

Nuffield Foundation Travelling Scholarship FOR FARMERS 1973



**REPORT ON SIX MONTH'S STUDY OF
FARMING IN BRITAIN**

BERNARD PINNEY
Dunrobin Station
Mosburn, Southland
New Zealand

*Pop with many thanks for the
encouragement & his air fund.*

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FARMING IN BRITAIN**

- 1 Large Scale Farm Management.
- 2 Developments in Animal Breeding.
- 3 Landscape Conservation.

BY

**BERNARD PINNEY
Dunrobin Station
Mosburn, Southland
New Zealand**

March 1974

REPORT TO THE NEW ZEALAND ADVISORY COMMITTEE OF THE NUFFIELD FOUNDATION

On 7 February 1973 I left Invercargill to take up the Scholarship in the United Kingdom, spending a fortnight in North America on the way.

I spent a day with the DEVCO representative in Los Angeles and then made a detailed study of beef breeding. A.B.S. arranged itineraries to AI stations, feedlots, and successful farming operations in Alberta, Colorado and Wisconsin.

This was followed by two days at Cornell University, and two days in New York, before flying to London on 24 February.

The Nuffield Foundation arranged a detailed programme which lasted till the end of March, during which I spent a time with my host farmers Chris and Mrs Tozer in Hampshire before the eight of us assembled again in London for a 16 day tour through East Anglia, Lincolnshire, Leicestershire, Wales, Worcestershire, and back to Buckinghamshire.

The next fortnight was occupied by group visits organised by ourselves to various establishments in the South East, including ADAS S.E. Region HQ; Reading University; the I.W.S.; the Animal Diseases Institute at Compton; Warren Farm; the M.L.C.; Rothamstead; the N.I.A.B.; and the Cambridge University's Unit of Reproduction and Physiology. From this time on we were left to organise our own study programme.

I spent the next four months as follows:

15 - 25 April 1973	Dorset and Somerset
- 29 April	Oxford and London
- 1 May	Yorkshire with the I.W.S.
- 8 May	Northumberland with ADAS
- 13 May	Kirkcudbright
- 18 May	Edinburgh
- 28 May	Nairn and Moray
- 2 June	Inverness, Perth and Aberdeen
- 6 June	Sutherland
- 12 June	Wester Ross and Argyll
- 20 June	S.M.M.B., Edinburgh and the Highland Show
- 23 June	London and Oxford
- 1 July	Cornwall and Devon
- 6 July	The Royal Show
- 13 July	Limoges and Munich
- 17 July	London and Norfolk
- 19 July	Gloucester and Wiltshire
- 26 July	Dorset and Hampshire
- 31 July	London and Kent
- 4 August	London and Oxford



Frontispiece

RED DEER HINDS
being fed pellets at "GLEN SAUGH", KINCARDINESHIRE

5 AUGUST My wife and I left the U.K. via Amsterdam (4 days), USSR (8 days), Hong Kong (5 days), Manila (2 days), Sydney (4 days), arriving at Christchurch on 29 August. On this homeward journey we managed to arrange visits to the Karakul Sheep Breeding Research Institute in Samarkhand, and to see irrigation near Tashkent. We spent two half days with the Department of Agriculture in Kowloon and the new Territories of Hong Kong, learnt something of Philippino agriculture and Foreign Aid in the region, and visited two properties in New South Wales.

I would like to thank the N.Z. Advisory Committee, the Nuffield Foundation and Sir Frank Engledow, together with David Yonge and his efficient staff for making this thrilling experience possible. I am most grateful to the M.M.B. for the use of the car which went perfectly and everywhere; Captain John Stewart; the N.F.U.; M.A.F.F.; A.D.A.S.; the I.W.S.; A.B.R.O.; H.F.R.O.; COFRANIMEX; IMEX; the C.L.A.; the Tozer family, my Pinney relations - especially Philip and Cark; John Corrie; Sandy Forbes; and all the other kind people who helped so much by allowing their brains to be picked, giving suggestions on where and who to visit or avoid, and for having my wife and me to stay, often for embarrassingly fleeting visits made necessary by the need to cover the programme as planned. I thank too those who helped on the way to and from the U.K.: Donn Blount of DEVCO; Cliff Jurgens; Mike Thomas; Dr Robert Walton and his team from American Breeders Services; Professor John Drotning at Cornell University; Mrs Vera Lee and the Department of Agriculture in Hong Kong; and the Tobins.

I thank especially Don Lowe, the men at Dunrobin and Miss Mary Bond. They ran the Station whilst we were away. Finally I thank my Mother-in-law, my parents and Miss Mary Fleming for keeping our children so happily occupied in our absence.

GLOSSARY

Here is a list of abbreviations used in this report.

ABRO	Animal Breeding Research Organisation
ABS	American Breeders Service
ACT	Agricultural Central Trading
ADAS	Agricultural Development and Advisory Service
AI	Artificial Insemination
AMC	Agricultural Mortgage Corporation
AONB	Area of Outstanding National Beauty
BOCM	British Oil and Cake Mills
CLA	Country Landowners Association
COFRANIMEX	A French livestock importing and exporting company
DEVCO	A N.Z. company marketing sheepmeats in North America
EFG	Economic Forestry Group
HFRO	Hill Farming Research Organisation
ICI	Imperial Chemical Industries
IMEX	A German livestock importing and exporting company
IWS	International Wool Secretariat
MAFF	Ministry of Agriculture, Fisheries and Food
MLC	Meat and Livestock Corporation

MMB	Milk Marketing Board of England and Wales
NFU	National Farmers Union
NIAB	National Institute of Agricultural Botany
NUAAM	National Union of Agricultural and Allied Workers
PMS	Pregnant Mare Serum
SMMB	Scottish Milk Marketing Board
SWOA	Scottish Woodland Owners Association
VAT	Value Added Tax

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(1) LARGE SCALE FARM MANAGEMENT

The three main ingredients of farming in a suitable climate are land, labour and capital. In the same way as fertiliser, stocking rate and subdivision in our New Zealand livestock farming, these three factors must be kept in the closest harmony. Should any one get out of line it affects the other two and adjustments must be made. Large or small scale farm management is the art of doing just this.

In order to learn about British farming it is a help to start with an understanding of present day land tenure, especially the relationship of landlords and tenants. Over the last hundred years there have been considerable changes in the proportion between the two, with the trend being towards more private ownership of land and less tenancy. Today half the land is tenanted compared with some 90% at the turn of the century. The reasons behind these changes have even influenced some of the New Zealander's strongest characteristics. At the time our ancestors settled New Zealand, many of them came to escape the feudal way of life in the Britain of their time. One of the extreme examples was the emigration of Scots during the Highland clearances. Many of them settled in the South of New Zealand. In comparison with New Zealand there are still noticeable feudal overtones in today's Britain, though socialism is breaking them down.

A farmer's whole outlook is affected according to his position as tenant or landowner. English law takes good care that the tenant may not be evicted except under very special circumstances. Unlike the case of most Crown Leases in New Zealand, the tenant has no right to pass his farm on to his family. Rents are generally reviewed every three years. From the landlord's viewpoint his tenant's age is important and, once the tenant dies, the farm is his again to decide whether to lease it, take it in hand and farm it himself, or sell with "vacant possession" - a situation which makes the land much more valuable than when farmed by a sitting tenant. Nowadays, if it is possible, these farms are being taken in hand. Scottish law on the other hand allows the tenant "security of tenure", and he may pass the property on to his offspring. Scottish rents are reviewable every five years, and a land court settles if agreement is not reached.

The landlord is generally responsible for the cost of new buildings. He is often faced with such costs, particularly when the rent is being reviewed by some of the more astute tenants. The position is complicated in the common situation of the tenant being in a stronger financial position than his landlord. Some contribute to the capital improvements and use this as a means of keeping their rent down. It is important to realise that rents are established according to the productive rather than the capital value of the land. This is just as well for the modern tenant as land prices have rocketed in the last eighteen months for various reasons which could have some severe repercussions for land tenure in the U.K. in the years ahead.

The table below shows the trend in land prices since the war.

They must be interpreted with a little caution as they are based on auction sales recorded in the Estates Gazette and therefore could be a little on the high side.

FARM SALE PRICES (VACANT POSSESSION) IN £ PER ACRE

	300 + Acres	5 - 50 Acres
1945-49	£ 39	£ 151
1950-59	58	151
1960-61	107	202
1962	124	194
1963	170	264
1964	194	299
1965	228	338
1966	235	332
1967	247	331
1968	266	384
1969	293	490
1970	229	452
1971	281	612
1972	714	1,044
1973 *	820	* First six months

Source: Prof. A.H. Maunder,
Institute Agricultural Economics, Oxford.

Some of the reasons for the present rise would be:

1. 45 to 50,000 acres of good agricultural land are going to building and other development each year.
2. Less land is being sold. From 1958-60 just under 800,000 acres came on the market, compared with 465,000 acres in 1970-72. The last figure represents 1% of all farmland.
3. Farming has become profitable. Gross output increased from £940 million pounds in 1950 to £3,152 million pounds in 1972 the number of holdings fell from 534,000 to 289,000 and the work force was halved.
4. The 45% allowance against estate duty.
5. "Rollover". This is a clause in the capital gains tax on profits from the sale of land. It is applied if they are not reinvested immediately again in land. The extension of this clause from one year to three might steady the rise.
6. Inflation.
7. Institutional buying of land. It is extremely difficult to pinpoint who is buying land, though the Country Landowners' Association are making good attempts. Their survey, covering three months at the end of 1972 and the beginning of 1973, showed that 37% of land sold was bought by institutional and organised plant investors.
8. "Hope value". Buyers expect the upward price trend to continue.
9. Membership of the E.E.C. has influenced the returns farmers are getting for their produce, which are considerably higher than they were used to. It has also brought British land prices closer to those in Europe.

10. Government interference with the land market through fiscal and other measures.

11. As Mark Twain said about land: "Nobody's making it any more".

What are some of the possible effects of this rise in land values? First it is likely that farmers will become unable to buy land for much longer on their own account. This will mean a separation of capital from management and production. This has long been a feature of industry that has become used to plant hire, managers and shareholders.

The traditional large landowners are having their estates reduced by estate duties, unless they are either very lucky or have organised their affairs really well. Time and again farmers told me they could not afford to die. In many cases, capital gains tax deprived them of sufficient capital to be able to hand over the land to their own families, well trained for the task. The paradox is that on the other hand, successive governments have been urging farmers to amalgamate. William Gilbert would have enjoyed such good comic opera material.

As always there a few astute men who manage to get round such awkward situations. Some are diversifying their enterprises and keeping each new business in a tight compartment which may be sold off at a later date, in such a way that the basic unit is not spoiled. Many are becoming involved in co-operatives of all sorts ranging from discount buying and plant sharing, to sophisticated marketing groups. Such activities are teaching them that, contrary to the widespread belief, farmers can co-operate with one another. Their new approach draws out many hidden talents and ideas which they never knew they possessed.

If the farmer becomes unable to buy land, who will? The signs are that it will be done by those large institutions who have control of insurance and superannuation funds. Land will also be bought by public companies set on diversifying, and false values will thereby be consolidated. Nationalisation is possible.

This situation is likely to encourage the greater use of highly trained farm managers, which is good news for those with the desire and ability to go farming and who do not own or rent land themselves.

For the less talented it may not be so good, owing to the demand on larger units for ever higher outputs per man.

An example is the trend towards larger dairy herds:

1967	13 herds of over 160 cows
1968	32
1969	59
1970	85
1971	174
1972	263
1973	439

Source: M.M.B.

An example of this new approach to ownership and management is Fountain Farming, a subsidiary of the Mathews Wrightson Group of companies. It is headed by Anthony Rosen who runs at present some 9 farms totalling some 13,000 acres. The business has a policy of buying up 48,000 acres by the end of 1975. Mathews Wrightson Land buy the land, at prices worked out and rents negotiated by Fountain Farms, provided their market department decide the price fits what it can be sold for on the market. Fountain Farms effect the improvements needed, then the parent company sells the land to wealthy individuals, institutions, or by means of their Group Undivided Share Scheme.

The institutions are not keen to buy at auction. Each unit farmed is run as a separate management unit which may consolidate if necessary, and has monthly checks against cash flow. Its manager is expected to be tactically two years ahead. Overall the policy is to go fast. Allowance is made in budgeting for a plus or minus variation of 20% from the mean of the whole operation. This 20% will diminish as the operation expands and the early units become established profit earners. Fountain farming have gone on record as saying they are obtaining a 20% return on tenants' capital after they have met costs of financing. The annual accounts are worked out on all farms individually, and the firm insists on up to date valuations for the whole business. This takes six agents each a full week. The system is working and arousing intense interest amongst farming sceptics from one end of the country to the other. The main problems for such an exercise include the instability of the land market. There is a need for good management, not only at the top, but also from the new replacements who might be needed at any time to fill posts in the ever growing business. To fill this need they have started a training scheme of three years or so with no strings attached at the end of it. Another problem for any similar business is what would happen in the event of a takeover of the parent company by another which might be more interested in asset stripping than long term farming? Much will depend too on their being able to produce the goods. Indications were that they would be producing 12,000 tons of grain, have 1,400 dairy cows in milk in August, 2,600 acres in other vegetables and cash crops, and 180 acres in apples and pears this year. "Tenants in perpetuity" is how Mr A. Rosen describes Fountain Farming.

While such approaches to farming make the headlines primarily because they are different and therefore news, it is important to recognise how strongly based and what a good future there is for the family farm, and this is one of less expected but most reassuring observations made whilst I was in the U.K. It must be remembered that, in spite of the growing number of large farms, by far the most are still owned or run by separate families.

LABOUR 40% of the full time holdings employ no outside labour and another 25% employ just one man. Of the 190,000 men left on farms in the U.K., 75% of them work on 10% of the farms which produce half the total production.

