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EXTENSION SERVICES AND THE FARMER.

By C. W. Burnard, Editor "Dairy Exporter", Wellington.

I have purposely chosen for this paper a title which allows me to traverse a fairly wide field of thought on a subject that directly concerns all of us who are in one way or another connected with carrying knowledge to the farmer. While I realize that I am, in the main, addressing scientists who prefer the precise language of the technician, to the broad generalities which are - rightly or wrongly - assumed to be the stock in trade of the journalist, I plead in justification that a sensible approach to the question of extension work necessitates a consideration of a number of factors beyond that of deciding how the scientist and the farmer are to be brought closer together.

I propose to deal with the subject under three main headings: (1) What extension work is, and how it is operated in other countries; (2) How extension is carried out in New Zealand, and (3) Criticism and suggestions. If here and there I appear to be digressing and dealing with related subjects such as the training of men for extension work I trust you will bear with me for I hope to show that some of these ventures into by-paths are necessary to the satisfactory development of my subject.

The country above all others which has developed extension services is the United States, where for more than 30 years there has been steady development of every aspect of agricultural extension. I think, therefore, that in defining extension work I cannot do better than use the definition given last year by Edmund de Brunner in "Farmers of the World - The Development of Agricultural Extension."

De Brunner who is a professor at Columbia University and a leading authority on extension work in United States defines their objectives as follows:- "The task of extension work is to help rural families apply science to the day by day routine of farming, home-making and other aspects of rural living. Extension is away from the class room education." A more detailed outline of the objectives of extension in the United States also given by de Brunner is as follows:-

(1) To bring the farmer the knowledge and help that will enable him to farm still more efficiently and to increase his income.

(2) To encourage the farmer to grow his own food, set a good table, and live well.

(3) To help the members of the farm family to a larger appreciation of the opportunities, the beauties, the privileges of country life, and to know something about the world in which they live.

(4) To train youth to take his place as a member of the family, community and society.

(5) To promote the social, the cultural, the recreational, the intellectual, and the spiritual life of rural people.

(6) To place opportunity before rural people whereby they may develop all their native talents through work, recreation, social life and leadership.

(7) To build a rural citizenry proud of its occupation, independent in its thinking, constructive in its outlook, capable, efficient, self-reliant, with a love of home and country in its heart.

Commenting on his own definition de Brunner adds that:- "Extension must be based on the real needs of rural people and reflect their varied interests and type of life. Put another way,

extension is simply the effort to put the vital information of the agricultural scientist at the disposal of the farmer and his wife. It is the battle to narrow the gap between ever advancing knowledge and practice, whether the knowledge relates to soil analysis or conservation, to animal husbandry or human nutrition, to community organisation, or to parent education."

If we take that as a fair definition of extension then we must admit that in New Zealand we have as yet merely touched the fringes. Personally, though, I do not consider that that definition adequately covers the needs of New Zealand and I visualise extension here as a two-way bridge between the scientist and the farmer. On the one hand we have the farmer - and his organisations - which should provide the factual and statistical data the scientist needs, and on the other we have the scientist, the results of whose work must be brought across the bridge to the farmer. Our bridge at the moment is one of the horse and buggy era and needs a lot of modernising to make it adequate in this mechanical age. I think, then, that our conception of extension should be as a two-way channel extending the findings of the scientist to the farmers, and on the other hand presenting the problems of the farmers to the research specialists. In passing I would add that some at least of the cultural activities covered by extension in the United States are catered for in other ways in New Zealand.

Before considering extension in relation to farmers in New Zealand we should, I think, see what is happening elsewhere in the world so that we may be in a position to decide whether the extension methods of any country could be satisfactorily adapted to our needs, or whether our conditions are such as to require something different from what is provided elsewhere.

