large and growing numbers but also because, as a profession, they have a most acceptable entry to many of the farms in the country where, on account of the services they render the farmer, they have in many instances gained his confidence. The main difficulties are that the farmer does not expect detailed extension work from his veterinarian; the veterinarian by training and tradition does not accept detailed extension work as a normal part of his duties, and, finally, to run a veterinary practice economically, the veterinary surgeon has not at present the time to offer free to the farmer to visit and revisit a farm to ensure the correct application of the principles enunciated. The key to the problem seems to me to lie, not in requiring the present generation of veterinary surgeons to become extension officers overnight, but in changing the bias of training of veterinary surgeons of the future to one with a greater emphasis on the importance of animal breeding, feeding and management and the extension of this information to the farmer as a part of his normal duties. Given a veterinarian with the desire and the capacity to do this type of work, it would not be long before the farming community would expect it of him and be prepared to pay for it.

New Zealand farming, mainly animal production in nature, is unique in many respects and it is unlikely that overseas graduates will come or return to New Zealand fully-trained to participate in extension work. Further, the outlook of veterinary faculties in Europe, America and Africa and, to a lesser extent, Australia is traditionally more interested in disease than health. There appears then, if we believe that the veterinarian could be a good extension officer, to be no alternative but to train the type of man we want in the numbers we want in our own country. This leads me once more to a statement made previously that "the logical answer to meeting our own demands would appear to be the creation of a Veterinary Faculty in the University of New Zealand."

This, in turn, leads naturally to a discussion of the final point mentioned in the introduction—the importance of academic leadership to the professional agricultural scientist. All but the veterinary profession in New Zealand are admirably catered for and, despite the often-used privilege of criticising one's own 'Alma Mater', I have

noticed that most thinking New Zealand graduates will admit their continuing debt to their University and immediately take up arms if a 'foreigner' dares to criticise. Rather than point out the defects in the structure of the veterinary profession resulting from the lack of academic leadership, I will outline the main functions of a veterinary faculty, most of which are not at present available and those that are available are, in my opinion, inadequate for our needs:—

1. To prepare students for a degree of international standing in Veterinary Science.
2. To train students in all branches of Veterinary Science for research, teaching or specialist veterinary practice.
3. To provide a diagnostic and consultative service.
4. To conduct research in problems of animal health and disease.
5. To provide regular general and specialist refresher courses.
6. To provide in New Zealand a group of scientific workers, enjoying the academic freedom of a University, untroubled by the problems that so frequently beset workers in a Government Department and so able to view veterinary science as a whole in a more or less detached and unbiassed manner.

The value of such a body of independent scientists can hardly be overstressed in a small country where the vast majority of monies spent on agricultural research are spent by government departments. This latter policy has led in New Zealand to an obvious and potentially dangerous unbalance in agricultural research. On the one hand relatively well-financed Government Research Stations carry out their work largely in accordance with departmental policy, free from the often healthy necessity of convincing an independent Board or Council of the value of the work being done. On the other hand our Agricultural Colleges are so short of finance for research that a large and important group of scientists is unable to carry out sufficient work to place it in a position of equivalent authority.

In veterinary science where there is almost no academic research carried out and no systematic post-graduate training available in the country the position is still worse and has already resulted in obvious defects in agricultural research. I refer here mainly to the virtual absence in New Zealand of trained veterinary physiologists, pathologists and bacteriologists and of authoritative groups of workers in the fields of reproductive physiology and pathology and the physiology of ruminant digestion. These fields are of the greatest importance to a country which bases its economy on the grazing animal and the veterinarian is, by training, well suited to investigate them.

The establishing of a Veterinary Faculty in the University of New Zealand is not a matter to be taken lightly in a world short of teachers and, in particular, short of good teachers. If we accept that the aim is to produce a veterinarian whose training is such as to render him most efficient in his own country while not penalising him in competition for overseas employment, it seems to me that rather than canvas in the world markets where suitable men are already short we, having waited so long, can afford to wait until from our own profession we can choose and train their key men of the faculty. The simplest way in which to do this, in my opinion is to create at Massey Agricultural College a Veterinary Department headed by a University professor with one or more senior lecturers, having as their main facilities a clinic, a practice and a diagnostic centre collaborating closely with established departments and in receipt of sufficient finances to provide a post-graduate Ph.D. training for two to three students each year. In this way outstanding men could be selected, given a training and a suitable outlook on New Zealand agricultural

science and then, if necessary, sent overseas before taking up their teaching or research duties. I wonder, despite the many seen and unseen difficulties, whether it is not possible for the University to act in this way immediately. Each year, each month, each day saved means that we are that length of time nearer being self-supporting in the number and quality of our veterinary profession and this, I believe, is of all the factors mentioned in this address, the most important in enabling the country to obtain those important services with which the veterinary profession can, if given the chance, so effectively improve the efficiency of animal production in New Zealand.

In concluding, I would like to give my thanks and apologies to many members of the Animal Production Society. My thanks are for the many borrowed ideas that I have so freely used in this paper and my apologies are for being unable, through lack of memory, to give credit where it is due.