In comparison with farms in New Zealand there appears to be

much more labour employed. One must remember that their winter in many cases lasts nearly twice as long as ours. This means that much of the stock needs to be housed indoors, and that much of the cropping done is purely to provide food for these animals. All this is labour demanding. As a rule of thumb a farmer needs 10,000 pounds worth of extra production to justify another man, a figure similar to that in New Zealand. In arable and mixed farming the value of wages paid related to value of output in the U.K. is around 1 : 7. In the more labour intensive horticulture the figure is nearer 1 : 3.

The pattern of wages and hours worked for hired regular whole-time agricultural and horticultural workers in England and Wales for the period ended December 1972 was as follows:

	In the year				In the quarter			
	January to		October-		October-		October-	
	December, 1972		December, 1971		December, 1971		December, 1972	
	Earnings	Hours	Earnings	Hours	Average weekly totals	Earnings	Hours	Hours
£	£	£	£	£	£	£	£	£
All hired men	23.37	47.8	21.05	47.4	24.10	47.9	47.9	47.9
Foremen (bailliffs etc.)	27.64	47.2	24.76	46.7	28.83	47.9	47.9	47.9
Dairy women	28.44	53.8	24.91	52.6	29.34	53.7	53.7	53.7
Tractor drivers	23.54	48.7	20.91	48.7	23.93	48.4	48.4	48.4
Horticultural workers	21.76	45.1	20.76	44.7	22.67	44.9	44.9	44.9
General farm workers	21.65	46.7	19.45	45.9	22.30	47.0	47.0	47.0

The average weekly earnings, prescribed wage and hours of all hired men for the past four years were:

Year ended December	1969	1970	1971	1972
All hired men	£	£	£	£
Earnings	17.32	18.61	21.06	23.37
Prescribed wage	14.73	15.74	18.09	20.10
Hours	49.2	48.3	47.9	47.8

Average total weekly earnings include payments-in-kind, pay for statutory holidays and all other payments over the statutory minimum wage. The prescribed wage is the weekly wage entitlement laid down in the Agricultural Wages Board Orders for total hours worked. Average total weekly hours are all hours worked and statutory holidays.

Hours worked by all hired men were higher in October-December 1972 than in October-December 1971 because of an increase in both contract and seasonal overtime.

The minimum wage rates for regular whole-time men (20 years and over) for recent years have been as follows:

From February 5, 1968	- £11.55
February 3, 1969	- 12.40
February 2, 1970	- 13.15
January 4, 1971	14.80
January 17, 1972	16.20 *

Under the Agricultural Wages (Wages Structure) Order 1972 the following minimum wage rates came into operation on May 29, 1972, for graded workers and craftsmen:

Appointment Grade 1	- £21.06
Appointment Grade 11	- 19.44
Craftsmen	- 17.82
(Ordinary rate *	16.20)

The National Union of Agricultural and Allied Workers (N.U.A.A.W.) claim 50 to 60% membership from those employed in agriculture. The larger farming becomes, the more likely this proportion is likely to rise. This year they negotiated a £3.30 increase in the basic wage together with a reduction from a 42 to 40 hour five day week.

Overtime at time and a half during the week and Saturdays, and double time on Sundays is commonplace as are relief milkers. This overtime however is based on the minimum rate.

The N.U.A.A.W. expend much of their energy fighting the "tied cottage" cause, especially in England, but not so much in Scotland. A tied cottage is a house which goes with a farm job. They feel that there is no need for them nowadays with modern transport, and that they limit the employee's bargaining strength with his employer. Now no one can be evicted from these cottages in less than six months from the end of employment, nor without a court order. I came across one example of the sort of thing that goes on. A farmer who has the odd spare cottage on his farm occasionally rents them out. The first time he did this was for a six month period to a local man working in the nearby town. When his time was due he was told by the farmer that the house would be needed back. The man would not move and the matter had to be settled in court. In order to avoid a repetition of this the farmer let the cottage again for three months with a legal agreement signed by both parties. History repeated itself exactly and the matter had to be settled in court, one of the terms being that the farmer had to provide accommodation elsewhere. I only heard the farmer's side of the story.

Without a permit from the local county wages committee, the farmer may not charge more than .50p a week board to a worker who is on the minimum rate. There are a few applications in which the worker may claim a reduction below .50p if the accommodation is substandard.

Some people consider that there is going to be competition from the better European farmers, some of whom are interested in setting up farming operations in Britain. A Dutchman recently

bought some 3,000 acres in the Eastern Counties and put his men on a starting wage of 25 pounds a week in comparison with the then going rate of 16 pounds. A German recently bought market gardening land in the East Coast of Scotland. Such moves are likely to increase with the E.E.C. membership.

Likewise there is interest in farming investment in New Zealand.

There are some cases of employers paying 50% of the union dues for horticultural employees in order to have both parties represented. At present the N.U.A.W. is working for an increase in the basic wage to 25 pounds a week, as well as having an active part in the farm safety campaigns, being involved with the Ag. Engineering Institute at St. Ives. They are particularly concerned about bad seat design.

Generally the Unions are an accepted part of the farm labour scene and appear to be working quietly and effectively in their members' interests. New Zealanders should have nothing to fear from greater union influence if there is mutual respect.

They have had compulsory contracts for several years for farm labour in the U.K. These clearly define areas of responsibility for the employee, rates of pay, holidays, overtime rates, and anything else considered relevant to the job. This approach could well be considered in New Zealand.



NEW CORNISH WALL
being erected at edge of road works

Ruth Gasson from the Department of Land Economy at Cambridge has been making some interesting studies into the attitudes of those who live on the land, and the trends in availability and movement of farm labour. Some of her recent conclusions include the following comments:

1. "The largest 1% of farms are responsible for at least 15% of the total output of the industry."
2. "There are indications that operators of very large businesses are not only rejecting social values, but are also being rejected by the rest of the community."
3. "It is the middle scale farmers who attach importance to belonging to the farming community. These farmers follow local traditions and are conscious of local prestige and self esteem."
4. "Between two-thirds and four-fifths of British farmers are sons of farmers."
5. "There may be a gradual polarisation between agricultural businessmen farming very profitably for a livelihood, and city businessmen farming unprofitably for pleasure."
6. "British farm workers are earning only about two-thirds as much as those in manufacturing industry and the gap is widening. But in the Netherlands the social and economic status is similar and therefore there is little migration from the land."
7. "Migration from agriculture tends to be highest in times of full or rising employment."
8. "Between 1960 and 1969 the hired labour force on farms in England and Wales decreased by 38.5%."
9. "In 1971 only 2.6% of the national labour force was engaged in agriculture."
10. "In 1970 the mean age of British farm workers was 35.5 years."
11. "Depending on regions, between 42% and 53% of those changing jobs remain in agriculture. These men are not necessarily slow to change jobs but are less ready to change occupations."
12. "It is the men between 25 and 40 who are most likely to remain on the land. A possible reason is that they are unqualified for a job in those clerical, technical, or administrative fields where the big expansion of jobs has taken place in recent years."
13. "One of the advantages of rural industrial development is that farm workers' families may be able to find jobs without the head of the household leaving agriculture."
14. "For the farmer located near an industrial centre the main problem may be one of labour turnover while in remote areas the real shortage of labour may be more acute."
15. "The most substantial benefit a farm worker may receive is a tied cottage which, in the current days of high rents, may be much more valuable than generally admitted."

Sources: "Rural Industrialisation and Farm Workers in East Anglia", and "Socio-Economic Status and Values of British Farmers."
by Ruth Gasson, Department of Land Economy, Cambridge.

TRAINING There are three tiers in agricultural training in the U.K. At the bottom are the county colleges and the farm institutes which concentrate on technical training and have little academic emphasis. Next come the regional colleges offering technical and management training. Thirdly, at the university level are establishments which are increasingly creating a "specialist cult", and developing people who are not trained to embrace the whole field of agriculture.

At Newton Rigg in Cumberland there are many more applications for training than can be handled. Many of these are coming from young men in the cities who say that they do not wish to spend a lifetime in the drab home and work conditions of their parents. The National Foresters College recently decided that their intake requirements were 20 trained men. For these places they had 1,200 applying for training. In Dorset, and elsewhere, the boys spend a three year apprenticeship on selected approved farms. They are expected to attend Day Release Classes one day a week, for which absence the employer gets a special grant from the Agricultural Training Board. This starts at 110 pounds in the first year, scaling down to 80 pounds in the third. I attended a quarterly meeting of the Scottish Apprenticeship Council in Dumfries. They work a similar length training period and the boys attend 26 day classes a year at a local training centre similar to Telford or Flockhouse. Their employers are recommended to attend a course teaching good instruction, an idea which should be tried in New Zealand for, in my observation nearly all mistakes can be explained by inadequate instructions which have not been clearly explained. The New Zealand Labour Department have several excellent courses and are most willing to run them. As Dumfries is in a so called Development Area, the boy's employer gets a further 100 pounds from the Development Council provided the boy has done his 26 days on either day or block release. Some of the more generous employers give this sum to their boys as an extra incentive. At the completion of their training they obtain a Craftsman Certificate given by the "City and Guilds of London Institute".

Dr Gordon Dixon the newly appointed Professor of Agriculture at Newcastle University, gave this year's Nuffield Scholars a stimulating talk on Agricultural education, in which he voiced concern at the oversupply of technically trained farm managers who are not broadly enough trained in labour and business management. These are fields which would qualify them for non farming work if ever the need arose. He stressed that technology is often temporary and local but management principles are universally applicable and timeless. He felt a need for much more interchange of teaching and practical experience, and that teaching become a temporary rather than lifetime vocation. Urban industry could learn a great deal from agriculture and its good labour relations. However, because it is so big, it can often get away with the mistakes it makes. (This is not intended to be a reason for increasing the size of farms.)

Only 10% of those entering agriculture are getting any training at all. There is a need for training farmer's sons who might not otherwise have the opportunity to get specialist training.

One of the problems in the future appears to be the middle sized farm which does not have enough challenge for a trained man who would not be content to be just a competent milker for the next 40 years. He is the man who often gets out of farming. There may be a trend away from this type of farm in favour of either the small and simple family farm, or the large interesting farm. They have the same problem as in New Zealand of top farmers often being followed by second rate sons. The fault can often be blamed on the father for not delegating young. Waiting for a father to die is as demoralising a start as a man in Britain or New Zealand can have.

MANAGEMENT It is too easy to attribute effective management to having flair or natural ability. It is important to teach oneself to concentrate on results, not work. I was warned by Tony Giles at Reading University not to go away with the idea that Britain was throbbing with management ability. Reading is one of several places where there is good management advice to be found. He stressed that a good manager recognises the need to operate and control a system that works. He does not have to be overconcerned with technical systems, and is aware that different people's results are a function of their technical competence. He has a positive attitude to employing people by knowing what he wants and being prepared to spend any amount of time and money to train them. He has a sense of priority and controls events without letting events control him. Finally it is important that he control the controllable factors.

Ian Reid at Wye College's Centre for Management Studies puts farmers into four categories: new large, traditional large, new small, and traditional small. He believes that employees have different expectations from their boss depending on which category he is farming. They may tolerate one type of man in one type of farm, but the same employee would not accept the same boss on another type of farm. If the boss was to understand the basic commonsense in this there could be many frustrations prevented in employing unsuitables. Farm categories change as business expands and therefore so does the type of employee required. He quoted me the problem facing one of the most progressive dairy farmers in the country. He was concerned at the increasing lack of communication between himself and his men, brought about by the sheer size of the operation, and felt that this was being reflected in falling stock performances. In discussing this problem with his friends at Reading University they concluded that he should encourage his fully employed vets to act as the go-between. For the man on the farm it was good to have his problems listened to by a man of integrity and status, who was making regular visits. For the boss it was a good way to get the feel of what was happening and also to pass his ideas down the line.

There are many co-operatives involved in the trading of farm produce and requirements. In Dorset there is the successful Agricultural Central Trading (ACT) which was set up in the early sixties by the NFU to aid farmers in bulk buying.

Whereas it used to buy produce and calves, it now concentrates on agencies for only a few lines of top quality and low price which it buys for members. This arrangement suits the suppliers who appreciate the large orders and prompt payments. ACT pays great attention to forward ordering out of season, for which they have been able to negotiate much greater discounts than are normally achieved. One line of reasoning is that storage on the farms saves the manufacturer warehousing expenses. Farmers buy a 20 pound share in the ACT and receive no rebates or dividends. In Dorset and Somerset alone there are twelve groups with approximately forty members in each. I consider that the various New Zealand trading groups should investigate this forward ordering and farm warehousing, and so get higher rebates for their members.

FINANCE In Britain there are as many ways used to finance farming as in this country. According to ADAS there is something like 80% in the form of owner's equity. The balance is financed by the banks, or Agricultural Mortgage Corporation (A.M.C.) which appears to be similar to our State Advances Corporation. Interest rates vary considerably according to the timing and duration of the loan, but in general are much higher than in New Zealand.

Long Term lending for from 8-40 years can be handled by the A.M.C. who lend up to 2/3 rds of their valuation on freehold property only. Their rate in early July was 10 3/4%, and this was as high as 11% between April and June. They lend on either a variable rate or fixed rate. If variable, the interest rate is reviewable every six months, and this is linked to the ruling bank rate which is usually 2 to 3% less. In July 1973, applications to the A.M.C. were approximately 30% variable and 70% fixed rates, with the repayment divided fairly equally between the annuity and endowment methods.



POLL DORSET EWES AND LAMBS
NEAR WHITCHURCH IN HAMPSHIRE

Short Term finance is traditionally handled by the "Big 4" trading banks. Their golden rule is not to put more into a business than the farmer's equity. Barclays Bank voiced concern to me about the build up of hard core debt over the last five years. They will just tolerate it in a few cases of long standing clients. With the others they add penal rates of interest of $\frac{1}{2}$ to 1% for that proportion over the agreed limit.

