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An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website www.nzsap.org.nz

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PRESIDENTIAL ADDRESS

The society—about attitudes and perspectives

A.R. Sykes

It is generally thought to be good to begin an address with a quotation. Mine comes with acknowledgement to Paul, aged six—"If you put a man and a woman in bed together one of them will have a baby".

Paul made as sure as he could, in that statement, that it expressed the truth as he knew it. He did not say less than he knew, or risk saying more than he knew; and he clearly envisaged the possibility that others would know more, though he neatly denied them the position to contradict him.

This Andrew's line will be the same as that Paul's, and this Andrew is privileged to be standing here today.

Presidential addresses of the last 12 years, if they have not dealt with technical aspects of an area of the industry in which President was capable, have tended to deal with the benefits which better application of existing knowledge would bring. Or, perhaps echoing the same theme but looking more critically at our performance, with the problem of development of co-operation and flow of information between research workers in government institutions and universities on the one hand, and the advisory and other advice-giving agencies and producers on the other. This description perhaps encapsulates the traditional perceived role of the Society; a vehicle for transfer of technology towards the increase in primary production, embracing improvements in 'efficiency', that much abused word, implied in greater product quantity at the national farm gate—for export.

Are these objectives still appropriate in an era in which that very technological development, espoused by the Society, coupled with self-interested government policies in the developed world, has resulted in major international surpluses of those very commodities?

We ignore these developments at our peril and while, as a Society, we have little influence on them we must attempt to analyse and forecast their effect on our members and, as a consequence, on the future role this Society will play in agricultural science and development.

The implications are, perhaps, as follows and in many cases these trends are already obvious:

1. Agricultural and especially animal production will provide a diminishing fraction of GNP.
2. The emphasis in research in agriculture and especially animal production will move away from production towards product development.
3. Government expenditure on research and development and extension in agriculture and especially in animal production will diminish.
4. The emphasis on cost of production will become more extreme, while at the same time demand for quality of product will increase.

Contribution to GNP

Assessment of the contribution of products of the pastoral industry to GNP will produce several answers depending on the ground rules applied, but as a proportion of total export earnings the products of the pastoral industries fell from 79% in 1974 to 63% in 1984 (New Zealand Meat and Wool Board Economic Service, 1984)—20% in a decade. The economies of the European Community (EC) have shown a consistent trend during the last century, that with economic development the contribution of agriculture to GNP and to employment falls to levels below 10%. Despite the fact that economic development in New Zealand has been and will continue to be dominated by primary production in the foreseeable future, it is inevitable that secondary and tertiary industries will expand in size and significance. Indeed maintenance of income in the primary sector will increasingly depend on the secondary industries beyond the farm gate adapting the product to ever more discerning consumers. Evidence for this trend is clear in exports of meat to developed countries, for example to Japan, but we should not underestimate the rapidly developing sophistication in many developing countries in the region, nor the increased opportunities that such product development will bring.

Balance of Research and Development

The importance of research beyond the farm gate has of course been recognised for many decades. The Dairy Research Institute, Wool Research Organisation of New Zealand, Meat Industry Research Instituto are but a few examples of the fulfillment of the need. The importance of these organisations is increasing rapidly not only to allow product diversification as a means of marketing increased production at the farm gate, but as a means of facilitating change in product specification at a more rapid rate than can be achieved in the primary industry. For example, irrespective of whether the recommendations are medically sound, national committees around the world have generally recom-
mended that, in the long term, intake of fat should be reduced to 30% of energy intake and that in the short term reductions of 25%. 15% and 10% in polyunsaturated, saturated and total fat intake should be made, or a target of 115 g fat/day. The most optimistic estimates for changing carcase fat content in our important ruminant species, using existing technology, is 8% per generation. Reduction in fat content of milk through selection can be made, albeit again slowly, but knowledge of the high genetic correlation between milkfat and the valuable protein components would question the wisdom of this approach. Clearly we need assistance beyond the farm gate and government will, justifiably, direct funds into such areas where rapid returns can be made. There are parallels overseas; it is no accident that the United Kingdom Agricultural and Food Research Council has recently incorporated food into its title reflecting the fact that in developed countries some 70% of food is subjected to some form of processing to meet consumer requirements. Clearly the success of technological research and the scale of financial incentives before the farm gate have made their impact and have hastened this move.

Funding of Research, Development and Extension

The legitimate expectation of the consumer here and overseas, given decades of systematic government support for agricultural research, development and extension, will ensure that the trend towards larger cost effective units is maintained, despite the attentions of the conservation lobbies. Sociological pressures, greater competition from emerging leisure as well as secondary and tertiary sectors of the economy will serve to maintain constraints on votes for research and development in agriculture. It is perhaps not unreasonable then, that government should seek to move the financial burden for support of R & D and extension onto the industry which benefits directly. The charging for specialist services recently proposed and in some cases introduced in, for example, state veterinary analytical and dairy hygiene services are, I believe, only the beginning. Of course there are good reasons why some of these should be opposed, and members will be active in providing specialist advice in this lobby, but a general move in that direction seems inevitable and appropriate.

