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SOME ASPECTS OF THE NEW ZEALAND MEAT INDUSTRY

A. H. KIRTON

INTRODUCTION

THE PRESIDENTIAL ADDRESS provides some members of this Society with the opportunity to comment freely on some fields of interest without any implied suggestion that comments made are other than personal opinions. I have no reason to believe that mine today reflect the views of the Ministry. I am reassured by looking at past addresses to note that most items can be covered safely, as indicated by the consistency with which matters raised by past presidents have been ignored. As one example, Campbell (1968) noted that to that time little research had been undertaken into our most extensive and important single farm crop — namely, hay. Little has happened since that time to change this situation. Because of the scope for comment on the meat industry I will restrict my comments to a few topics.

MEAT INDUSTRY INQUIRIES

Since early 1973, three committees and commissions have commented on aspects of the meat industry. The depressed state of the industry today, an industry that, including its by-products, still returns 40% of our export income, indicates that in the short term it cannot be stimulated by even authoritative reports. One partial explanation for the lack of progress may be that good recommendations have been ignored. This Society should be pleased to note that the MacIntyre Committee (1974) on export grading, included a Society member in its membership, and came down with one of the more sensible reports available on carcass grading and classification systems. Many of their recommendations were put into effect by the Meat Producers Board in October 1975. Unfortunately, their recommendation that a grade be established for ram hoggets was not accepted. Evidence to support this recommendation was given to this Society in 1972. The inclusion of a conformation class for cattle carcasses makes urgent the need to gather data to establish whether conformation, as judged in the suggested manner, is related to carcass cut out or any other factor of economic importance. If not, the conformation class should be abolished.

The most weighty body to consider meat industry problems was undoubtedly the Nordmeyer Commission of Inquiry which reported in 1974. In retrospect it seems unfortunate that such strongly interested parties should have been represented by Commission members — included was a meat company director, a union secretary, a Meat Board member, a chartered accountant and an impartial chairman. Perhaps it was argued that, if this group could agree on recommendations, such changes should be acceptable to the industry.

Of even greater concern was the short time, only 8 months, that the Commission was given to investigate the largest export industry in the country, to hear submissions and to present their final report. If only 3 months were allocated for writing the final report, on the original timetable 5 months remained for interested parties to research, prepare, print and present submissions. Such speed would require time, dedication and resources beyond those available to most organizations if serious thought was to be given to the exercise. As it happened the Commission required a 4-month extension of time. While it would have been reasonable to have asked for an interim report in 8 months to allow action to be taken to rectify any obvious deficiencies isolated, it is difficult to believe that the Commission was really expected to solve the problems of such a major industry in such a short time. They should have been given at least an additional year to investigate the industry and prepare a final report.

The terms of reference of the Nordmeyer Commission, and the resulting report, barely mentioned the role that science has played — if any — in assisting the industry to reach its present level of development. Equally, the Commission made scant mention of the industry's science needs for the future. The absence of a submission from this Society presumably reflected the organizational difficulties and short time available for the preparation of such a submission rather than a belief that animal production in future has a small role to play.

The one area where the Commission made a strong plea for greater research was into the work methods and efficiency of operation in a labour intensive industry whose employees comprised 2.6% of the total labour force but were responsible for 50% of the man-days lost by all New Zealand industry at that time. The case for research into methods of reducing the labour content of the slaughter chain, as one way of attempting to hold costs in the industry, and for reducing the physical content of the remaining jobs and increasing the pleasantness of the en-

vironment in which the labour is employed, would seem to be self-evident. The problem is to find a group with the time and facilities available to undertake such research at a location that will not interfere with a working slaughter chain. An additional problem would be to get improved methods which might be developed incorporated into the works chain without causing further industrial disharmony. Perhaps a case can be made for research into the problems and aspirations of the workers in the meat industry so that this information can be used to reduce causes of conflict in the future. What information is currently available on the work force at freezing works? The workers themselves should be interested in research which might help clarify the "incredibly frivolous, trivial, and apparent insignificant nature of the causes of some disputes" (Nordmeyer, 1974) which cost workers nearly \$1.5 million in 1972.

CARCASS/MEAT QUALITY

Carcass quality is measurable in terms of:

Meat Hygiene:

Surface cleanliness in terms of freedom from dirt, fibres and bacterial contamination and also freedom from disease. This is commonly called the field of meat hygiene and is the responsibility of the Meat Division of the Ministry of Agriculture and Fisheries.