Medium Term finance is readily available from the Banks. There is a swing to this form of finance in Britain, and there are indications that the same could happen in New Zealand. They offer up to 10 to 15 year term loans, and I gathered from one of the biggest farmers I met who uses this form of finance extensively that the banks do not like to see more than 20% of outgoings in the form of capital repayments, interest and rent. He himself finances his many farming enterprises on separate accounts and the capital and interest repayments are automatically paid each month. He feels this disciplines a businesslike approach in his operation. His tight grip on financing and the separation long, medium and short term borrowing has enabled him to become one of the largest farmers in Britain in a relatively short term. He certainly could not have done this without being prepared to borrow.

There are other forms of finance being used such as leaseback. One big farmer I met bought land three years ago for 126 pounds an acre and sold it recently on leaseback for 620 pounds an acre. This gave him money to finance the next of his numerous brainwaves. Others use leaseback more as a desperation measure to obtain finance at a considerably higher cost when the traditional sources have refused. Syndicate Credits Ltd, backed by Barclays Bank, and N.F.U. sponsored, are much used by farmers involved with silage making. Highland Leasing finances plant hire. There are others but the rates of interest are usually higher than the AMC or bank's rates by 3 or 4 per cent.

Overall financing charges have become a major factor in farm businesses. Whereas a few years ago land area used to be the limiting factor, now it is usually capital.

Farm Secretaries The paper work of the management-conscious British farmer is much better organised than that of his New Zealand counterpart. This efficient handling of business has partly been inflicted on him by successive governments who have been pumping subsidies into farming, or causing him to throw up his arms at the paper work involved with the new Valued Added Tax (VAT). He accepts the need for a farm secretary to pay regular visits. These women handle correspondence, file and cross reference, make up wages, keep up cash books, and attend to farm statistics. The farmer is thus spared a lot of routine work and can concentrate more time on thinking, management, or sport. Up to recently there was a 100 pounds grant per year for a three years period to encourage farmers to keep better records under the Farm Business Recording Scheme. Though only a few made use of the scheme, and the grant has been discontinued, the value was stressed of employing an outsider to do this work.

In Wiltshire there is a Farmers Secretarial Service started in 1956 by an enterprising woman Miss Mary Belcher. I consider her story should be heeded by enterprising New Zealand women interested in carving themselves out a worthwhile job in the country. Mary Belcher's job was a year's work on a farm on which her boss insisted that she spend one day a week in the office. She found the work agreeable and saw it a way for a girl to get into farming without having to throw haybales around. From there she went as farm secretary to another farm for three years. With a friend she decided to set up a full time farm secretarial business. They had 20 pounds in capital and went round to the local NFU for prospective clients, and organised the printing and sending out of circulars. Understanding farmer mentality, they followed them up the very next day. Their first day they signed up three farmers; they followed these up with a few more and started. The first six months were a struggle, but by three years the business had grown big enough to warrant setting up an office. In 1961 the Daily Mail and a TV station ran a contest called "Get Ahead" in which people were asked to write an essay on "What would you do with 5,000 pounds". She entered and won, getting tremendous publicity. Though this was some help she admits, she says that personal contact and a reputation for integrity are far more important. She was awarded amongst other prizes a 600 pound accounting machine for her office and with this they branched into doing payrolls. They now have a more up to date machine and handle 1,000 payrolls a week, employing four people.

She married in 1964 and now, besides attending to her home, sees to their staff selections, meets and assesses new client's requirements, and deals with the vehicles that her team of mobile secretaries need. She says it is hard to get the right kind of girl. They must be able to get on with their job unsupervised by herself or the farmer; they must be able to handle a variety of people, and be good with figures. They have now set up their own training course in which the girls are taken round farms and learn the farming terms and jargon, as well as office procedures.

Accommodation is arranged in groups of three or four secretaries strategically sited near their area of work. Visits are always regular and in no shorter periods than half a day. They insist on filing cabinets and vertical holders. They constantly strive for simplicity and hence have no grading of secretaries. These earn around 1,300 pounds a year which is quite a bit less than they could earn in town, but is more interesting. To get round the problem of continuity, which they rate as most important, the women are tied to a two year contract, and this tends to keep the flightier and breeding types out. They feel that girls straight out of secretarial colleges are not really suited, as they have not yet learnt the discipline of work and to work unsupervised. Those who think that the job is one of taking shorthand on a horse have to adjust their ideas.

There are large numbers of farmers in this country who would avail themselves of such a service I am certain, especially if it was somehow dovetailed to fit in with existing advisory services.

Consultants

The wise farm manager today is prepared to make use of any skill that may help in the more efficient running of his farm. The more successful are prepared to acknowledge how little they know. This was noticeable in talking to the best British farmers who would spend nearly as much time asking questions as answering them.

ADAS is by far the largest organisation in the advisory field. It is an offshoot of the Ministry of Agriculture, Fisheries and Food, and is organised into 9 regions and, in a rare exception to Parkinson's Law, recently cut back its staff from 6,000 to 4,500. This "rationalisation" has caused a real lowering in morale which will take time to right itself. They are concentrating less on nuts and bolts advice and are now giving more emphasis to research and development, assuming farmers' reluctance to pay for research. Every farmer in the country is within around 20 miles of an advisory office which provides similar services as in New Zealand, and good use is made of their service. Since the reduction some consultant work has been delegated to private consultants.

Private Consultants

Largely because of the different land tenure in the U.K. and a high proportion of absentee landlords compared to New Zealand, there are very few equivalents to the private Farm Improvement Club advisors as we know them. Their equivalents are found in the large firms like Lugg and Gould, Knight, Frank and Rutley, Strutt and Parker, and numerous land agents. Much of their time is spent in negotiating rents with the tenant farmers, and collecting them for a consideration. Many farmers look upon these firms as an expensive luxury.

One farmer I visited was having serious liquidity problems on his family-owned, large, arable farm. The keen and capable son persuaded his family to bring in one of these large firms to straighten things out. They spent an intensive fortnight combing every aspect of the property and produced a glossy expensive report with bold recommendations. They pointed out the farm was over-staffed, undermechanised and was equipped with too much inadequate underused plant. This made his fixed costs too high; they had overborrowed; were renting too many outlying farms, the supervision of which was taking up more time and travelling than necessary. They recommended changing their bankers, changing their accountants (to themselves), disposing some of the outlying farms and cottages, sacking four men, and refinancing the business. This has all been done in a short time and the immediate result has been halving per acre fixed costs from 64 pounds to 37 pounds 68 p. It was a good example of wise use of consultants experienced at restructuring farms. Now in a strong position to arrange finances, the farmer admits the main reason for bringing in the consultants was to add their name to a programme which he knew was necessary. In effect they lent respectability to it, for a cost of 600 pounds.

Factors

In Scotland the situation is slightly different and more personal. The land agents involved in management advice are called factors. These influential men have a number of clients whose land interests they attend to.

They reminded me of the best private New Zealand consultants with the difference that they often handle all the accounts as part of their service, besides covering a much wider territory. Personal touch is considered very important, and this is one of the main reasons they are so effective.

There are a diminishing number of commercial firms offering advice, and who do this as a means to an end which is to promote their products. Thus I.C.I. have their "Recorded Farms", "Mascot" and "Cashplan" schemes, and demonstration farms. Many of these are worth visiting. I attended a "Finance and the Farmer" discussion they organised in Hampshire one afternoon in March during which some interesting figures were quoted.

1. The rise in fixed costs in £/acre since 1967 has been:

	1967	1968	1969	1970	1971	1973/4
£ 30	32	32	35	40	48	

2. A theoretical dairy farm budget for the current year:

Gross Margin - Dairy Cows grazing 144 ac. producing £110 milk	15,840
Dairy young stock 70 ac. @ £70	4,900
Winter wheat 100 ac. @ 51	5,100
Spring barley 236 ac. @ 38	8,968
FARM GROSS MARGIN	£34,808
LESS Fixed Costs at £48 ac.	26,400
Management and Investment Income	£8,408
(£15/acre)	

3. Enterprise Gross Margins

	1970	1971	1973/4
Dairy cows, per cow	£104	£134	£110
" " acre	81	107	87
Beef suckler cows, per cow	34	61	70
" " acre	20	40	50
Ewes, per ewe	6.5	10	11
" " acre	21	31	40
Potatoes	131	132	130
Winter Wheat	48	51	51
" Barley	32	38	38
" Oats	35	40	40
Spring Wheat	39	44	46
" Barley	35	38	38
" Oats	31	38	38

Foot note: Philip James of ADAS believes these Gross margins could double by 1968.

Another firm involved with advisory services and demonstration units is B.O.C.M. Silcock whose interests are intimately tied up with concentrate feeding of livestock. They produced some interesting figures about the profitability of different feeding systems, based on the rolling average in February 1973 for dairying.

Feeding system	Gallons per Cow	Margin over Concentrates
Control fed silage	1157	£173.79
Self fed silage	1213	183.17
Hay (the most usual system)	1233	173.28
Fodderite and grazing	1181	154.24
Zero grazing	1113	157.64

They stressed that these figures should be taken as a guide only and not to take too much notice of the relative margins.

The national average per head of cows milked is 870 gallons
The national average for Gross Margin over concentrates is £140
The national average for Gross Margin per acre is just over £100

The reason for including all these figures is to show the profitable nature of dairying in the U.K. which is why the bulk of farms suited for it have a dairy unit in their system. Also the figures in these lists indicate the high standard of stockmanship, which would justify stockmen developing interest in their own farm statistics. Nearly every farmer can tell what is his production per head and what his "margin over concentrates" is. Unlike the New Zealanders, there are very few who can say what is their production per acre. This should receive more attention. They should also make fuller use of their pastures, especially when the cost of feed grains has become so high.

I visited many large farms and would like to mention a few details about some of them to give an idea of their scale, and diversification.

Richard Matthews farms at Good Easter in Essex. 469 acres of which 220 is in wheat 125 ac. barley, 35 ac. beans, 45 ac. potatoes. He runs 100 sows. The farm has 5 men, 4 tractors, and a 450 ton grain dryer shortly to be enlarged to handle 650 tons. His father used to employ 22 men and 22 horses in 1919. He is involved with local farmers in co-operative marketing and group buying.

Dennis Weston farms about 3,200 acres near Alford in Lincolnshire amongst his many enterprises. 4 dairy units each of 80 to 90 cows and a 140 head beef unit. Grows wheat, potatoes, sugar beet, broccoli, cauliflowers, cabbages, 100 ac. Brussels sprouts grown from hand pollinated hybrid seed coming from Japan at 60 pounds a pound. One of Britain's outstanding managers of land, labour and capital. He employs 35 farmhands many of whom are women. The employees averaged 43 pounds a week last year, and as many of them as possible are on piecework. He started farming as a tenant in 1947, and came from a non-farming family.

Simon Chick manages six farms totalling 3,800 acres near Dorchester in the West Country. There are 5 dairy parlours milking an average of 105 cows each; 353 heifers and calves; over 1,000 beef cattle; 2,500 sheep; and 2,500 pigs being fattened, in a good piggery next door to his grain dryer and feed mixer. There are 40 people involved in running these properties and, wherever possible, overtime, incentives, or contracts are used. 3 week holidays. Enterprises scaled to fit man units. Employs some single men who are expected to arrange their own accommodation around the district. Several possible suggestions as to where they might stay are made, and the first fortnight is recommended to be on a trial basis. The system works. Dairy recording in conjunction with the MMB. His dairymen sign in their employment contracts that they must keep farm records. His tractors are kept for one year only then are replaced.

The Cambusmore Estate in Sutherland has 18,000 acres of land similar to the South Island runs. 2,500 - 3,000 sheep; 180 beef suckler cows to be built up to 250 in two years; 200 ac. barley and oats. They employ 14 men including a gamekeeper and his assistant.

Lulworth Castle Farms is a tenant partnership intensively farming 4,000 acres in Dorset; it grows seed and grain; sheep; and cows, in 5 units of 85 to 110 cows. It keeps a three year plan to consult on all occasions. All enterprises are budgeted quarterly, and a monthly cash analysis is made. 25 tractors. 8,000 tons of silage. An interesting partnership of tenants and landlord.



HIGHLANDER CATTLE near ABERFELDY

(2) DEVELOPMENTS IN ANIMAL BREEDING

BEEF BREEDING

Various accidents of history and geography gave Britain its early lead and influence in world cattle breeding. A wide variety of different breeds have been established there for centuries. As the industrial revolution got under way the essentially rural community began a drift to the towns which is still occurring today. These people needed feeding, and farming grew from simple family and communal effort to the complicated specialised operations of today. As industry became mechanised and the physical demands were reduced the community's food requirements have altered. For them the farmers need to produce a leaner meat.

The industrial revolution brought a need for raw materials which Britain did not possess, and food which Britain was unable to produce. Many enterprising colonists went to temperate climates and took along a few cattle with them. The obvious ones to take were the ones near their port of departure. From these beginnings the cattle were multiplied into the great herds of North and South America, South Africa, Australia and New Zealand, or wherever else the British settled. Until recently the source for their seed stock was the U.K. The European farms took longer to mechanise and as a result clung on to the draught breeds and bred them for strength and muscling. By accident rather than design they have bred cattle that now interest the world. This interest has been largely created by slick merchandising combined with strong co-operative breeding and marketing operations, which are not nearly such a feature of their counterparts outside Europe.

It is a myth to believe that Britain leads the world in cattle breeding today. However it would be foolish to dismiss their efforts outright. Few countries have grasped the value of cross-breeding as well as have the British. They pioneered artificial breeding, and recently pioneered ova transplants. They look as if they will pioneer twinning of cattle, and the deep freezing of viable eggs. As with many other British discoveries it may be that the world adopts them faster than they do themselves.