In the United States extension work is financed by the federal Government, the Governments of the individual states, and by the counties - or districts - within each state. The man who finally carries the message to the farmer on his farm is the county agent - a man who has been farm reared and has then attended one or other of the colleges of agriculture. These county agents are aided and supervised in their work by supervising agents employed by and located at the State Agricultural Colleges who keep the agents posted on the latest research results affecting the types of farming practised in their districts. The State colleges in turn are directly in touch with the federal extension service which in turn carries to the States the findings of research departments under federal Government control. A vital part of the county extension agents' plans is the voluntary enlistment of successful farmers, farm women, rural teachers and others interested in country life as aids in helping carry the message of better farming to their neighbours.

In 1945 there were employed in the United States 3,971 county agricultural agents and assistants, 2,579 home demonstration agents and assistants, 332 county rural youth club agents, and 1,645 specialists. The remainder of the total staff of 9,180 were engaged in administrative and supervisory responsibility. There are 6 million farms in the United States so that if we had extension work on the same scale in New Zealand on a pro rata basis, we would be employing approximately 120 men and women.

Dealing with the methods used in their work de Brunner says that "This teaching, whether by demonstration or through the more conventional methods of lectures at meetings, publications, news articles or the new devices of radio or moving picture, is based on research. Had we not had one or more agricultural colleges in every state in the Union to train men and women in agriculture and home economics and teaching methods, had we not had one or more agricultural experiment stations associated with these agricultural colleges in every state and territory in the United States, and had we not had a great Federal Department of Agriculture to do research work in every field of agriculture and home economics, extension could never have made the progress it has made. Research gives it

the basic knowledge it extends. Extension is also based on local knowledge and experience. Extension in practice studies as well as extends. The county agents constantly survey, analyse, evaluate the results of suggested new procedures and practices, and make their findings available not merely to their local constituents but also to the experiment stations at the agricultural colleges."

Before leaving the United States it will, I think, be worth while quoting one instance of how the extension service operates and how it secures its results through utilizing every possible channel of education and publicity. In 1933 only 1/10th of 1 per cent of the total corn acreage in the United States was estimated to be of hybrid varieties. By 1943 this had been raised to 51.6 per cent and in some states like Iowa, approached the 100 per cent mark. During those ten years every avenue of publicity was exploited and while an analysis showed that the original knowledge regarding hybrid corn had been carried to 3 farmers out of 5 by salesmen and radio advertising, it was due to extension that the farmers were convinced of the soundness of the salesmen's claims for it. Those of you who have subscribed to some of the American farming periodicals, will doubtless remember the many articles that appeared on the subject of hybrid corn. A significant point that came out of this extension project was that action in the case of the farmer usually followed his perusal of articles telling of the success of farmers who had used this type of corn. Despite all that can be done through films, radio, lectures and demonstrations, the farmer is still apparently conservative enough to like to "see it in print" before being finally convinced.

There are two other countries whose methods in connection with extension are worth mentioning before we come to our purely local problem, the United Kingdom and Denmark. The greatest development in the United Kingdom followed an act passed in 1909 setting aside money for agricultural education and agricultural research, and it was not until some years later that the county agricultural service and the agricultural advisory service were established. For advisory purposes the country was divided into a number of advisory provinces with the central headquarters generally situated at an agricultural college or a university department of agriculture. At these centres a number of special officers were stationed who acted as advisors in their own subjects and as consultants to the county agricultural service. This latter was a local service whose officers were appointed by the county councils, and were responsible to committees mainly composed of farmers. Such extension service as was carried out up to the outbreak of world war II was on conservative lines and largely composed of demonstrations at the farms attached to county agricultural institutes. The county agricultural service assisted the young farmers' clubs, organised talks over the air and lectures to groups of farmers at meetings of the National Farmers' Union, but never more than touched the fringes of the farming community.