Private industry has long funded research, especially in University departments: this trend is increasing rapidly and government departments previously virtually fully funded from the science or agriculture vote now have substantial targets for outside funding to support their research, in some cases as high as 30%. This will mean greater competition amongst members of this Society from different organisations and from within the same organisations for available funds. Further, because the work will often have unique commercial as well as universal interest, there will be greater secrecy in the handling of results. This has, I believe, serious implications for the ability of this Society to fulfil one of its major functions and is worthy of serious evaluation by the Society.

This trend may not be confined to research and to specialist technical and analytical services. Many members will be aware of the recent notification of 40% cuts in allocations to Scottish Agricultural Colleges aimed specifically at the removal of the extension services, for which they have traditionally had specific responsibility, into the private sphere within the next 2 years. This move to shift the burden of expenditure from the general taxpayer directly onto the consumer of the information or service will not go unnoticed in government circles here, irrespective of whether it achieves the secondary objective of more effective and appropriate services.

Costs of Production and Product Quality

There are several forces which will ensure, short of unpredictable catastrophe, that prices for our animal products remain depressed relative to those of other commodities traded internationally. Firstly, one element of EC food policy is security of supply (Walker, 1983), and similarly the United States of America has traditionally had difficulties in avoiding the natural tendency for protectionism inherent in such a vast and wealthy country. It is unlikely that the seemingly miraculous and continuing turnaround in local grain sufficiency brought about by plant breeding and husbandry in the Asian region, for example, will be lost and that animal industries based on its use in non-ruminants will not develop and flourish; to say nothing of the political restriction to agricultural development in South America and Eastern Europe. These forces and the food resources they will generate will ensure that our concern will continue to be the maintenance of well-adapted low-cost methods of production using planned and integrated teamwork to ensure the application of very high standards of animal husbandry—breeding, grazing management and animal health programmes.

I have already dealt with one aspect of product quality. The other aspect which has, I believe, enormous implications for members of the Society is the issue of manipulation of animals by gene transfer and particular endocrine or immunological methods. Many of you will already have heard that the Council of Ministers of the EC has adopted a resolution which is intended to prohibit the use of growth promotant implants from January 1988. This completely disregards its own Expert Committee which is working on a scientific evaluation of their safety and recommendations for their use. The committee was expected to report in April and, I understand, was likely to refute suggestions of health hazards in their use. In the U.S.A., where such compounds are permitted and have major benefits for growth rate, there is considerable opposition to this move. The fundamental philosophical question
we as a Society must address, because it is fundamental to our whole approach to animal production, is thus. Is the fact that a drug will improve animal performance, and has not been demonstrated to provide health risks, sufficient ease for its use? Just as consumers have the right to choose which meat and which joint they will buy so perhaps also they have a right to choose how it should be produced. For an exporting nation the question must be approached with great sensitivity. I believe our Minister was correct in his recent decision as an interim measure, not to register certain products. But who is to provide the stimulus and forum for this evaluation, discussion and debate? Is that part of our role and, if so, how would we achieve it? We would clearly need to bring together experts from a wider background than our own.

It may seem that I paint a gloomy picture for the future for members of this Society. In fact, I believe quite the reverse is the case, but I do believe the Society is coming into a period of greater complexity and change in animal production than it has experienced since its formation 46 years ago. The Society will, I believe, have to adapt to continue to "bring about collaboration of all workers in the field of animal production and to foster improvement in animal production". It will have to decide where its priorities lie, what is the major expertise and requirement of its numbers and adapt very rapidly to anticipate change in the service required.

In his Presidential Address, Fennessey (1983) spoke about the need for a new approach and the fact that prior to that time only 'safe' research had been accomplished. The major expansion in medical and biological research is providing exciting techniques for manipulation of the genome and of the endocrine system, and perhaps promises similar major breakthroughs to those which semen manipulation allowed 30 years ago. Have we considered strategies for use of these technologies and really evaluated their potential impact? Have we considered the nature of the additional work required to fully exploit these developments in our low cost pastoral systems? Let me use, as an example, a hypothetical 20% increase in potential growth rate in lambs as a result of immunisation against somatostatin or gene injection? At the present time we already have the situation in which animals on pasture rarely grow at more than 50% of their genetic potential for several reasons, none of which are fully understood. What will then be the limitations to productivity for these super animals? Will they be the same? Would we be better employed in these latter avenues of research? A more searching question is —will such animals result in greater production per hectare than the smaller animals they replace even if we can meet their nutrient demands? Knowledge of the shape of growth curves of existing animals would suggest that transgenic animals with more rapid growth rates will be larger at maturity and, therefore, unless also more fertile than animals they replace, no more efficient. There may, however, be some qualitative advantage in composition at a given weight which improves their marketability. I use this simply as an example and will not elaborate detail; this analysis can be applied to any such development. You may argue this approach reflects the attitude of a pessimist who despairs of getting 'something for nothing'. But who, if not this Society, is on the one hand in a position to foster and encourage this high technology while on the other remaining sufficiently sceptical to evaluate future likely benefits. On the one hand to foster extreme specialism; on the other the evaluation of the generalist. Aren't these the conflicts we have to balance and which give us our strength as a Society?