Dairy Beef By far the greatest proportion of home produced beef in the UK comes from their dairy herds which are monopolised by the Friesians. It is a breed which is highly suited to beef production due to its fast growth and late maturity which precludes it from laying down wasteful fat as a young animal. There is a strong market for calves from these dairies, and some highly organised calf collecting schemes. They are sent to a host of calf rearing units with a wide range of facilities and management. Some have airconditioning, many have automatic feeders, and others run around in the yard. Those with a thorough approach are very health conscious and this is reflected in their low mortality rates. I was surprised either not to find more multiple suckling as is practised in New Zealand. Many housed calves are given routine doses of DYKTOL which is an effective preventative against "husk" as they call lungworm. It is a drench which has to be used immediately after

manufacture. Nilverm is regarded as a cure after infection. The general experience is that it pays to keep calves off grass until they reach 400 lbs. This rearing operation makes them quiet and used to later housing when being "finished" a word one man preferred to "fattened". His feed rations give an idea of how beef cattle are fed. His calves cost 50 pounds, grow at $1\frac{1}{2}$ to $1\frac{3}{4}$ lbs a day on a diet of hay, barley, protein supplement and $\frac{2}{3}$ rds of them leave the calf sheds at 500 lbs. They then go on to ad lib silage and use 5 tons/head or 1 ton/month plus 8 lbs of concentrates a day. He feeds them urea till they reach 750 lbs liveweight. He also uses "Feedmobiles" extensively. These machines mix -

7 cwt barley
3 cwt barley straw
1½ cwt molasses
½ cwt protein supplement (urea based)

This is put through a $\frac{3}{8}$ " screen. He stressed the need for adaptability. Thus his cattle in a drought would go on to an ad lib ration in which case "bloatguard" would be added. One man and a boy feed 540 cattle. Unlike most of his neighbours who put a match into theirs, he bales and uses 100,000 bales of straw.

Beef Sucklers are what we know as beef breeding cows. The high price of beef has caused many farmers to set up beef suckler herds in the last few years. They use the many breeds available to them. Many feel that the ideal is a crossbred cow, which more often than not is the Friesian Hereford, bred from the dairy herd. The further North one goes, one sees more crosses of the traditional beef breeds, and less dairy bred beef. Each different region has its fads. Thus one finds South Devons in the West country, but not around Newcastle where the Charolais have a stronghold. Lincoln Reds are in Lincolnshire, and the blue greys in the North of England and the South of Scotland. The high cost of breeding stock and wintering means that the more cost conscious farmers are often reluctant to switch to suckler herds at present. (Compare the relative gross margins of beef with dairying and other options on page 20.) The peaty nature of much of the hill country and the long winters prohibit many from rearing cattle. A new factor has arisen in the high cost of both locally produced and imported feedstuffs. This high cost of production to which they are used in the UK, emphasised to me how important it is to keep our own costs of production as low as possible, and our rearing as simple as we can. As soon as a system becomes complicated it becomes very difficult to simplify at a later date.

Cross Breeding With the exception of the Friesian there are few straight bred commercial herds as we are used to seeing in New Zealand, and the same could be said for sheep breeds too, as well as pigs, poultry, and even some of the newly set up trout farms. They fully appreciate the benefits of controlled crossbreeding to make the fullest use of hybrid vigour.

Pure Breeding in Britain is almost solely confined to the stud breeders who are the source of crossing sires for the commercial man. These men are usually closely connected to the breed societies whose progress is not keeping up with the times. In the

past they have allowed themselves to become preoccupied with early maturity. They have been too slow in appreciating the value of artificial breeding. They have allowed personality cults to grow to the stage where each of the three main beef breeds in the years since the war virtually became over influenced by one breeder, from whose herd stud sires went all over the world. It is doubtful if any herd, however good, can produce more than a small percentage of top animals in any one year. They also did not appreciate that these top animals must remain in one's own country if a breed is to be improved. One is left with the distinct impression that the breed societies have been much more concerned with the welfare of their members than the welfare of their breed. Their publications are full of sale reports and averages but short on any performance information about the breeding merit of their leading sires and females. Applied population genetics has hardly been considered in the pig and poultry industries. They could learn much from New Zealand by having a good look at the long term group breeding schemes which have started in the last few years. They should go back around the world and bring back the top genes they sold so profitably. In the past.

Exotic Beef Breeds The interest in these breeds in Britain has been slower starting than elsewhere, but is now on the increase. These large late maturing European cattle grow at faster rates than the smaller British breeds. It is important to analyse their merit once all their promotion is stripped away. The consensus of opinion of the many experienced cattle men and scientists I asked was that there may be a marginal advantage in using these breeds in situations where they are fed really well. The question resolves down to which breed produces the most meat from the minimum feed? It appears that for animals on the same food and with comparable rearing there is negligible difference between conversion efficiencies of food to muscle protein. This applies for a wide range of animals including sheep, deer, and cattle. The difference comes when one compares their ability or inability to lay down fat. The so called exotic breeds being generally later maturing, lay down fat later than the British breeds.

On farm recording work done by the M.L.C. indicates that all breeds rank in the same order for performance no matter what the beef system employed. Thus the Charolais tops the list on intensive cereal systems, semi intensive grazing systems or fattening units using roughage and concentrates. This means that genetic potential for growth is expressed under a variety of conditions.

One should perhaps qualify this by saying that if management is particularly poor, then European breeds would probably react differently to the native British breeds. The early maturing breeds such as the Hereford would be able to overcome a set back and still reach maturity at a light weight. The European breeds, and indeed the late maturing British breeds like the South Devon and Friesian, will not overcome such set backs so readily. They would make growth without putting on flesh and this means that they

would need to be slaughtered at a greater weight and at a greater age.

It is important to appreciate the value of fat as a reserve or buffer against stress feeding conditions such as are found in our hard hill country where the winters are long and the feed is of low quality. It would be unwise to forsake the British breeds in this situation. Any modification of breeding requires modification of the management, and on hill country in particular it would demand improvement of the feeding.

As far as the breeding of the purebred exotics go in Britain a somewhat farcical situation has developed. One could call it "Breeding by Ballot". The profits made from the selling of the Charolais attracted many people into the breeding world. Many of these men can hardly tell the difference between a racehorse and a donkey. They pay their subscription to the new breed society and apply for animals coming out of quarantine. As soon as the offspring are old enough they are sold and shipped overseas. The only animals being left behind are those that do not pass their veterinary tests or are just plain inferior specimens. Is this the way to breed animals? Surely a good breeding female, like a good wife, should be kept at home. There is a real danger that these new breeds will head exactly the same way as the British breeds, unless the leading breeders see to it that the best are kept.

I made time to go and see how the breeding and marketing of two European breeds is being approached, one in France and the other in Germany.

Limousin Limoges is on the same latitude as Dunedin, in the Haute Vienne province of France; it is in the centre of the Limousin country. The region is as close to the New Zealand type of gently rolling hill country as one could find anywhere in Europe. The muscular Limousin cattle are single suckled and not used for dairying. The breed has always been carcase orientated and has been doing well in livestock shows in France back to 1857. Recently the breed society has instituted compulsory performance control and has strengthened its organisation in an interesting manner. In 1957 a group of breeders, who were in despair about the future of their breed and the prices they were receiving, got their heads together and set themselves a period of ten years to straighten things out. A group of 28 members, now running some 2,000 Limousins, started taking account of performance figures and meat yield. They set about promoting the breed. One man sent a small shipment to the Argentine which attracted attention after a time. The group concentrates on marketing and sends its leader round the world for nine months in a year promoting the breed and their interests. There are another nine groups all larger than this one and these are now linked to a larger organisation called COFRANIMEX which also markets sheep and pigs. Louis de Neuville is the man who set this all in motion. He believes strongly in a close connection between breeders and their breed, and that neither can get anywhere without the other. He is sure that a group must not be too large or it becomes too impersonal. It must be small enough for the meekest member to get up and air his

views and problems without discomfort. The group must be profit orientated or it loses interest in the job at hand. It must not go too fast. As he puts it: "Dogs hunting have to smell one another, learn who is nice, who is fast, who is slow". The members must be compatible. He feels it is important for these small groups to co-operate with other similar groups. Apparently this co-operative approach is one of the features of French farming.

He also had interesting views on manpower in farming. In their sheep breeding schemes there is a shortage of skilled shepherds with 142 men looking after 60,000 sheep. In the Limousin region, 63% of the farmers are over 58 years old, and there are very few young men coming into the industry. Simultaneously there is growing disenchantment with life in the towns. He thinks there should be much more effort made to employ women in agriculture, that more use could be made of their motherly qualities in helping to look after animals. He commented that the absence of women in a farming area is one of the main reasons that young men do not wish to stay. His comments are almost as relevant to the New Zealander as to the Frenchman, and those involved in regional development could do well to consider them.

In the various herds we saw, the calves were getting a ration of concentrates by creep feeding. This breeding group is now dedicated to the radical idea, for Europe, of keeping their animals outdoors all the year. One mob of calves, not kept for breeding last season, was sold at 350 kg and a record 11 francs/kg liveweight or \$2.00 N.Z. approximately. This year it was back to 7 francs/kg. Many such calves go down to the feed lots in Italy for finishing.

Another herd was weighing their calves at the 100 day point. These were doing very well and averaged 228 kg (503 lb). The Limousin is a fine boned animal with excellent muscling, and intermediate in size between the Simmental and Hereford. It should be considered seriously as a terminal sire. It does not colour mark as well as some other breeds. In other parts of the world I detected less interest in it as a breed than the Charolais or the Simmental. Its temperament is not really as placid as the Simmental.

Simmental Immense interest is being taken in this breed all over the world. In the same way as with the Limousin this has been largely brought about by "merchandising", and that done by the Germans would be the most extensive. However it is easier to "merchandise" a product that has useful qualities than one that has not. This breed has size, milk, and temperament. We visited Bavaria to get an idea of what was happening. The operation there is masterminded by a powerful organisation called IMEX. In 1949 all the breed societies dealers and agents said they wanted a Company to handle livestock exports, most of which have been cattle over the years.

In 1955 they exported 1,035 cattle to 10 countries
 " 1965 " " 2,048 " " 19 "
 " 1972 " " 22,492 " " 36 "

Since 1952 they have only been handling animals with a four generation pedigree. At present Friesians account for the greatest number, the Simmental (Fleckvieh) next, then the Brown Swiss. IMEX has a small board, a staff of 35, and no Government interference. In 1972 they had a turnover of Dm 60 million, and this year they estimate it will be Dm 90 million.

It pays to be organised.

If a foreigner wishes to buy German cattle he contacts the Foreign Bureau which delegates the job to IMEX. Having found out the specifications and approximate price range the buyer requires, IMEX then contacts the breed society which selects a number of animals fitting these requirements, then quotes full costs and arranges shipping etc. The breed society deducts from the farmer 4 to 5% of the price. Showing of cattle in Bavaria is nearly finished. Of the 4,500,000 Fleckvieh there are 270,000 registered, and all information about their individual breeding and their production records are kept under the same roof. For progeny tests they use 30 - 40 daughters. Finding a high correlation between the 100 days weight of milk and the 365 day yield, they confine their testing to three visits over the 100 days.

They use IBM systems for their excellent recording. No cards get punched. Instead they use magnetic pencil which saves having mistakes made by the girls processing the records. 5% of the matings are planned and selected by computer. For these the farmer obtains monthly reports and guarantees when the cattle are auctioned.

One farm, large for the region we visited, and which works in closely with these breeding programmes gave some idea of local farming:

75 ha (185 ac) growing sugar beet, swedes, maize for silage, wheat barley, and 33 ha (82 ac) zero-grazed pasture. 35 cows and 35 - 40 followers. Milking and feeding takes 4 hours a day. The farmer gets between 3000 Dm and 5000 Dm for his Simmental heifers sold, and 6000 Dm - 7000 Dm for any bulls that may go to an A.I. station. The cows were yielding 5300 kg of milk a head (11,684 lbs). The average sized farm for the area is only around 25 ha (62 ac) and runs about 10 milking cows.

Superficially this may appear to be a much more difficult situation in which to conduct a progressive breeding programme than in Britain, but the pliable German farmers do what they are told which means that an effective large scale breeding programme can be implemented. No bulls appear to be castrated and all are reared for veal, or to slaughter at 18 months.

Because of their co-ordinated breeding programmes, centralised marketing, and intensive worldwide promotion, the Simmental breed has quickly made a mark on the world and many for its breeders. I consider it has a great future in Australasia.

Artificial Breeding The following figures give an idea what different breeds are being used through the Milk Marketing Board (MMB) and Scottish Milk Marketing Board (SMMB).

BEEF INSEMINATIONS BY THE MMB				BY THE SMMB	
BREED	1971/2	%	1972/3	%	May/June/July 1973
Hereford	418,678	60.9	361,714	53.0	3,721
Charolais	101,360	14.7	112,170	16.4	2,711
Aberdeen Angus	104,935	15.3	101,965	14.9	2,720
Simmental	24,634	3.6	45,915	6.7	4,543
Devon	19,560	2.8	17,518	2.6	
Limousin	-	-	11,402	1.7	-
Welsh Black			9,865	1.4	27
South Devon	5,337	.8	7,316	1.1	30
Sussex	5,503	.8	5,837	.9	28
Other breeds	7,641	1.1	9,098	1.3	3
Beef Shorthorn					1,146
Dairy Shorthorn					142
Maine Anjou					100
Blonde D'Aquitaine					57
Chianina					200
Galloway					141
Belted Galloway					50
Highland					27
Lincoln Red					35
Luing					41
North Devon					101
Gelbvieh					11
	687,648		682,800		15,834

Comments:

1. Note the dominance of the Hereford breed in the MMB figures. Also that its share of the total is being eroded by the exotics.
2. From the MMB figures there were 169,487 inseminations (24.6%) done with the exotic breeds, whereas from the SMMB figures there were 7,622 inseminations or 48.1% done with the exotic breeds. One wonders whether the large proportional difference is because the Scots are more conscious of beef production than the English or Welsh, or equally probable it could be because the Scottish Milk Marketing Board has been more aggressive in switching to the exotics.
3. The figures show the relative popularity of the breeds clearly, though it must be pointed out that a few of the European breeds have only just arrived.