During the war when Britain found it essential to her existence to see that agriculture functioned efficiently, extension work was very greatly increased in scope. A nation-wide survey of farms indicated those farmers whose methods were sub-standard, and through the war agricultural executive committees which were themselves composed mainly of farmers, every assistance was given the man who needed technical help. Writing on this development Robert Rae who was one of the technical advisors of the British Ministry of Agriculture said that "One interesting development of extension has come to be known as farm walks. This consisted of a small group of farmers visiting, generally in the evenings, a good farm in their own neighbourhood and walking over it with the farmer and the technical officer. There might be experimental or demonstration plots to see, but the whole system of that particular farm was examined and discussed. It is not always possible to persuade an outstanding farmer to address a formal meeting, but if he is at all public spirited he is generally quite willing to talk and discuss agricultural matters on his own farm. It can stand repetition

that the more programmes operated by and through farmers themselves the better should be the results achieved . . . It is estimated that in the United Kingdom at present, instead of one farmer in eight who was probably in close touch with technical facilities before the war, seven out of eight are now seeking technical advice. While much of the wartime control of farming will undoubtedly disappear after the war, the extension service has had an unique opportunity during that period to get into intimate touch with a much larger proportion of the farmers than ever before. Everything possible should be done to preserve this contact to as great an extent as possible.

Denmark is another country whose methods can be studied with advantage. While her dairying conditions are vastly different from ours because her climate necessitates housing of cattle for many months of the year, her concentration on dairying means that her farmers face many of the same disease and herd management problems as do farmers in New Zealand. What Denmark has done may, therefore, be some guide as to how we can best tackle the development of extension work in New Zealand.

Before dealing with Danish extension work itself it will, I think, be worth saying a word or two about the Danish agricultural high schools, all either privately or co-operatively owned and controlled, because these have had a tremendous influence on Danish farmers and consequently on the set-up of their extension work. There are about 20 of these schools and they give instruction only in the theory of agriculture because their students are all drawn from farms where they have had practical experience. The courses are usually of six months' or nine months' duration and some 3,000 students annually go through the colleges. Including all the very small farms, there are 204,000 holdings in Denmark so that on a comparable basis 1,200 New Zealand students would be going through our agricultural schools annually to equal the proportion of farmers affected by agricultural high school activities. Significant of the Danes' practical outlook also is the fact that applicants for admission to an agricultural college where they will take a degree course must have had previous practical training on farms for 3 years after their 15th birthday.

In Denmark the Royal Agricultural Society founded in 1769 has been the parent body of the many local agricultural societies which in 1937 totalled 137, with 103,000 members. These are governed by their own local committees in the same way as are our co-operative veterinary schemes. These societies alone, and working in co-operation, do progeny testing, plant breeding, disease investigational work, and conduct experimental trials on the lines of those carried out by the Department of Agriculture in New Zealand. They also do the advisory and extension work and "most of the societies have advisors in plant culture, animal management, etc." A federation co-ordinates the work of the individual societies, deals with questions of general interest and represents the societies in third party negotiations with the government, etc. In 1937 over 300 advisors, all doing extension work of one type or another, were at work for these societies. The great feature of extension work in Denmark is that it depends on the spontaneous support of farmer members and that the committees dealing with it have grown up from below rather than been imposed from above.

Having then traversed a fairly wide field and seen something of the way in which the gap between the scientist and the farmer is bridged in other countries, let us examine the position in New Zealand today. I believe that for the size of our country and in relation to its population, we have on the whole, as good a team of scientists as any country. The work being carried out at the Animal Research Centre at Ruakura, for instance, is of tremendous value to farmers and the Soil Survey, Plant Research and Grasslands Sections of the Research Department have made notable contributions to our existing agricultural knowledge. The scientist responsible for the carrying out of a research programme cannot, however, be expected to bring down to the level of the farmer the practical

application of his research work, nor is he, in the great majority of instances, fitted to do so.

There is a small percentage of our scientific workers which has the capacity for translating scientific work to farmers, and which has, therefore, a sound approach to extension work. On the other hand, some of our research workers are interested only in the solution of the immediate problem facing them, and view with intense suspicion any attempt to popularise their findings. To these, acceptance of a paper in some highly technical journal circulating only among scientists, is of greater importance than seeing that all those who can benefit practically from the work, receive the information in such a form that fullest use is made of it.