Meat Palatability:

Tenderness, flavour, and juiciness. Some animal factors that effect palatability are considered in the grading/classification process. However, although carcass processing methods play a major role in determining the tenderness of meat (Locker *et al.*, 1975), no one is responsible for checking this process except in the case of meat exports to the U.S.A. where the Meat Export Development Company has a specification for lamb carcasses to ensure tenderness.

Carcass/Meat Composition:

(Grading or classification)

- red meat, fatty tissue and bone
- protein, water, ether-extract and ash
- percentage cuts, meat/bone ratios, etc.

The Meat Producers Board has responsibility for setting standards and supervising the export grading system which is implemented by works graders, and the Standards Association of New Zealand lay down standards for local consumption grading which is done by meat inspectors of the Ministry of Agriculture and Fisheries.

From the above analysis it is apparent that there is no one body responsible for implementing a unified policy on meat quality. In fact, a multitude of bodies are involved covering different fields with one field largely ignored and there appears to be no overall policy in relation to carcass quality. Is this situation either logical or satisfactory? The Nordmeyer Commission did not comment on this matter.

MEAT HYGIENE

Meat hygiene is enforced for human health and aesthetic reasons as well as an aid to improving the shelf-life of the product by reducing spoilage. The inspection procedures are also intended to prevent the transmission of animal diseases. Within reasonable limits no one would argue against these aims. Few would question the desirability of eliminating diseased carcasses and in particular avoiding the possibility of sale of diseased meat where diseases communicable to man (*e.g.*, tuberculosis) or animals (*e.g.*, foot and mouth disease) are involved. Unfortunately, hygiene regulations based on aesthetic considerations where the human disease angle is not present (*e.g.*, sarcocysts, sheep measles) have never been put to the consumer on a cost/benefit basis. The consumer has not been asked whether they wish to pay the increased meat prices resulting from the elimination of the unattractive meat or whether they would prefer to have such meat available at reduced prices. In the New Zealand situation, many of these aesthetic decisions are made by overseas inspection services and we must meet their requirements or not export. However, a case could be made for the sale to the New Zealand public of meat with some of these defects provided the meat was correctly labelled and the purchasers knew what they were buying. In this matter we would be taking the stand that we are meeting overseas requirements that are insisted on by those countries but we believe some of these requirements are unnecessary.

Some New Zealand data placing the human health aspect of meat hygiene in perspective are given in Table 1. The figures presented do not all apply to the same calendar year, but for the purpose for which they are presented, which is to show the

TABLE 1: IMPORTANCE OF SOME CAUSES OF ILL HEALTH IN NEW ZEALAND

<i>Causes</i>	<i>Deaths Number</i>	<i>Hospitalisation Number</i>
Motor transport:		
Motor accidents	674 ¹	10 552 ²
Alcohol:		
Liver cirrhosis ³	104 ¹	
First psychiatric admission		
Alcoholic psychosis		76 ¹
Alcoholism		482 ¹
Psychiatric readmissions		
Alcoholism psychosis		125 ¹
Alcoholism		1 222 ¹
Smoking:		
Malignant neoplasm of respiratory system ³	556 ⁴	1 854 ⁴
Disease contracted from fresh meat	0 ² (?)	0 ² (?)

¹ From tables on pages 102 and 154 of *N.Z. Official Year Book 1974* and relate to the 1971 year.

² For years 1973, 1974 and 1975. Department of Health (pers. comm.).

³ May not be quite completely due to alcohol or smoking, respectively.

⁴ From tables on pages 147 and 150 of *N.Z. Official Year Book 1974* and relate to the year 1970.

relative order of magnitude of some health problems, this inaccuracy is unimportant.

The Health Department indicated that, because of the late reporting and also poor reporting of food poisoning episodes by the public, the figures presented relative to disease contracted from fresh meat are likely to underestimate the true position. However, the point can equally be made that psychiatric admissions are the tip of the iceberg in relation to the problem of alcoholism in the community and lung cancer is only one of the health problems caused by smoking. In relation to disease contracted from fresh meat the statistics would include disease contracted from shot game or animals killed on the farm if such meat were implicated. Comments in the Nordmeyer (1974) Report strongly suggest that local consumption abattoirs which process much of our meat are not up to standard in hygiene terms relative to our export works. Because of the constant upgrading of hygiene standards, and the higher standards of export works the incidence of meat related human disease today is likely to be even lower than that reported by the Health Department which related to a historical situation.