4. These are insemination figures. One must take into account the large number of natural matings made.
5. The number of inseminations made in beef suckler herds would be small.
6. There is no doubt that the Charolais and the Simmental are there to stay and will hold a larger part of the market.

Of the 1972/73 dairy breed inseminations with the M.M.B. the break down is:

Friesian	1,069,396	89.1 %
Guernsey	41,285	3.4
Jersey	37,632	3.1
Ayrshire	30,809	2.6
Other Breeds	21,716	1.8
	1,200,838	Total Dairy inseminations or 63.6%
	687,648	" Beef " 36.4%

Technically the insemination methods used appear to be identical to that in New Zealand with the main difference being that there is no fresh semen service and all used is deep frozen. There is some interest in the mini straw which some claim gives a marginally higher conception rate because of the quicker freezing and therefore lower sperm loss.

Ova Transplants This field is possibly the most exciting development in British animal breeding today. At the Unit of Reproductive Physiology and Biochemistry at Cambridge is a team of brilliant scientists. The implications of their work have been and are enormous. It was here that artificial breeding was pioneered. They are now concentrating on ova transplants. Being injected with prostaglandin recipient cows can be induced to cycle when required. Other cows are "superovulated" so they produce anything up to 26 eggs at a time. These are then surgically transplanted into the recipient cows. The whole operation is expensive and highly technical. The timing is critical. For example they are getting the following success rates:

With EXACT Synchronisation of females a 90% success rate	"	"
Plus or Minus one day	57%	"
" " two days	40%	"

These are for surgically operated transplants. The three main problems are:

1. To find a way to effect non surgical transfers.
2. The availability of eggs and cows.
3. The freezing of eggs.

There are considerable problems from infection when one attempts non surgical egg recovery.

It appears that the most probable source of eggs would be at the abattoir where they would be extracted, fertilised in vitro, and deep frozen. They have not been very successful in freezing cattle ova. However with mouse eggs between the one and eight cells stage they have achieved 75 - 90% survival after thawing. With sheep they have

achieved one in ten survival. When or if the techniques can be mastered, it will be possible to produce calves of any breeding from the recipient cows.

There will be the possibility of producing twins from cows, which would be an effective way of producing many more beef animals than at present. This will raise a problem with the mixed twin females, 95% of which will be freemartins. These can be blood typed to determine whether they are or not. Another problem which will need careful thought is whether the cows, which are required to produce twins to order, will be physically capable of doing so. It may demand a modified breed.

One interesting possible use of ova transplants is in the progeny testing of bulls. Say one was testing four bulls, it would be feasible to mix their semen, use the mixture to fertilise a superovulated cow and transplant the eggs into several recipient cows. Their offspring would be of near identical age, and have a common dam. They could be bloodtyped to determine which sire they were by. In this way far less numbers of animals could be used for the progeny tests. Mr Rowson, the leader of the unit, recommended to me that this should be the line along which New Zealand should apply ova transplants for a start.

Another application of their work is in the heat synchronisation of breeding cows by the use of prostaglandin or its slightly modified analogues. If one is aiming at getting 50 on heat a day, one would inject about 60 with the drug. Overdosing will not hurt. The injection should be intramuscular in the hindquarters. Out of the injected 60, some 50 would come on heat within two or three days, AS LONG AS THE COWS HAVE A CORPUS LUTEUM IN THE OVARY. Ten days later one reinjects those cows that did not come on heat. These are the ones that were either on heat, or just getting over it, when the first injection was made.

This system is excellent too for sheep, taking two and a half days. Horses can show slight side effects when prostaglandin is used to bring mares into season. They should be inseminated with raw undiluted semen to obtain good results.

Their work has shown that frozen semen does not last as long in the reproductive tract as fresh semen. They therefore commented that superovulated cows should receive two inseminations if using frozen semen. Fresh semen is preferable.

In conclusion it is important to understand the difference between these two main techniques:

1. Superovulation with pregnant mare serum (PMS) is for stimulating a female to produce a number of eggs which may be used by the scientists or speculators for transplants.
2. Prostaglandin is for heat synchronisation. The drug has been tried and proved to be practical for commercial use. One of the main delays at present is because the manufacturing companies are trying to establish their patents. If or when the drug reaches the

market it could mean that an A.I. programme could be done in a fraction of the time taken at present. It may mean that a much greater number of teaser bulls will be needed. This does not automatically mean that it will be economic to do so.

SHEEP BREEDING The reason for the relatively high sheep performances in the UK can be summed up in two words: cross breeding. Up to date there has been not very much done in the breeding of sheep in most parts of England, because more interest is taken in the other branches of farming. However on the hard hill country of Wales, the North of England, and much of Scotland the sheep have considerable importance. To a large extent their retention in these places has been a social and political exercise and ironical when one considers the evictions. Many of these regions are depressed areas in the economic sense and subsidies have been the main reason for keeping the sheep industry going. The sheep has suddenly become profitable again as it has in the Antipodes.

Without the subsidies in recent years the sheep industry in Britain could have folded up. The down country men rely on the hill men for their replacement stock to a large extent, in much the same way as in New Zealand. Wool is a very secondary consideration to the British sheepfarmer. He has a large number of breeds to choose from and, as with beef production, there are many regional fads. Hence one finds on the hills Welsh Mountain sheep, North or South Country Cheviots, Swaledales, Hexham Leicesters, Scottish Blackface (a remarkably hardy and fertile breed), and some good down country breeds like the Cluns, Dorset, Hampshire, and others. This sheer profusion of breeds makes it simple to crossbreed. But also, because of the relatively small populations of many of the breeds, it is not at all easy to achieve any improvement owing to a lack of selection, to which the small size of the individual flocks contributes as much as the breed population.

There are a few individuals and institutions however who are making real efforts to improve the productivity of the sheep in the U.K. To a large extent this has been brought about by the introduction of a few notable European breeds.

The Finnish Landrace is possibly the most interesting of these newer breeds. It is a small sheep of around 50 kg liveweight, and has a poor conformation and spindly anatomy. These sheep have attracted the speculators, many of whom have lost a lot of money with them. The reasons they have cost money should be told to New Zealanders who may be contemplating the use of this breed. The main purpose for using this breed is to improve fertility of a flock of another breed. The Finnish Landrace (Finn) is a most prolific sheep, whose original purpose in Scandinavia was to produce a large number of lambs for slaughter at birth for skin production. There was no question of trying to fatten them, which is an impossible job for the best of shepherds. The flock at the Babraham Institute have averaged 300% lambing with some producing as many as 5 lambs. ABRQ in Edinburgh quoted a 320% lambing potential from the purebreds. However they are only capable of rearing 200% themselves. The problem is how to rear the extra lambs? Their lambs' will to survive is better than many breeds. The ewes will breed as early as six months.

This breed can only be of practical value for not more than a quartercross. It must be used only where feed is not a limiting factor to the present fertility of the flock. In conditions of feed stress it would be foolish to use this breed. If a farmer is tempted to go further than the quarter Finn cross, he must start to treat his ewes more as he would sows. ABRQ have been supplying Leeds University with Finn Blackface cross ewes which produced a 270% lambing this year. Also Finn Westphalian cross ewes produced 210%.

ABRQ have been doing much work on the crossbreeding of sheep to raise performances. One flock they have now closed at the F2 stage is a blend of 50% Finnish Landrace with equal portions of Dorset horn, Westphalian, and Border Leicester. They now consider they could have left out the Dorset Horn. The resultant ewes have been sent to Staffordshire to a good feeding commercial farm and are being mated to various fat lamb sires. Intermediate results are being obtained from the Oldenburg, Texel, Ile de France, Suffolk and Dorset Down. While the Oxford Down is showing the top growth rate, at the 30 lb point it is only half finished. ABRQ's Genepool flock, as it is called, is producing a much more productive ewe. As they commented though, it is easy for anyone to make a flock of 100 work, but what about 1,000?

A few comments are needed on some of the other breeds being used.

Oldenburg ABRQ are unsure of its role. It is being used as a fat lamb sire and produces acceptable killing weights up to 35 lb but is not being used as a breeding sire.

Ile de France This breed has a very large eye muscle area, and a tendency to run to fat once it gets over 40 kg liveweight when mated to the Cheviot Blackface ewe. Good carcasses.

Texel This breed appears to have 5% more eye muscle than any other breeds. It has a slightly better leg to shoulder ratio than the Suffolk crosses whilst the growth rates are similar.

East Friesian A prolific breed which produces 250% lambings in Germany where it is used in small flocks and milked. It has its origins in the Romanov and is akin to the Finnish Landrace in type. It is larger than the Finn and has more milk. The lambs are bad feeders and die readily.

One of the best points that emerged from the visit to ABRQ was the need for the extension work for this research to be well thought out. They have experienced problems through doing this work at unsuitable places. Farmers can be classified into three groups for this purpose. There are those really progressive and successful farmers who offer to do this extension work. The problem arises that these men are often too reticent and all the useful information they obtain stays with them and their immediate circle rather than getting out into the farming community where it is needed. Then there are the enthusiastic but often less competent farmers who offer

their services to do the work. Their management does not match their enthusiasm and often they are clutching at straws, and expecting that these new breeds will get them out of trouble. More often than not it is the other way round. The men who should be doing extension work are the middle of the road men who are loath to try anything that has not been thoroughly tested out. They make few mistakes in their management as a result. This point should be carefully considered when these new breeds are set loose in New Zealand.

As with beef breeding it is important to separate the commercial from the real merit of these breeds. It is also vital to be aware that any change of breed implies automatically a modification of the management.

Meat and Livestock Corporation (The MLC) This organisation was founded in 1968 and has aroused mixed feelings as to its usefulness. It is deeply involved with breeding programmes of livestock and carcass classification schemes. It has organised itself into similar regions to ADAS. To some extent it has become one of the leading extension arms of the research establishments, especially since the cut back in the ADAS payroll. It is closely involved with recording farm livestock production. It considers it necessary to record about 2,000 farms to obtain information for both individual and national benefit. It has a tendency to attract paper enthusiasts in this 2,000, but these usually include the pathfinders too. It provides services to registered breeders, and helps them in weight recording. At present 1,000 pedigree breeders, who are producing half of the bulls used, are involved with the MLC. It became involved in the scrapping of the bull licencing scheme and was criticised for its stand. The MLC have grave doubts about the wisdom of progeny testing anything including the top bulls in the AI centres. It became involved in many of the issues of the day. It is staffed by a competent team eager to serve the livestock industry. It has pilot sheep recording schemes taking in small numbers of as many breeds as possible.

Animal Breeding Research Organisation (ABRO) Some of the best research work in animal breeding in the world is being done at ABRO near Edinburgh. Some of its work with sheep breeding has already been mentioned. Dr Taylor has been throwing around fairly radical ideas about comparing breeds. He feels that selection within a breed is far too slow, and that it is therefore vital for scientists to spend more time measuring breed differences. The whole world's research literature for the last decade or so has shown obsession with heritabilities, which is one of the reasons for ABRO's change of approach. Dr Taylor contends that it is much more important to deal with a population than with a breed, also that experimental emphasis should be changed from maximum accuracy to maximum probability. There are two other thriving schools of thought at ABRO showing enthusiasm for growth rate and size, and one for early breeding. Having them all under the same roof acts as a considerable stimulus to both scientist and visitor.

Hill Farming Research Organisation (HFRO) This is an effective organisation based in Edinburgh and closely connected to hill farming research and development. It is doing some good work on nutrition and fertility. It is encouraging the Scots to use the New Zealand approach to mob grazing and fencing. This will take time. It is encouraging a swing to beef cattle on the hills, especially on those upland farms with a greater proportion of "inbye" (as the improved fields are called). It is very emphatic that the hill country should be used in the summer and the inbyes kept for winter feed provision.

It has a number of interesting experiments into the body condition of ewes and tests how fertility is affected under hard hill conditions.

It encourages farmers to reseed extra land after cultivation. This is often done with rotary cultivation in order to retain the little fertility present on the top. The results are good in the first year or two but afterwards showed a rapid fall off in quality. The gospel preached is that it does not pay to fertilise this type of ground with other than a dressing of lime and slag (Phosphate) at the establishment stage. It is uneconomic to apply nitrogen on these high pastures. Many grossly underestimate the value of close subdivision in these development situations. This is unfortunate as much of the reseeding qualifies for sizeable grants which are often wasted because of reversion. I noticed the same problem in the hills of Northumberland, Wales and Scotland.

These hill men become very upset with dead molinia, a grass which grows in the first half of the summer and becomes an unpalatable mass of dead matter later on. It seemed to me that cattle would provide the control they are after, but fences will be needed and courage to stock cattle long enough to solve the problem. Much of the molinia problem could have been prevented had there been some control on the overall hill management in the past. Indiscreet burning of the hill country, coupled with classic over-grazing with sheep, have left many of the hills in a sad state. They think nothing of fertilising their forests by air but have barely considered the benefits from topdressing their hill pastures. I saw some notable exceptions in Sutherland and Argyll and do appreciate the special problems raised by long winters, climate, peat, liver fluke and remoteness.

The Rowett Research Institute at Bucksburn near Aberdeen concentrates on research in animal nutrition. It has an interesting FinnX Dorset Horn flock of ewes being mated to the Suffolk, and they are breeding between 3.7 and 3.8 lambs per ewe per annum. The offspring are weaned at 4 weeks which is as soon as they can be put on to concentrates and their ruminant system is starting to work. There is a returning interest in swedes, which the Rowett Institute contends are a more efficient way of producing dry matter per acre than are the conventional cereal crops grown for stock food. With modern sprays, precision drills, lifting machines, and sprout depressants, much of the old drudgery has been removed, though swedes are still a dirty crop to handle.