Surely the sensible way to look at extension in New Zealand is to acknowledge that this is a small country with a limited agricultural population; that it behoves the scientists and the farmers to understand each other and work together; that the farmer should put up his problems to the research worker and give him a full measure of assistance by providing information and data on field problems; and that in turn the scientist realizes that the only way in which his existence can be justified is by the results of his work being carried back to the farm, there to increase our productive efficiency. If we can agree that the correct way of looking at our New Zealand extension problem is along the lines of a two-way bridge between scientists and farmers, we are in a sound position to go ahead and build our bridge.

What has been the history of extension work in New Zealand up to the present? It has been developed haphazardly and spasmodically, and if we accept the American definition as being reasonably sound, it is merely in an embryonic stage in the Dominion at present. Broadly speaking extension work up to the present has been an offshoot of the Department of Agriculture, whose officers, principally those of the Fields Division, in addition to their various inspectional duties and other routine activities, are expected to carry out as much extension work as possible. What I am saying is not said in criticism of the Fields Division which in a government service where - in the past at any rate - silence was regarded as being golden and the key to promotion has had a reputation for freedom of expression and the development of new ideas.

The point I wish to make is that up to the present at any rate such extension work as has been carried out here has been sandwiched into an existing departmental organisation as something additional to its normal routine, and has not been built up as a result of collaboration between farmers and research workers as to what is needed. For that omission the farmer is at least equally as much to blame as the scientist or departmental officer for were he vitally interested, as he has been, for instance, in herd recording and veterinary services, he would have built up an organisation of his own - and that is what I believe he should now do.

Why has the farmer not vitally concerned himself with this problem? Why hasn't he been like the Danish farmer and built up his own advisory services? To some extent I think the blame must be laid on our agricultural colleges which by over-emphasising their "university atmosphere" have failed to play as vigorous a part in the training of our future farmers as they should have done.

W.M. Hamilton in his book "The Dairy Industry in New Zealand" summarises the part played by our agricultural colleges in these words: "Some thirty or forty students a year, out of a total of 3,000 entrants to agriculture, complete a full-time course in farming at one of the agricultural colleges - i.e. approximately 1 per cent. A further 10 to 12 students a year enter upon courses leading to a degree in agriculture, but very few such men find their way into the ranks of practising farmers. In such circumstances,

the agricultural colleges, while providing a useful service, reach far too small a part of the farming community to fulfil effectively the functions for which they were established."

Contrast that with the position in Denmark where 3,000 students a year take courses at the agricultural colleges. I am well aware that at the moment our agricultural colleges are overflowing with students - mostly taking short term courses in connection with rehabilitation - but I maintain that without some change in outlook they will later revert again approximately to the position quoted by Hamilton.

I think that one respect in which we could well follow the lead of the Danes is in requiring every degree student to have had some practical experience on a farm. At present these students spend a year at a university followed by three years at one or other of the agricultural colleges. At the agricultural colleges much is made of the "university atmosphere" and the students are, I think, encouraged to feel that they are a part of the university rather than a part of the New Zealand countryside. I think it is unfortunate that so much emphasis is placed on the university aspect of their training because an agricultural college is not a university in the true sense of the word but a place where agricultural facts are taught to university degree level. In other words a university is a place where men from many different faculties meet - men with varying interests and with different types of mind and where, by association, they gather something more than the knowledge they require for passing their degrees. Life at a university may be an enriching cultural experience, but it is an experience not available to the agricultural student. I think this should be recognized and that the emphasis of our agricultural colleges should be more on serving the farmer and the countryside and that every attempt should be made to interest the students in the land and its possibilities and make them realize, whatever their subsequent vocations, that in essence they are servants of the land. I think that there is lacking in degree training a positive attitude to the land and an inculcation of a knowledge of the human side of farming progress - of what has been accomplished in countries such as Denmark, Sweden and Finland, and of how the farmer must build for himself not only a living from the land, but a life on the land. The degree student with all his knowledge of the scientific side of farming is not going to get his ideas across to farmers unless he thoroughly understands their psychology.