**Implications for the Society**

Returning to the issue of increasing importance of events beyond the farm gate; what opportunity do we provide for exchange of knowledge and of research opportunities and priorities with those who add value to the products of primary producers? Very recently the Dairy Board has invited representatives from the Dairy Research Institute on to its Standing Advisory Committee on Herd Improvement, in clear recognition of the need, for example, in developing breeding priorities, to consider the specific requirements of the processor. Quality cheesemaking is very susceptible to changes in cow nutrition, and there are predictable and consistent seasonal changes in the processing quality of milk, the causes of which are poorly understood. I would very much like to see these facilities for exchange of information being extended more widely by the Society; in another field the Wool 'contract' given at this meeting is perhaps a start.

A significant number of our members are not full-time research workers, but are involved in extension or more directly in livestock production. To them this discussion may seem arid and academic and often we hear that our papers lack practicality or realism. Nevertheless the formal presentation of scientific papers dealing with fundamental principles which contribute to an understanding of the biological phenomena governing aspects of animal performance is essential. First of all such papers are an important source of new ideas which fuel changes in husbandry. Secondly they are important in maintaining our professional scientific rigour. Without these papers the future of the Society, the professional development of its members and, in the longer term, advances in animal production would be jeopardised. It is so easy to ask for messages, recipes and simple take-home lines. This approach to farm improvement has had its day. In the days of land development and increase in stock numbers the solutions were relatively simple.
Now, in the era of tight manipulation of swards and precise allocation of different categories of stock to optimise digestible organic matter production, continuous assessment and manipulation of carcase composition, maintenance of fibre staple strength while operating a rolling 2 year plan for control of internal parasites and a 10 year plan for breed improvement, each farm becomes a unique and important ecosystem. The complexity of the issues and the challenges facing our advisory service members are increasing, a fact perhaps not very well recognised by scientists and this Society. We should be active in seeking to assist them in the development of their professional skills—analysis, quantitation, strategy development. We should, where possible, provide opportunities for the further development of close associations with those professional groups with whom they work in teams, particularly with veterinarians and food scientists. It is my hope that the former will be facilitated by our incoming Vice-President and that real bridges can be built.

The specialist in animal production, whether research worker or advisor, is a strategist, a link man and an integrator. Strategist in that he has major responsibilities for medium and long term strategies in animal production—be they within the animal, or in herd and flock management and breeding policies. Link man in the sense that he must be aware of developments in fundamental research, of the opportunities for improving farmer income afforded by research and development beyond the farm gate, and of changing consumer attitudes. This is a large, important and responsible role demanding sound, analytical judgement for complex planning. Above all he will require professionalism and integrity. Above all we need to ensure that in both spheres young talent is encouraged to develop its work to the highest level and to seek the most critical scrutiny. Not only is attitude at meetings important. I have long had the concern that excellent though our Proceedings are for rapid communication amongst members, they serve to detract from the full and rigorous refereeing of the work of our members and this has, I believe, serious effects on the planning of subsequent experimentation. The explorations we are making to overcome this are, I believe, timely and appropriate and consistent with this philosophy.

In the future then, the Society will be increasingly concerned with professionalism in animal production. This will be achieved by defining the structures we require more closely. It will inevitable mean the forging of closer links with other specialist societies to maintain critical mass in fundamental science, to foster the broader integration in production. To go back to my original quotation; it would surely be better to get into bed with others in the belief that one or other might become pregnant. One might then, at least, have the assurance that one was not impotent.

I have been talking about attitudes and perspectives, and the professional role of the Society in encouraging these. Given the pressures identified it is vitally important that the Society fosters and projects professional scientific attitudes, recognising the different needs and perspectives of scientists and extension workers. We cannot simply assume that putting them together will provide this; we need structures. Above all we need to ensure that in both spheres young talent is encouraged to develop its work to the highest level and to seek the most critical scrutiny. Not only is attitude at meetings important. I have long had the concern that excellent though our Proceedings are for rapid communication amongst members, they serve to detract from the full and rigorous refereeing of the work of our members and this has, I believe, serious effects on the planning of subsequent experimentation. The explorations we are making to overcome this are, I believe, timely and appropriate and consistent with this philosophy.

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