Red Deer

The work at the Rowett Institute with Red Deer has, to a large extent, been overpublicised, and misinterpretations have been made especially about their feed conversion efficiencies. Dr Robin Kay and others commented on a negligible difference in efficiency of meat production between the red deer, and other ruminants fed on the same food with comparable rearing. The maintenance requirements of deer may be 20 to 30% higher than are those of sheep. Dr Robin Kay has not yet worked out the rate of energy conversion efficiency for deer, but he estimates that it is inferior to sheep. To the world's nutritionists the deer is especially interesting because of its inability to lay down fat, a trait it has in common with the eland and antelope. While the Rowett Institute is carrying out basic research into the nutritional characteristics of the red deer under controlled indoor conditions, it is at a nearby hill farm, run in conjunction with the HFR0, that much of their field work is being done.

"Glen Saugh" is a steep hill property of nearly 500 acres unsuitable for forestry which has been carefully divided into ten blocks of from 3 to 206 acres, and a set of yards. The deer that were initially brought in were hand reared which was felt would help in handling them later on. In the field they are aiming at early weaning BEFORE the rut at around four months old.

The hinds are fed hard cube concentrates containing pure barley and some molasses for the eight weeks prior to calving. They are very quiet and come to a whistle from the man feeding them. They have been yarded once a month for blood sampling. It is however virtually impossible to yard the calves with their mothers in the first few weeks after birth.

On this property they consider that one hind to four acres is the limit to carrying capacity. They have not done any reseedling or fertilising. Their policy is to isolate the stags and only keep them to 2 years. They have set aside an area of forest for this purpose and are also watching the effects on the forest. There is no clear indication yet of an ideal mating ratio of hinds per stag. A Highland stalker says 50:1; Lucas of Warnham Park has said 4:1. At Glen Saugh they have been comparing ratios of 18:1, 12:1, and 8:1. This current season's calving will give the first results if any from this trial. It is felt it would be unwise to go below a 10:1 ratio, possibly because hinds are in season for only a few hours. The work on the red deer going on at the Rowett and Glen Saugh has probably aroused more interest in New Zealand than in Britain. The overall situations are quite different in the two countries, and I suspect that New Zealand is further ahead in the idea of deer farming and will be likely to make better use of its research work.

Deer seem to the British to be romantic animals. They have cultivated them in many deer parks in England, some of which have bred them and culled intensively for centuries. More often than not these parks contain smaller species like the Roe and Fallow deer, with some Sika deer in parts. The other main habitat for deer in the UK is in the "deer forests" of the Scottish highlands. For the most part "forests" are a misnomer, as much of their territory

is devoid of trees. In the highlands the red deer live in a habitat akin to the South Island tussock country. They do not go up to such heights but have a far more severe winter, which therefore causes considerable migration in places. The natural migration would be into the nearest trees, but nowadays these usually have a fence round them to keep deer out. To relieve this tough wintering the deer are fed in a few deer forests.

There is intense opposition to deer from the foresters, and there are equally intense feelings against the foresters by the stalking fraternity. These men contend that browsing damage in many cases is vastly exaggerated, and they know that considerable losses of young trees are allowed for in the forestry establishment costs, while deer are only one of several causes for such losses. One man I met considers the Forestry Commission is wasting a lot of money on deer control. For instance it pays a half-skilled man 2,500 pounds a year to roam a lot of country to which deer are unsuited. These men kill 500 pounds worth of venison instead of educating the public in the arts of deer control, and so satisfying its craving to go stalking. Instead a few prosperous trophy hunters are allowed in from the Continent to bag prize heads. This is unfortunate in many cases as these heads grow upon the very animals which should be bred from. Another problem is that it takes time to train a man in deer control and as soon as he is skilled he is moved on to some other branch of forestry, and yet another man must be trained. Ignorance of the habits of deer is a major problem and stretches from some Tairds right through to the poacher who is just as big a menace in the UK as in New Zealand.

One prime consideration in farming deer is in disease control and prevention. Fortunately red deer are amongst the healthiest animals one is able to farm. However there are a few diseases worthy of mention:

Liverfluke:

Susceptible but not particularly so.

Lungworm: A problem arises when deer are infected with the lungworm from sheep or cattle.

Parasites: Over 40 type of worms have been found in deer of which only about 16 are specific to them. As their prime hosts are cattle and sheep it is important to keep deer well away from farm animals and ESPECIALLY sheep.

Clostridial diseases: No problem.

Salmonellosis, Leptospirosis and Brucellosis do not infect deer at all, it appears.

Rabies: Roe deer are very susceptible. It is questionable whether this is a species susceptibility or simply a population problem.

Enzootic Ataxia This is a nasty disease which has occurred in nearly every English deer park. It is a disease which may be a slow virus like scrapie or like disseminated sclerosis in humans. It is a mystery to the scientists, who do not know the cause. It first shows in a swinging gait, then the hind legs give way and down goes the animal. It takes 3 to 4 years to run in its invariably lethal course. This is the prime reason that New Zealanders should be prohibited from importing live deer from Britain to upgrade local herds. A lot more deer parks and farms in Britain should be watching out for it and actively preventing its infusion into their herds.

Tuberculosis There is evidence of Avian TB in wild hill deer in Britain.

Rearing Calves from any species of deer requires skill. Hinds produce a milk which has 10 to 15% fat which is one of the main reasons that cow milk is unsatisfactory. It is better to use a substitute for ewe milk that is relatively low in lactose. They should also be given a saucer of damp soil or peat every day. One should rub their backsides whilst they are feeding, in the same way as does the suckling hind, to induce motion and to clear any scours to prevent flies. These simple procedures can prevent many deaths. At three weeks calves can be weaned on to a 3/16" diameter barley-maize lamb pellet together with dried grass, and again raw peat or soil. The conversion rates at the Rowett for the young deer calves on this diet was high at 2.3 to 2.5 : 1.

There are two other organisations closely involved with the welfare of the red deer in Britain.

Red Deer Commission This is a statutory body set up in recent years to further the control and conservation of red deer, after years of fierce argument between the farmers, the foresters, and the owners of the deer forests. It is doing good work in assessing the numbers of deer in the highlands and are now prescribing culls of at least a sixth of the live herd a year. It aims eventually for a greater number of deer but less hinds. This makes sense in a region where the value of the stalking is greater by far than the value of the venison. It would like to see a 1 : 1 ratio of stags:hinds. It believes it is uneconomic to farm deer intensively on a small scale, which could be right for Scottish conditions of low stocking rates and long winters.

The Nature Conservancy has a team of scientists working on deer nutrition, population studies, behaviour studies, and bases its work on what it considers is right for the environment. Hence it is keen to see a reduced pressure on deer's natural wintering ground, primarily to aid tree regeneration. It has found little direct evidence of damage done by deer to their summer grazing areas. It argues that the deer forest managers who feed their stags to improve the antlers and slow their wandering have got their priorities wrong.

It is encouraging the planting of trees resistant to deer such as Scots Pine, Lodgepole Pine, Spruce and some hardwoods.

It is disconcerted by the tendency for highland estates to be taken over solely for sporting purposes.

The average calving in the Scottish highlands in 1965 was 36 to 37%. Last year at Applecross a count on portion of the property 147 hinds showed 83% calves at foot. Whether the exercise has been profitable could be debated, but there can be little doubt that thought and practical management can improve large herds covering great areas. The man who has planned this deer programme feels that the Sika deer would be even more suitable than red deer for farming, because of their thrift, toughness, and ability to hold condition into the winter. He contends that the Rowett Institute is only proving what has already been known for a very long time, that deer are amazingly efficient converters of rubbishy food into meat. He thinks that New Zealand has got to look hard at its shooting laws and regulations. One cannot improve the quality of game by blazing away at anything that moves and deciding afterwards what it was. It was an intelligent remark made by someone deeply concerned at what is going on in our country. It was repeated in some way or another to me several times a week throughout my stay in Britain.

Metabolic Profiles At the Institute of Animal Diseases at Compton in Berkshire there is being developed the idea of regular checks on parasite levels, blood samples, liver samples and so on in order to help farmers to anticipate stock health problems before they arise. It was suggested to me that those involved in farming deer would be well advised to have yearly checks undertaken on parasite levels from faeces samples, and microscopic studies made of livers and lungs. By doing this one would obtain warning signs of problems a year before they occurred.



SIKA DEER at MELBURY PARK, DORSET

(3) LANDSCAPE CONSERVATION

The aim in this brief study was to examine the way the British use their limited land resources, and to observe what efforts are being made to retain the character of the countryside. I set out to study the bodies which are responsible for the conservation of the landscape in order to find out how the constructive use of land for farming, water, forestry and recreation is being achieved.

With about 50,000 acres of land being withdrawn from agriculture each year in Britain, it is an easy calculation to see that this means a loss of a million acres in twenty years. For a country of just over 60 million acres, this is a figure to cause grave concern. The worry is not so much on the effect it will have on agricultural production in the foreseeable short term, because trends in increasing production and yields will balance the land lost, but rather that once land is lost to agriculture the move is irreversible. The land being lost tends to be the best land close to the towns and cities which were originally sited in fertile areas.

The crux of the problem is that Britain is becoming rather like a heavily stocked farm whose fences and reserves are being really strained. One wire snaps or a gate gets left open and the stock are everywhere unthinkingly helping themselves to anything that catches their fancy.

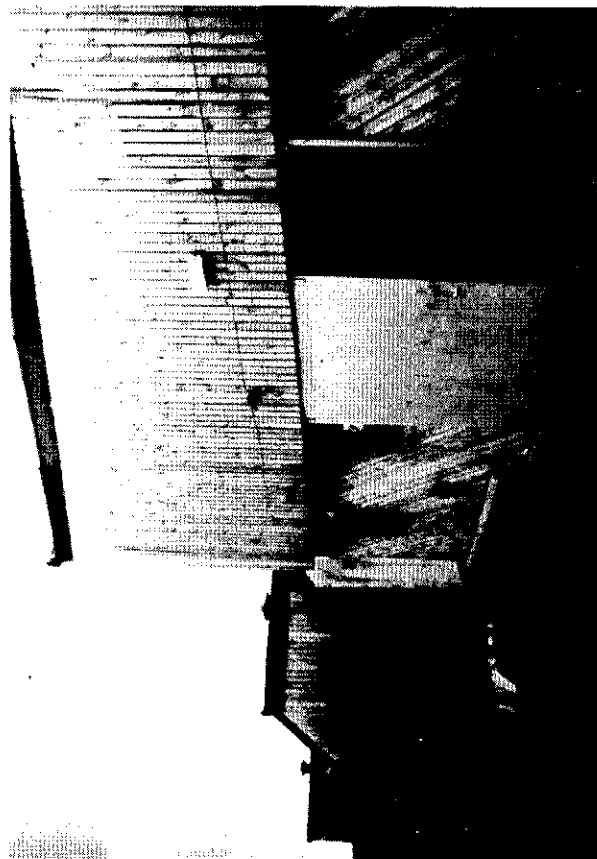
A farmer can sell off stock to solve his problem but a heavily stocked population that wishes to keep a semblance of control must erect tight controls on land use. Britain's stocking rate is 560 inhabitants per square mile compared with New Zealand's 30. Like much of New Zealand, many of the 19 million acres in Scotland and the 3 million acres in Northern Ireland are uninhabitable. In case some may think that the difference in density makes comparison irrelevant they only have to look at what has happened to Auckland, and what is happening around Christchurch.

It is felt that before the land use is changed forever, there is a need for an overall plan and the bureaucracy to make it work. Mention the word "planner" in Britain and one often sees hackles rise immediately. They form a profession apart who have enjoyed a lot of power and prestige in reshaping the appearance of Britain since the World War II. This has upset numbers of property owners and many short-sighted people who cannot see that the planners have controlled the spread of towns from covering the whole of the South-East. Generally the planners, as shown by the restrictions they impose, have had a negative job as far as country planning is concerned. On the other hand their urban work has been more positive, as they attempted to improve the drabness of the heavily populated towns. They claim to review any proposition for development on its merit. There are clearly defined channels to follow and appeal procedures.

The tenacious and more prosperous tend to get their way, which gives the cynic cause to believe that money tends to provide the best argument and that good law is not necessarily compatible with good



**WELL SITED BARN AT ROWETT INSTITUTE
SAME BUILDING FROM FAR AND NEAR**



planning. His suspicions have been confirmed in recent months. Most planners are urban born, trained, and biased as is reasonable to expect with the countrydweller occupying such a small part of the population. There are some indications that they are taking more interest in the neglected rural planning. This is overdue. Up to date the farmers have had a pretty free rein and the same can be said for the foresters. This is likely to change soon and farmers will have to consider seriously the visual design effect and the materials they use much more carefully and seriously. The NFU and the M.A.F.F. could both be criticised for their apathy to encourage the aesthetics of good design for farm buildings. There are innumerable examples of thoughtless siting and tasteless design of farm buildings all over Britain, which is all the more surprising as it is so much in contrast to the rigid housing design controls. To be fair there are many areas which do achieve harmony as is done in the Lakes District where it has almost become an obsession. Answers to questions of improved design can usually be found with a little more thought, time, and consultation, if necessary. I feel that it is a subject which should be given more emphasis at the various levels of agricultural training, and in fact these institutions should start the ball rolling by setting a much better example themselves. The Rowett Institute must be commended for its effort in building a very large barn which nestles into its background so skilfully. This has been achieved by breaking the roofline, the clever use of wood, and a feeling for colour. If these comments are valid in Britain how much more so are they in New Zealand. Apart from the already mentioned planners, other bodies are concerned with the appearance and alternative uses for the countryside.