The milking machine salesman and the car salesman have something concrete to offer and they have studied the art of appealing to the farmer. This is an art requiring knowledge, and the degree student who aims at becoming an extension officer should realize this, and not decide, if he is unsuccessful, that this is due to the ignorance and obstinacy of farmers. The best extension men I have known in my association with farming have been men with a deep and sincere respect for the grass roots wisdom of the capable practical farmer. I think that before a student is accepted for the degree course he should - unless he has a farm background - be required to spend a stated time actually working on a farm so that when he is finally qualified he would have, in addition to his scientific training, some knowledge of the practical day to day problems of the farm itself. If he is to function effectively in the field of extension some farming background is, I think, essential, except in the case of a few rare individuals who have a natural capacity for understanding farmers and gaining their confidence.

Having trained our man, are we to leave things as they are, and allow extension to continue as a sideline of the Department of Agriculture? It may be that in New Zealand with our well-known aptitude for expecting the state to take charge of a great part of our lives, we cannot divorce extension from the department, but in my opinion the ideal would be to have it controlled by an independent organisation. This organisation which could function along lines similar to the Veterinary Council or the Dairy Research Man-

agement Committee would be fully representative of all with an interest in extension work, and like those other bodies would be financed partly by the state and partly by the farming industry. An independent organisation of this nature should be free from inter-departmental jealousies which in the past have limited the effectiveness of the link between the scientist and the farmer. In the nature of things the departmental officer who finds much of interest to farmers in the activities of his own department, is less inclined to look afield to other departments, and to search out that portion of the work of other departments which will be of value to the farmers in the district he serves.

The underlying weakness of extension work in New Zealand today is that it is nobody's job to translate research to the farmer. Let me give a fairly typical instance of what I mean. The President of this Society some time ago, after careful investigation, reached the conclusion that the use of mineral stock licks was not justified in New Zealand, and his opinions were expressed in a paper he read before the New Zealand Veterinary Association. On his estimate half a million pounds is spent annually on stock licks in the Dominion and in the words of a journalist who publicised his findings in a farming journal "Five hundred thousand pounds was going down the drain". I am aware that as yet some of the veterinary pundits are unconvinced on this issue though as a layman I must confess that if they are right it seems to me they should be producing some factual evidence in support of their opposition. Here, then, is a piece of scientific work which can save the farmers of this country half a million pounds. What has been done and what is being done to bring it before the farmers? There has been an address to the Veterinary Association, three articles in farming journals and an odd reference or two elsewhere. While as scientists you are entitled to take the view that your job is finished when the work has been completed, I am sure you will agree with me that when the farmer has for many years been urged by veterinarians and departmental officers to spend money on stock licks, he cannot overnight be expected to completely reverse his attitude towards licks, on the basis of a few brief articles. Unless much more is done to bring Dr. Cunningham's work on stock licks directly to the notice of farmers the report like so many more valuable documents will ultimately be pigeon-holed in some departmental backwater.

Under my suggested scheme the extension council would adjudicate as to when research work had reached the stage where it should be made fully available through extension. Once a decision in favour of publicising research findings had been reached by the Council, the whole field of extension could be tapped. I would visualise extension activities including information being disseminated through:-

- Newspapers and periodicals.
- Radio.
- Fields Division officers of the Department of Agriculture.
- Consulting officers of the Dairy Board.
- Erosion control officers.
- Herd testing officers.
- Veterinarians attached to co-operative vet. clubs.
- Fieldsmen employed by fertilizer firms.
- Short courses at the agricultural colleges.
- Films.
- Young farmers' clubs.
- Community centres,
- And where the activities are concerned with the
- Farm home organisations such as
- Women's Division, Federated Farmers,
- Women's Institutes.

All those agencies might not be used for any particular piece of work but all should be available. If they were, and if my suggested Extension Council was functioning, Dr. Cunningham's work on stock licks would today be a subject of debate in every farming district.