Results from a food poisoning and salmonella survey in England and Wales over the period 1969-72 implicated mainly cooked or reheated foods and fresh meat was not specifically mentioned as a problem in this extensive survey (Vernon and Tillet, 1974).

The main conclusion to be drawn from figures in the table is that, given the serious problems in relation to human health from the other causes selected, namely motor accidents, alcohol and smoking, which do not result in a massive public outcry for prevention, are we not overstating the case for further improvements to meat hygiene with the enormous expenditure involved when there is little evidence that meat poses an important health hazard? I have no doubt that over a period of time the motor accident rate will be reduced, but, barring the total cut off of the oil supply, I cannot foresee the possibility that road deaths or accidents requiring hospitalisation will ever be reduced to zero. Health problems associated with alcohol and smoking are, of course, self-inflicted and therefore presumably acceptable to the consumer. Given the relative lack of public concern about these obviously serious health problems, it is difficult to justify on a cost/benefit basis any additional expenditure on meat hygiene if the reason is to safeguard New Zealand consumers and if human health is the major consideration. A strong case can be made for the finding of the Congreve Committee (1973) that "in view of the high cost of adopting overseas standards of hygiene, abattoirs should be required to maintain a reasonable New Zealand standard". It would be nice to know why the Nordmeyer Commission (1974) did not concur with that finding. I can only assume that they were not presented with data of the type in Table 1 showing that the present standards are satisfactory in terms of human health.

In relation to the export of New Zealand meat, the problem is unfortunately not as simple. At this stage I must make clear that I am not attacking the work of the Meat Division of the Ministry of Agriculture and Fisheries who are responsible for promulgating and administering the Meat Regulations. They have the problem of overseeing New Zealand meat hygiene and to certify that this meets the standards set in particular overseas countries. These countries are in a position to demand that we meet their standards if we expect them to take our products. FAO recognizes this problem in a report on non-tariff barriers to international meat trade arising from health requirements (Anon., 1973). In an attempt to sort out the different hygiene require-

ments of different countries into a common standard, a joint FAO/WHO Codex Alimentarius Committee was established to formulate an internationally acceptable standard of meat hygiene. New Zealand was host to that committee. In the code finally produced by that committee is the statement that recognition has been given to the need to avoid precluding the adoption of new technical developments provided these are consistent with the hygienic production of wholesome meat.

While in the short term we must obviously continue to meet the individual requirements of particular countries, in the longer term it is important that we use the Codex standards as a basis for discussion where unreasonable requirements are made. Hopefully, importing countries will move in the direction of accepting the Codex standards.

The amount of dirt and fibres on carcasses and their bacterial contamination is capable of measurement (*e.g.*, Stringer *et al.*, 1969; Kotula *et al.*, 1975). In how much stronger position would New Zealand have been to argue against overseas hygiene requirements if we had been monitoring these factors and recording the changes, if any, which have occurred as a result of the changing requirements over the past 8 to 10 years. I therefore strongly support the case made by Blackmore (1975) at the N.Z. Meat Industry Research Institute Conference when he pointed out that up to the present time we have accepted overseas hygiene requirements without checking their effects on reducing carcass contamination, if at all. We have made no effort to establish direct correlations between the effect of hygiene measures and the health of the consumer or the level of occupational disease in the industry. Perhaps we should consider the collection of data on the cleanliness and micro-organism load of New Zealand and overseas produced meat at the point of sale. While in the short term a factual knowledge of the effects of hygiene regulations on meat hygiene, as distinct from the known effects of these regulations in increasing costs, may not influence the regulatory authorities in overseas countries, I believe that in the longer term a case based on factual evidence is likely to be accepted.

Blackmore (1975) also pointed out that "Precise information on the disease status of animals submitted for slaughter, particularly in relation to diseases of public health importance, compared with similar information from other countries, is also lacking. Continual surveillance of such information would be invaluable for public health, financial and political purposes".

I am not aware of any evidence to suggest that the shelf-life of New Zealand meat under the present standards is in any way unsatisfactory. I also believe that the animal health status of New Zealand and the freedom from serious animal disease is the envy of most overseas countries, hence this factor should not require any improvement to present hygiene requirements.

The Meat Producers Board has estimated (Anon., 1975) that improvements in meat hygiene that have been instituted over the past 10 to 15 years were costing individual sheep farmers about \$1200 per year in 1975 in terms of reduced income because of increased costs. The Nordmeyer Commission has reported that foreseeable hygiene requirements are likely to cost the meat industry an additional \$100 million and elsewhere Blomfield (1975) has been quoted as putting the additional cost at \$200 million.