"Urban Rustics" is my description of a new type of being. They are the people who would be quite happy if the main purpose of the open countryside was to provide them and their town neighbours with somewhere to go when their week is over, to give a life which can be a safety valve from the tension of the packed communities where they are obliged to earn their livings.

It matters not at all to them that a sheep is for producing lambs to eat (they can be got from New Zealand far cheaper anyway), or that a cow is for producing milk which is easier bought at the corner dairy. A tree is something to admire and a hedgerow somewhere to go bird's-nesting or collecting wildflowers which are becoming harder to find now that the car has immobilised legs and the County Council is cutting or spraying the road sides. These are the people who become upset because waterskiers' noisy boats on remote Scottish Lochs, prevent them from hearing a bee at fifty yards. They deplore that the farmer's animals graze the unusual plants and intrigue to stop them. A few years later the plants they saved are smothered anyway, and the new undergrowth discourages them from visiting the place again. The Urban Rustic is now prosperous and on his country drives, seeing a stone cottage for sale, buys it, installs central heating and plumbing ready for his irregular visits. He cannot understand why he is not really accepted in the country community, so sets things right by becoming involved. If he is articulate he is elected to committees which give him something

worth doing in the district. Suddenly the farmer wakes up and realises he has no spare cottage left for his newly married son, and his neighbours have also sold theirs. Because they have not been taking an active enough interest in their community affairs the farmers are being pressed to provide and pay for district amenities which they had never dreamt of. One man decides that farming has changed so much with the coming of the urban rustics that he sells his stock instead of having it let out to roam all over the district by hordes who will not shut gates. In place of the stock he grows crops, but occasionally finds them flattened just before harvest by disgruntled ramblers who are looking for a public footpath on the farm that was accidentally ploughed because no one ever walked there.

This is not much exaggeration of what is happening to the Lakes District and other areas where tourism is rapidly being integrated with farming. Many a farmer is accepting the hard truth that there can be benefits in letting out caravan sites, letting rooms for the night, and cashing in on tourists' disenchantment with expensive, impersonal, and noisy hotels. Frequently it is his wife who initiates the idea.

There are many opportunities to do the same in New Zealand particularly in the back country and the coastal regions. It would be reasonable to expect improved relationships between the farmer and visitors. This will become more necessary each year as townspeople become further separated from their rural ties.

The Nature Conservancy is divided into nine regions. It is Government funded and staffed with a highly respected team of dedicated men. They have set up some 130 areas of national significance legalised by purchase agreements or lease. These are places containing sites of special scientific interest which may be endangered if continuing under present tenure.

They prefer them to be large areas of several thousand acres if possible. They are deeply concerned in Scotland with the pressure that has been brought to bear on the hill country since the industrial revolution, when much of it was cleared of trees. Its reestablishment is difficult after such a time and there is a need to reestablish a protection forest. They are concerned at the effects of monoculture in this forest. They are encouraging a swing from extensive to intensive projects. For example a 50,000 acre estate may be advised by them to set aside 2,000 acres of glens for farming if available, and the rest would be assigned for forestry, sport, and wildlife. They would advise on the sound transition.

Unlike in New Zealand there are no government restrictions on how much or how often land is burned, nor upon stock density except in the cases of nature reserves. Though restrictions would be hard to enforce, I feel that the Scots here lag behind New Zealand, and could learn something from our Catchment Boards' approach to hill management. As increased tree planting is done a growing number of foxes and rabbits is becoming especially noticeable and is posing a real problem.

The National Trust The National Trust Act of 1907 empowered the declaring of land as "inalienable". Once declaration is made the property is protected against compulsory purchase by local authority or Government. It can only be taken from the National Trust by special will of Parliament. In 1967 the acreage owned by the Trust was nearly 400,000 of which 37,000 were in Scotland. It has grown since then. The Trust is advised by the Nature Conservancy on ecological matters.

If a landowner wants protection for his land he can enter into an agreement with the National Trust, but he must agree to the terms laid down by the Trust. These agreements are used for all sorts of purposes. For example 700 acres was committed in order to retain its unspoilt skyline on the Pentland Hills which provide the background to Edinburgh. (For an example of a Conservation Agreement Form see Appendix B.)

In England and Wales the Trust has been running the Neptune Appeal to provide funds to buy up large tracts of coastline which they plan to keep as near to its unspoilt state as possible. Farmers may lease the land back in places for grazing purposes on terms dictated by the National Trust. In conjunction with the Country side Commission and the local authorities the National Trust of Scotland have set up a Countryside park at Culzean Castle together with five miles of coast and 550 acres. Visitors to the area have doubled to about 200,000 a year in the last five years. They have been encouraged with picnic spots, nature trails, rangers and so on. Projects like this appear to work in Scotland where the degree of communication between the bodies concerned appears to be close. The National Trust does a lot of work representing conservation causes, good planning interests, and other issues which it conducts quietly behind the scenes. It is very selective before it becomes involved in public issues.

The Countryside Commission, set up in 1968, replaced the National Parks Commission. Its job is to provide parks or camping sites, long distance footpaths, to protect beauty spots, and to supervise the National Parks. It produces many research reports, participates in joint studies such as the South Hampshire Structure Plan, is closely involved with the designation of National Parks, Areas of Outstanding Natural Beauty (A.O.N.B.), major development intrusions such as the A 66 road through the Lakes District, and public enquiries. They have four research teams working on grant aiding, picnic sites, County and National Parks.

One of its problems is that land is not owned by the nation but by a multitude of landowners, and that the few existing areas of wilderness are in private hands. It feels that all roads, large developments, skyline developments, should be referred to them for comment before work begins. They have a team of competent men, devoted to their work. However many outsiders I asked felt that the Commission lacked punch. This could be an effect of the relatively small budget they are asked to work on. The growth of a body like this is really a by-product of socialist

effects on land ownership. In the past there would have been no need for such an organisation as there was such an active feeling for the appearance of the countryside by the large landowners. As their estates are being broken up one wonders whether the new owners will have anything like the same feeling for this land and whether they will have the same long term view? If not one presumes that this interest will have to be taken over by the general public and their representatives. It is very questionable in my mind that they will make such a good job.

The Country Landowners Association is deeply concerned with the appearance of the countryside in distinct contrast to the NFU who tend to concentrate more on the economics and politics of farming.

Sport It is easy to underestimate the way in which sport has influenced the appearance of the British countryside. Hedges are nurtured as hatching grounds for all form of game. The height they are trimmed is often calculated to suit the shooter. The tree species planted are calculated to provide feed. The forage crops are carefully sited to provide winter shelter and feed for the pheasants. On the heather moors of the North of England and Scotland burning is carefully organised in strips to provide feed for the grouse. Such considerations are taken for granted by many farmers in the UK to improve the visual and sporting amenities of the countryside. Besides these reasons they have good economic grounds in preserving the sport. Here are a few figures which illustrate the value they place on it:

Trout fishing on a reservoir in Leicestershire 120 pounds per rod for one day a week during the season.

Salmon fishing 2 pounds a half day in Wester Ross. 600 pounds a week for four rods to fish a beat on the Spey.

Grouse Shooting at 500 pounds to 1,000 pounds a week.

Deer stalking 150 pounds for a 14 pointer stag or a penalty of 5 pounds for missing it.

Pheasant Shooting up to 1,200 pounds for a week's shooting in Hampshire.

These are mostly high figures and by no means typical as there is great variation in the quality of the sport available. The sport affects the value of the land in some areas.

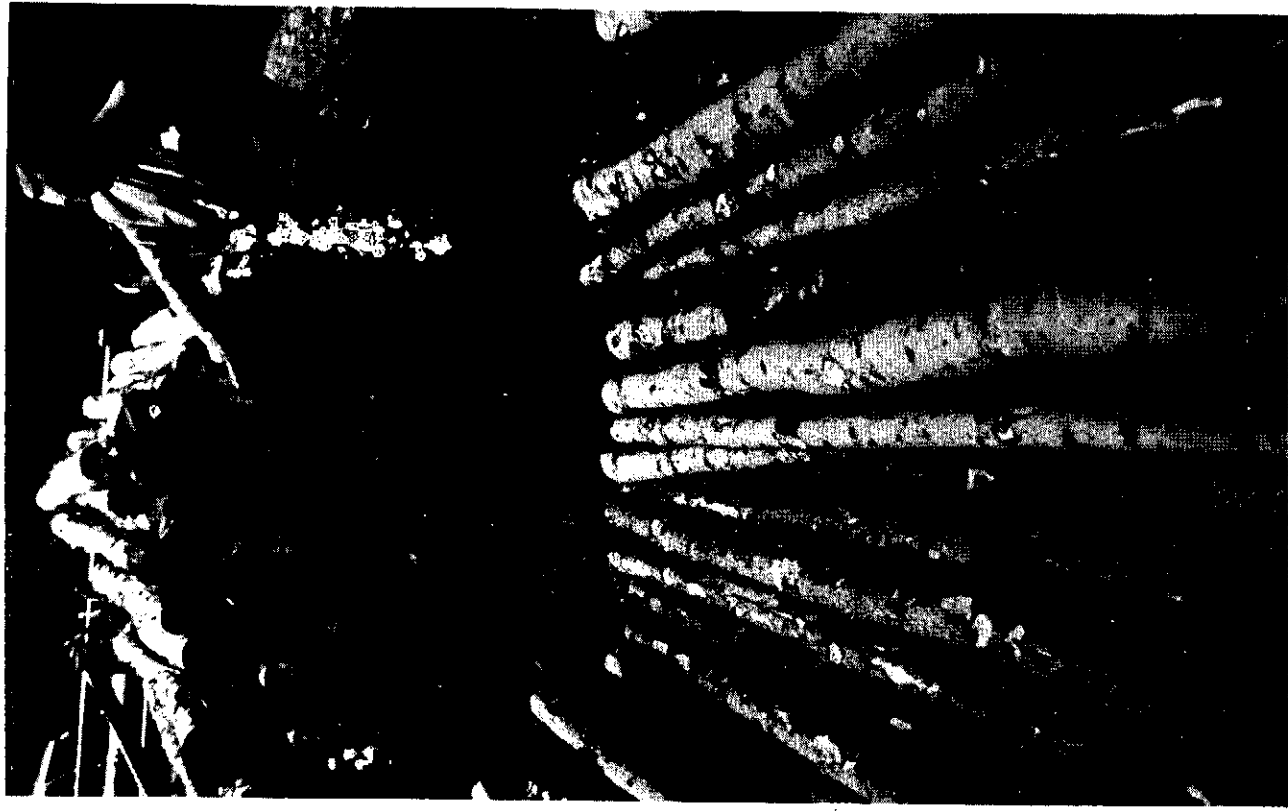
One would value stalking land in Scotland at 5000 pounds per stag shot p.a.; Grouse moor at 800 pounds a brace; and the best trout fishing, say on the Test in Hampshire, could cost about 30 pounds a yard. A mile was sold last year for 30,000 pounds. These figures point out the real demand for sport in the UK and how it is not available in adequate quantity. It is also implied that to meet the demand a lot of skilled management is required. There is a long tradition in providing this. The point as far as New Zealand is concerned is that if we started managing our sporting resources with

similar skill, there could be considerable benefits. I am not suggesting altering the shooting or fishing laws, but am just trying to point out the value that some farmers who wished to provide the facilities of accommodation, transport and guiding could place on such services. They could provide fishing, stalking and duck shooting as good as any in Britain for both local and overseas visitors.

Forestry Some of the most dramatic changes to the British countryside have been made by trees, especially in Scotland where there is great pressure on landowners to plant their hill country. The scene is complicated by tax concessions to foresters and it is the political aim during regional development to stop a drift to the town. There has also been a controversial Government White Paper criticising the lack of profitability of forestry. The urban rustics have been outspoken about the changed appearance of the bleak landscapes they were brought up to as normal. They ignore that trees were present over much of the same country before the industrial revolution. They become abusive about the planting of softwoods in places as attractive as Loch Lomond, believing that the present deciduous trees have always been part of the local scene. But in fact many are a remainder from the coppicing days of previous centuries when the trees were planted purely for economic rather than aesthetic reasons.

There has been a healthy development by foresters in the U.K. of a new concern for the good appearance of their forests. No longer is the Forestry Commission encouraged to plant its monocultures of sitka spruce to the exclusion of all else. Public pressure has encouraged them to intersperse these plantings with patches of Douglas fir, Norway spruce, Scots pine, Larch and hardwoods. These patches are not in geometrical shapes but are now carefully blended in to suit the contours of the landscape. The edges of the plantings are being planted with hardwoods. There is a feeling that foresters' mistakes last longer than most and they are not keen to repeat the past massed plantings of single species. Has this lesson been learnt in New Zealand?

One particularly interesting development in forestry in the UK is the extent to which landowners are prepared to use private enterprise instead of the Forestry Commission (which is very akin to our powerful Forest Service). There are a number of available organisations available to him to choose from. S.W.O.A. (the Scottish Woodland Owners Association) has two branches which look after the private forestry interests at a political level and arrange the practical field operations on behalf of the landowner. There are several businesses which organise the whole forestry programme from planting to marketing. The Economic Forestry Group (EFG), Fountain Forestry, & Tillhill have various approaches to syndicating forestry. They may do the work for the landowner, or he may wish to sell them the land which they syndicate between city investors, as is done by beef syndicates in New Zealand. The E.F.G. are by far the biggest of these firms. They have planted 220,000 acres in the last 20 years. They feel that however enthusiastic farmers may be for a forestry programme, they are nearly always up against a cash shortage.