A typical instance of farmer scientist co-operation has been the use of vaccine for contagious abortion in New Zealand. Statistical work carried out by the Dairy Board had shown that over 20% of the 2-year-olds were affected and in some herds the figure went up to 40%, so it was clear that contagious abortion was having a profound effect on the economy of the dairy farmer. When the results of American work with strain 19 came to hand, they appeared likely to provide an answer to the problem. The dairy farmer was asked to co-operate in field trials and did so, and after those preliminary trials were completed the question arose as to whether the next year the work should be carried out on an extensive scale or whether it should still be confined to trials. I believe that it was probably with some misgivings that the Department agreed to go ahead, because of the belief that if it was a failure or a partial failure the farmer would damn it for ever. Thanks to the co-operation existing between the Herd Recording Council and the Animal Research Division the work was got under way on a widespread scale with excellent results. In both Australia and England the veterinarians are still arguing among themselves as to whether vaccine for contagious abortion is desirable. Here, thanks to a sensible approach to the problem and co-operation between scientist and farmer, the rate for 2-year-olds has been reduced, in the case of vaccinated heifers, to 2.6%. In this instance the extension work was carried out by an organisation of the farmers - the Dairy Board. Extension, as I said earlier in this paper, is a two-way affair and I quote this instance to indicate how satisfactory the results may be when both sides play their part. It appears to me that the Meat and Wool Boards should be doing for the sheep industry what the Dairy Board has done for dairy farmers, and that these bodies should be collecting information on field problems. Such data is essential if the sheep farmer is to be linked up with the research workers. On the other hand if the sheep farmers' organisations are prepared to collect the data, then there must be two-way traffic and the scientist must see that the farmer gets the answer to his problem when the work is completed. I suggest that at present it is extremely difficult to get results to sheep farmers and that the way would be simplified if extension work was placed under the control of a separate body.

A properly run extension service would be used for checking up the factual position on farms, thus giving two-way traffic on our bridge between the scientist and the farmer. Here is a case in point. Today we are spending four million pounds a year on fertilisers. What amount per acre should we be using on the basis of the fertility of the soil? Are we wasting a terrific quantity of fertiliser? If we are using 25% more fertiliser than we need, we are throwing away one million pounds per annum. Some time ago as a result of a limited number of trials, Prof. Riddet expressed the opinion that in the Manawatu smaller dressings could be used without detriment. The dairying returns for the Northland this year appear to support this contention, for although the district suffered a disastrous drought last season and pessimists forecast a drastic reduction this year because of fertiliser rationing, production will be within 2% of the peak year. Here, then, is a problem which could with advantage be tackled on a Dominion-wide scale if we had a properly organised extension service so that the factual data from the farms could be taken back to the scientific workers.

Carrying my suggestions regarding extension into effect would not mean the building up of a great organisation with a large staff, for a relatively small number of specialists in their respective fields could carry out the work provided that there was full co-operation by all those mentioned in my list. From the connections I have with the dairy industry I could answer for the full co-operation of practically all, with the exception of departmental officers. Naturally I should expect the Agricultural Department to dislike losing an activity with which it has been associated but the Department has sponsored many which have later come under other control - herd recording is an outstanding instance - and I should expect that in the long run its co-operation would very largely depend on the ability, character and personality of the man who be-

same director of extension services. The director of such an organisation would be in direct contact with the research workers in all departments and he would therefore require to be well qualified academically. A first-class journalist, capable of translating the findings of research workers into language intelligible to ordinary farmers would be required and an outstanding radio personality would be essential. Nothing is more pitiable today than listening to a first-rate man giving a third-rate broadcast. Broadcasting is an art and it is unfair to expect the scientist to have mastered it. One has only to listen to a number of agricultural broadcasts to realise how ineffective is this branch of extension at the present time. By and large these broadcasts are carried out by busy departmental officers who are tied to their desks with routine work the greater part of their time, and who only too frequently have to rush through the preparation of a broadcast at the end of a day of administrative activity. Beyond a few specialists in their respective fields these key men, a small staff of writers, and possibly a man well versed in film presentation would be the staff needed at the outset. All those whose work takes them into contact with farmers would be used in connection with the service and their task made less difficult through their receiving summaries of research results in specially prepared bulletins. An argument may be put forward that these few additional men could easily be attached to an existing department and that the setting up of a new organisation is therefore unnecessary. My reply to that is twofold, firstly that an independent body will be more likely to hold the scales fairly as between all departments, and be interested only in results irrespective of the department from which they emanate, and secondly that in a separate organisation functioning along the lines of the Veterinary Council you would have direct farmer interest and representation. The farmer would tend to look on the organisation as his own and would be likely to listen more readily to its advice.