I am concerned that such additional costs may make meat a product that is completely unprofitable for the farmer to produce and too expensive for present consumers to eat. I am concerned that meat will be so clean that only the very rich will be able to afford to eat it and that if costs between the farm and the consumer are not controlled we will force people who presently eat meat into changing to artificial meat products made from vegetable protein. I am concerned that escalating costs including those initiated for hygiene reasons will drive New Zealand out of the meat business.

The final point to be made is that it is really rather surprising that the meat regulatory authorities of many countries pay so much attention to matters such as building construction (*e.g.*, use or otherwise of wood in freezers) and other strictly speaking peripheral matters. Surely, the only real criterion should be whether the final product is disease- and dirt-free to some acceptable standard and meets certain bacteriological standards. Provided criteria can be laid down then it should be over to the processor to turn out a product which meets such standards and his building construction and many other items currently specified should be of no concern to the purchaser.

LOCAL CONSUMPTION GRADING

The Congreve Committee (1973) questioned the need for two independent carcass grading systems for New Zealand and asked whether the export system could not satisfy both the export and local markets. The necessity to stripe carcasses as is done for the local market and the slowness in undertaking revisions of

the local system was also questioned. The MacIntyre Committee (1974) said "There would seem to be no logical reason why the local and export grading systems should not be the same, and be the responsibility of a single authority". The Nordmeyer Commission (1974) recommended (21/para. 107) "That it is desirable there should be one grading standard for all meat processed in New Zealand whether for export or local trade" and (22/para. 109) "That the system by which first and second grade-meat has been identified through different colour striping of carcass meat should be discontinued, and instead a one-colour marking system should be introduced".

If I may be permitted to paraphrase the findings: "The problems of having two slightly confusing grading systems in a small country the size of New Zealand would be halved by eliminating the local consumption system which has no special merits". It is to be hoped that a review of the local consumption grading regulations which the Department of Trade and Industry may initiate in 1976 will solve this vexing problem.

ANIMAL FATS AND HEART DISEASE

Given the importance of this topic (Adam, 1973; Kirton and Wright, 1975) — most people are interested in their own mortality — and the confused nature of the literature in this field, it is important that the animal industries do not ignore the potential marketing problems associated with animal fats in the hope that these will go away. It is vital that advice in this field should be kept in the hands of the medical profession and data should be available which might refute some of the exaggerated advertising claims of some polyunsaturated vegetable and animal products.

Taking the more conservative medical viewpoint, that an excessive food and energy intake is contributing to the heart and circulatory problems of people in affluent societies, a strong case can be made for giving consumers greater access to lower fat (and lower calorie) meat and particularly those who should be eating such foods. In 1971, over 11 000 New Zealanders died of heart and cerebrovascular disease with heart disease accounting for around a third of all deaths (Statistics Department, 1974).

A recent medical trial carried out at Auckland Hospital (Professor P. J. Scott, pers. comm.) indicates that a low fat diet including lean meat and traditional dairy products is as effective as a polyunsaturated diet in reducing the elevated levels of blood

cholesterol — believed to be a factor associated with the disease — in people at risk. The animal industries should support further trials of this nature as they are the only group with an interest in seeing animal products included as a treatment in dietary trials. In fact, a far better case can be made to suggest that reducing the fat content of meat *might* improve human health than can be made for spending \$100-200 million for improved meat hygiene for the same purpose.

In addition, for reasons entirely divorced from the human health issue (consumer preferences, the inefficiency of laying down fat in the animal carcass, the high cost of meat, etc.), a strong case can be made for the production of leaner meat animals than at present. To this end, the local consumption grading regulations for sheep and beef (basically a fat-based system) must be changed to make leaner meat available to those who wish to purchase it. It is surprising that the Health Department, Consumer Institute, and organizations such as CARP have in the past, if anything, supported the present regulations.

CONCLUSION

The theme of this address has been a plea for the removal of some unsatisfactory aspects of the meat industry as it is currently constituted. In an industry of this size and importance, it will be surprising if the same theme is not still a suitable topic for some future president in the years to come. Despite all that has been said, I have great confidence that food derived from pigs and ruminant animals, and particularly meat products, will remain a valuable food for the human population in the foreseeable future provided that some of the problems mentioned, and many that were not, are tackled by the production, processing and marketing community. One thing that is certain is that they will not go away unless people such as those present today bring informed opinion to bear to see that the problems are tackled and solved.

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