Scottish Factor Mr T. Finlayson of Aberfeldy, inspecting valuable 17 year old thinnings

By involving outsiders who are keen to use the tax advantages of forestry they can benefit both the farmer and businessman. The farmer benefits from the roads and fences which are a direct result of the forestry, and also from the sum of money obtained if he sells his land. The E.F.G. provides all the planning and tending and manages the whole of the finance. They have been considering the integration of forestry and grazing, and have also moved into Australia. It works in basic units of 10,000 acres wherever possible. These it feels can be handled by one leader and three assistants. They seriously considered setting up a branch in New Zealand but were forced out by the large timber companies. If the same approach is adopted in New Zealand, careful consideration will have to be given to whether to involve these companies or not, and all their local skill and marketing experience. With the increasing world timber prices, and growing world shortages of news print, the future for timber production looks excellent. Much of the South Island tussock country could be planted to good effect. It has the advantage of easy planting and little need for releasing. The cash provided from forestry syndication could provide a useful injection of capital for developing the easier country. As one Scotsman commented, it is then possible to spend all the time looking at the stock instead of for them.

There is an interesting development in planting which is causing the Forestry Commission to review some of its ideas. A seed can be germinated in a small cylinder in a glass house, then hardened off out of doors before being planted with a special spike which makes a hole in the ground into which the tube and seedling are dropped. There is no wrenching, simple raising, planting can apparently be done at any time of the year, and at much faster rates than currently achieved. This method should be investigated, especially for the planting of tussock country where the competition is slight.

In Britain much attention is given to the preservation of historical buildings and places. This extends as far as protecting certain trees in order to prevent their destruction. These "Tree Preservation Orders" have been an effective means of maintaining the character of the countryside in many districts.

Roading I was impressed with the attention given in major roadworks to the replanting of scarred areas and the reconstruction of stone walls matching the local style. Whilst expensive to effect, the visual appearances were much enhanced as a result. The irony is that the landscaped motorway verges, prohibited as they are for pedestrians and stopping, may provide the best sites for the unique or rare plant associations of the future.

CONCLUSIONS

Large Scale Farm Management

1. The rapid rise in land values is starting to have its repercussions on the management and particularly the ownership of land. Farmers are having to become increasingly careful to isolate their ventures from one another so that they may be traded separately at a later date if necessary.
2. The many attempts by successive governments to control the rise in land values have if anything had precisely the opposite effect. The same situation is likely to occur in New Zealand if the free market in land sales is tampered with. In future it is likely that values of hill land will be influenced by their value for forestry.
3. It appears that there is a swing starting towards corporate ownership of land, syndicates, and a swing back towards tenant farming as a result. This new landownership is less likely to be weakened by death duties.
4. In spite of all this the family unit is likely to remain the basic unit for the foreseeable future. It achieves high production with the minimum of problems from a labour viewpoint. Its future will be dependent to a certain extent on the quality of training given to the young farmers.
5. Medium scale farms seem likely to disappear more rapidly than large or small farms, and with them will go possibly many of the social rewards in farming.
6. The Unions are an accepted part of the UK farming scene and do not cause the farm employer much problem, as long as there is mutual respect on each side.
7. Compulsory Employment Contracts setting out employer's and employee's responsibilities, terms of employment, wages and perquisites could be adopted with advantage to New Zealand.
8. Grants to encourage the taking on of farm cadets under approved training schemes could be a useful stimulus to the sound training of young farmers. They could even be augmented by further grants in regions needing development, as is practiced in the remoter parts of Scotland.
9. As farming becomes more complicated and larger in scale, it is important for farmers to aim even harder to achieve simplicity in all their operations.
10. Any new projects started should be designed to be in multiples of a full labour unit and not a fraction of one.
11. Consideration should be given to more use of medium term finance as well as the traditional short and long term finance.

12. Encouragement should be given to employ more women in the country.
13. Encouragement should be given in the formation of mobile secretarial services for the farming community to handle the increasing paper work.
14. Agricultural Colleges must examine whether they are turning out too many technicians and not as many managers as the community requires.
15. Farmers could well spend more time considering the costs of not doing a job on time. A bad season is an act of God. Inadequate or insufficient labour is inexcusable.
16. The improvements that can be made to a business by better management are usually much more dramatic than those made by technology.

Developments in Animal Breeding

1. That once feed conversion efficiencies are taken into account there is not much significance in which beef breed is chosen.
2. The exotic beef breeds of Europe are larger, here to stay, but have only a marginal advantage over the traditional breeds and this advantage is only shown up when they are fed sufficiently well to express it. They will need to be used with care under extensive conditions.
3. That these breeds have achieved their recent prominence as much by promotion as merit.
4. That one might as well choose therefore the breed from which one will make the most profit. It is not necessarily the same breed that produces the most meat for the least feed consumed.
5. There are real gains to be had from controlled crossbreeding.
6. There are dangers in further importations of those British beef breeds that have now become so small that they could only cause harm to our herds of much larger animals. Conversely too there are good opportunities to export suitable bloodlines back to Britain to correct the situation.
7. That breed societies and enthusiasts for breeds should accept those with changing ideas. An obvious need is for much closer links with the emerging group breeding schemes which are here to stay and develop. Also co-operation is needed between the group breeding schemes and the breed societies.
8. All the artificial breeding that has gone on in New Zealand in the last few years will have provided useful experience towards the time when heat synchronising drugs reach the market. The knowledge and skill is all available to put them to use right away, and the main obstacle to this major breakthrough is the caution of the Health Department, and the need for the drug companies to establish their patents.

9. The exotic cattle and sheep breeds will necessitate considerable changes in management to take advantage of their features.

10. The Ministry of Agriculture and Fisheries will have to be most careful in who they allow to develop these breeds. These must be people capable of adapting to the new breeds, and people who can make their results available to the farming community at large. It would be disastrous if they were to get into the hands of a few brilliant individuals who were over secretive, and equally disastrous if they get into the hands of enthusiasts clutching at straws which they hope will get them out of trouble.

11. The Finnish Landrace and East Friesian sheep must not be used in any situation where feed has been the factor limiting fertility. When they are used there is merit in confining their influence to a quarter cross only.

12. Much of the information printed on the feed conversion efficiencies of deer has been interpreted with over-enthusiasm. Their maintenance requirements appear to be higher than for sheep. There is doubt that they are any different in their ability to convert food into meat protein from any other ruminant. The one qualification is that they have a special ability not to lay down fat.

13. The health aspects of deer farming look reasonably good. However in no circumstances should the importation of deer from Britain be allowed.

14. It appears that the efforts of meat hunters have at last brought deer under control in the high country, and that the time is ripe to reassess the classification of deer as a noxious animal, or at least where the damage done is negligible.

15. The farming of deer is more likely to succeed on good land suited for the finishing of stock, rather than in extensive operations where their handling is likely to provide many difficulties.

16. The current stipulation of deer having to be farmed "within their feral range" is shortsighted and unnecessary and should be removed.

17. New Zealand has a golden opportunity to take the world initiative in deer farming, and should press on fast with projects for the handling of wild deer, like that starting at Invermay Agricultural Research Centre.

18. Any modification of Breeding Programmes means modification of management as well.

19. The growing realisation of the costs of progeny testing beef cattle, will mean that farmers will need to maintain as broad a genetic base as possible, especially if using artificial breeding, or if involved with group breeding schemes.

1. The farming community in the UK is rapidly being made aware by the community at large that, whatever the tenure of the land, the public has right to be concerned at the use to which it is put.
2. In countries like New Zealand and the UK, it is vital that strong controls be kept on the appearance of the countryside, and particularly in those places where land use is being changed forever.
3. The design and siting of farm buildings is one subject which needs attention. Strict functionalism and minimum cost should not be the only criteria for such buildings. There is a need especially in Britain, to bring farm buildings under planning control. The agricultural colleges and institutions should be encouraged to set an example of improving farm building appearances.
4. Landscaping should become a crucial part of all large development and roading projects, and trees should be used wherever possible to heal the scars made.
5. The value of sporting amenity to both the appearance and economy of the countryside has been long appreciated in Britain and deserves greater consideration in New Zealand.
6. There are good economic reasons why some New Zealand farmers should market recreation as well as farm produce.
7. Forestry appearances are becoming a feature of new plantings in Britain where there has been a marked swing away from monocultures. The dominant species are now being mixed wherever possible with other species to break the monotony. Hardwoods are being planted on the edges of the forests.
8. The growth in syndicated forestry, with the financing and total management being divorced from the management of the farming operations, is a development which should be pursued in New Zealand.
9. Long before the advent of the Countryside Commission and the planners, many pleasing features of the British landscape were formed by concerned landowners whose interests lay in the long term appearance and function of their lands. Many of the architectural delights of Britain, built in the distant past, would not have received planning permission today. One is led to ponder seriously if the committees of the welfare state will ever be able to match the effectiveness of the sensitive and privileged individuals of the past?

1. The diminishing farming population has an increasingly great need to be soundly organised and represented at all levels throughout the community. Farmers must look after themselves, and argue with facts. No one else will do it for them.
2. Cheap food is good politics. The prime purpose for Agricultural Colleges, advisors and the Ministry of Agriculture is to produce cheaper food for the masses. This inevitably encourages less men on the land, more work, more production and efficiency. One question farmers must ask is how far they are going to allow themselves to be manipulated in this way?
3. There are great problems arising overseas as a result of overspecialisation in agriculture. On British farms where live-stock has been displaced in favour of cropping, weeds such as wild oats are very bad, machinery is growing so large that it is seriously affecting soil structure, and there are vast areas of straw for burning which could be used for feeding the livestock that are not now to be found in these districts. Effluent disposal is becoming a major headache for intensive livestock enterprises such as feed lots, dairies, poultry farms and piggeries. There must be a swing back to more integration of livestock farming and agriculture in these types of operations.
4. The high cost of machinery means that farmers must start demanding high quality design and workmanship in what they buy in the future, and that what is bought is designed to LAST and does not need replacing after two years. For this farmers need to be organised and to present well reasoned argument to the manufacturers.
5. With the heavy capital involvement in land, farmers must beware of financiers who are more interested in money than in the welfare of the land, and the husbandry of stock.
6. Many of the agricultural problems faced in countries around the world stem from unsatisfactory land tenure. New Zealand is indeed fortunate in having the family farm as its basic unit. It appears to me that anything that breaks this pattern in the foreseeable future could be dangerous.

"The countryside is the stronghold of most myths about free enterprise, independence, self-reliance, but it may be, in the end, that the wheel will turn full circle - that the common-land which was grabbed and enclosed by the landlords in the eighteenth century will be given back to the public, and that the whole land of Britain will come to seem so precious that the public will insist on having it for themselves."

Anthony Sampson - "The New Anatomy of Britain"

APPENDIX A

CONTRACTS OF EMPLOYMENT ACT, 1963

THIS STATEMENT sets out particulars of the terms and conditions on which

- 1 of
- is employing you,
- 2 of
- 3 as at
- 4 Your employment began on
- 5 REMUNERATION. Your rate of pay is in accordance with that set out in the

6 PERIOD OF PAYMENT. You are paid

7 HOURS OF WORK. Your normal hours of work and meal breaks are as set out in the Wages Register. Any seasonal variations and any future change in normal hours will be recorded therein within one month. OVERTIME is to be worked as required. This will be paid for at the rates set out in the

8 HOLIDAY ENTITLEMENT. Your entitlement to holidays is as set out in

8a HOLIDAY PAY. Your holiday pay is as set out in

9 SICKNESS OR INJURY

10 PENSION SCHEMES

11 LENGTH OF NOTICE. You are entitled to receive notice in accordance with the scale laid down in the Contracts of Employment Act, 1963. You are required to give

12 OTHER TERMS AND CONDITIONS OF EMPLOYMENT

13 THE WAGES REGISTER IS AVAILABLE FOR REFERENCE AT

14 STATEMENT BY EMPLOYEE. I have received a copy of the above statement which is correct.

Signed..... Date.....

APPENDIX B

Excerpts from the National Trust for Scotland's Draft Conservation Agreement principally intended for subjects consisting of "Open Spaces, Agricultural Lands and Woodlands."

"No buildings or other erections including electric pylons, overhead high tension cables or telegraph poles shall be placed or erected on the said subjects except where the Trust has given its approval any buildings or other erections which may be necessary in connection with the use of the subjects for

Here describe the nature of the lands conserved

All such buildings or erections specified in the above exemption as regards inter alia their site, plans, architectural design, dimensions, method and material of construction including the colour scheme and all outside painting, shall be subject to the approval of the Trust

Save as beforementioned and after the execution of these presents no new act or thing shall be carried on or anything being carried on be extended or anything done or placed or permitted to remain in, upon under or over the said subjects or removed from them which in the opinion of the Trust would tend to injure, prejudice, affect or destroy the present aspect or amenity of the said subjects or prejudice the scenic beauty and amenity of the District."

QUOTES OF THE VISIT

"Enlightened landowners have been a boon to the landscape for Centuries".

"Big city syndicates with no interest in land, other than as purely a tax dodge, are worse than Nationalising the land".

"Profitability should never be reconciled with landscaping".

"Let's keep areas where people want to live rather than have to live".

"Live as if you are going to die tomorrow. Farm as if you will farm forever".

"Nobody has a divine right to farm".

"The only place in the country where you will find thirty-one men willing and able to work hard now is on a Rugby field".

"The hardest type of employer to please is the farmer".

"What farmers want to know is what they can get away with".

"A farmer is never worth anything until he is dead".

Discounted Cash Flows - "It is better to receive a pound now than in ten year's time".

"Half a stock will pay the rent. Stock and half won't".

"Beef breeds have been traditionally bred for fattening qualities. This fattening has encouraged inefficiency of conversion".

"Breed societies are registers of Births, Marriages, but not Deaths".

"The four legged inseminator is going to take a lot of beating".

"A.I. modernises good traditional practice".

"Since I've been married I've lost interest in the mail".

"In future we are going to eat what we like or what we need?"

"I don't eat beef - it's bad for my overdraft".