I have purposely refrained from saying anything about extension activities in relation to the farm home because of the nature of the gathering I am addressing, although I believe that valuable assistance could be provided through adequate development of a home economics section. In dealing with the subject I have confined myself to suggesting a broad general plan based on the principle of control by those affected by the work, including farmers. I am satisfied that if this plan were adopted, farmers would in time become active participants in extension work, and I believe that its sensible development would adequately bridge the gap which exists today between the scientist and the farmer. I realize that as scientific workers you are more directly concerned in finding answers to the problems put before you, than in deciding how best the story of your work can be passed on to the farmers, but I do sincerely suggest to you that as the efficiency of farming can be improved considerably if the findings of research workers are carried into effect, it is worth your while giving some thought to the manner in which extension work can best be organised.

DISCUSSION ON MR. C. W. BURNARD'S PAPER:

DR. McMEEKAN: I think the reception that the paper received is a tribute to Mr. Burnard's courage and to its stimulating and constructive presentation. A tremendous number of points have been raised and while I would like to preserve the right of reply in private to many of them there is merely one on which I would like to comment now. At one time I had the dubious honour of being a professor of agriculture at one of the agricultural colleges that have been so severely and justifiably criticised but I would like to disagree completely with Mr. Burnard's point of view on one aspect and that disagreement is based on a difference of opinion as to why the North Island college was established. I have always argued and I am still prepared to argue that the prime function of Massey was and should be the training of specialists in agriculture to permit an extension of services of the type Mr. Burnard would

like, and it is my humble opinion that the college has failed very much in that connection because it has fallen between two stools, because it has attempted to train farming students - short course students of innumerable varieties at the same time, and, rather than the degree course receiving over-emphasis it has been the Cinderella of Massey so far as the teaching and organisation is concerned. However, that is a matter of opinion. I believe it to be a sound one. But I do not believe men can be trained until the staff exists. Massey has turned out hardly a man who is concerned with the training of farmers and in my opinion, until all of the students at Massey are degree students, the place will not be fulfilling the function which its establishers intended.

MR. WILD: Mr. Burnard has taken us to America, Denmark and Great Britain in discussing extension services and I waited with interest to see if he was going to suggest the adoption of the American plan. I would like Mr. Burnard to say whether he considers there is any merit in the American plan as applied to New Zealand in short, that the agricultural colleges should take over from the Department of Agriculture and from such other organisations the whole of the extension work for the two islands. I would draw his attention to a danger of having too many organisations. The farmers have an organisation to which a very large proportion of them belong - I am thinking of the A. & P. associations - which confine themselves to running a stock and produce show once a year. The constitution of these should be very much wider and should include extension work. The speaker, Mr. Burnard, complained of the fact that of five young men awarded a certain agricultural scholarship one became a good salesman. This illustrates the problem which confronts us, and it is a fundamental one. It is a sociological question and not a question of education. There are 84,000 agricultural holdings in New Zealand but I would like to know what number of those are held by the third generation. Have you thought of that? I would like to know also what number of those are in the hands of young men who have been on them not more than ten years. It has become a tradition almost in New Zealand to make money by buying and selling land. The farmers in this country have not got their roots in the soil and while the farmers have not got their roots in the soil you cannot expect to find the right outlook in their sons.

MR. BURNARD: About Mr. Wild's first point. I think our problems here are rather different. The U.S. deals with an enormous area of country, and a tremendous diversity of crops, whereas in New Zealand the range of farm products is relatively limited. Hence I do not think that their system could be applied with advantage in New Zealand. It is possible that the agricultural colleges could carry out extension work but I do not think they have up to the present shown any marked ability in that particular respect. Massey College did appoint a Publicity Officer a few years back but I notice that the amount of publicity work he does has been steadily decreasing, and much of his time appears to be spent in showing visitors round. Therefore I would imagine that Massey College does not think his extension work important. Lincoln gave one of its staff the task of doing a similar job on a part-time basis and if those present could look at the few paragraphs written by that officer - I have no doubt he is an extremely competent man in his own work - I think you will agree that that was not the way to tackle extension work.

MR. WOODCOCK: As a lone representative of the extension workers I was very interested in Mr. Burnard's paper and I agree with quite a good deal of it, but I think he painted far too dismal a picture. Mr. Burnard painted a picture of a bridge bulging with experimental stations on one side and on the other side backward farmers. But I think he was rather unfair to the existing extension services. In fact, one of the main objects of the Fields Division is to save the farmer from journalists and to urge him to view with caution any new idea until it has been tested under New Zealand conditions. Mr. Burnard has had the opportunity of seeing

what is happening overseas and in respect to the actual set-up of a good educational and extension service he is able to compare our conditions with those in other countries. But I venture to say that the results so far have been very good indeed, and are commented upon by overseas people who have had practical experience of conditions in other countries.

MR. BURNARD: I am sorry Mr. Woodcock thinks I painted such a dismal picture because I did try to exclude from criticism the Fields Division which is the section which has developed a freedom of action rare in Government departments. I admit that sometimes the farmers need saving from the journalists but equally at times they need saving from some of the hidebound traditions of Government departments. I quoted the most recent instance of stock licks. For many years Government departments have told the farmers that stock licks have a value, but Dr. Cunningham has shown that they are unnecessary. You cannot expect farmers suddenly to change from something which has been recommended for years, without making use of every avenue of extension. I recognise that past directors of the Fields Division have been men with a good deal of vision and frequently ahead of their time as far as publicity was concerned. They have contributed a great deal towards getting research work to the farmer but it can be done much more effectively.

MR. FORDE: Without the Fields Division I could not have started the Journal of Agriculture. The great weakness I found in the department at that time was that it had a botanical bias and up till recently there was practically no animal work done except on the pathological side and I had extreme difficulty in obtaining articles on animal husbandry. I think the Fields Division setup is capable of wide extension and I would not like to see another body established. I would rather see the work in the hands of the Fields Division. I have no confidence in A. & P. Associations. I attended a meeting the other day of the Royal Agricultural Society hoping to get enlightenment on some agricultural problems and they spent most of the time discussing the licensing of showmen. I think that many such societies and the Federated Farmers have to take a lot of the blame for the incompleteness of our extension service. Mr. Woodcock mentioned that seed certification was fully accepted everywhere, but that is an item which has still to be put across to farmers of the Auckland province. I find that the significance of certification and germination is still not understood by the majority of them. There are very few farmers who ask to see the certificate of purity of strain and germination and they still fall for the cheap seed mixtures, to their own detriment.

I think that a society of this nature should be able to do a lot. The papers that are presented should not be published in the proceedings only, but should be disseminated as widely as possible, for example, through Mr. Burnard and the Department of Agriculture. The information is too valuable for the scientists to sit here discussing without giving the man vitally concerned opportunity to peruse their findings. Another point is that there is a certain amount of petty jealousy between departments. I think that these little petty jealousies that crop up are having a detrimental effect on research. While it exists extension work is handicapped. I should like to see the Fields Division extension work made water-tight and to see real extension work in animal husbandry. I hope that the fruits of the Animal Research Division will be disseminated in the same way as is the grassland management material by the Fields Division.

MR. FIELD: As a sheep farmer, I would like to take this opportunity of congratulating Mr. Burnard on his paper. I have felt that one of the longstanding needs of our industry is that of extension work. The results that actually reach the sheep farmer are very few unless he likes to search for himself. These things have to be driven home to them. A lot can be done in