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The Institute does not necessarily agree with the views expressed in
contributed papers published in the "Review."

Cover drawing by J. Morgan.
CATTLE OR SHEEP
WHICH PAYS BEST?

By D. K. Crump, Farm Advisory Officer (Economics),
Department of Agriculture, Dunedin.

The old saying is "you can always make money out of
sheep, sometimes out of cattle, but never out of horses". Over
the past ten years, however, prices have moved markedly in
favour of cattle. Fig. 1 shows that, since 1957, the price of beef
has more than doubled. Lamb and fine wool, on the other hand,
have become cheaper. Also, the increase in high country farm
costs (20 per cent since 1957) favours cattle because sheep cost
more than cattle to run.

FIG 1
PRICES OF BEEF, LAMB AND FINE WOOL
1957-66
Many runholders are now wondering if they should increase their cattle numbers. This article compares the profitability of cattle with that of sheep by drawing up a management budget for an imaginary hard high country run carrying both.

I have assumed that the stock performance and policy on this run is as follows:

**Sheep**

Lambing 70 per cent, death rate 5 per cent, wool weight $7\frac{1}{2}$ lb/head wintered. The halfbred flock of adult sheep is half wethers and half ewes. The ewes are kept for five lambs and then half sold to the works and half at the ewe fair. The annual draft wethers and one-third of the lambs are sold as stores. Two-thirds of the lambs are kept for replacements.

**Cattle**

Calving 75 per cent, death rate 3 per cent. The herd of Hereford cows is maintained by breeding replacements. Each cow is kept for five or six calves. 90 per cent of the calves for sale go as weaners, the rest being later sold as two year olds, steers or heifers.

This performance and policy is in fact very close to that of a real run in West Otago.

**PRICES**

To determine the effect of changing sale prices on profitability, I have made three budgets at "normal", "optimistic" and "pessimistic" prices. Table 1 gives the range of prices used.

**TABLE 1 — PRICE RANGE**

<table>
<thead>
<tr>
<th>(a) Sheep</th>
<th>Pessimistic</th>
<th>Normal</th>
<th>Optimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wool (gross price)</td>
<td>30c</td>
<td>35c</td>
<td>40c</td>
</tr>
<tr>
<td>Store lambs</td>
<td>$2.40</td>
<td>$2.90</td>
<td>$3.40</td>
</tr>
<tr>
<td>Cast for age wethers and ewes sold on property to works</td>
<td>$2.00</td>
<td>$2.50</td>
<td>$3.00</td>
</tr>
<tr>
<td>Store 5 year ewes</td>
<td>$3.00</td>
<td>$3.50</td>
<td>$4.00</td>
</tr>
</tbody>
</table>

(b) **Cattle**

| Steer calves | $20.00 | $30.00 | $40.00 |
| Heifer calves | $20.00 | $26.00 | $32.00 |
| Cast for age cows | $46.00 | $56.00 | $66.00 |
| Cast for age bulls | $110.00 | $120.00 | $150.00 |
| 2 year steers | $56.00 | $66.00 | $76.00 |
| 2 year heifers | $50.00 | $60.00 | $70.00 |

**COSTS**

The direct costs assumed (Table 2) are those which are directly due to running cattle or sheep. The fixed costs or
"overheads’ are common to both, and therefore are ignored.

**TABLE 2 — DIRECT COSTS**

(a) **Sheep:**
- Shearing and crutching at $28/100
- Woolpacks, Twine etc. at $1.65/bale
- Drench Thibenzole and Selenium x 4 at 5c/lamb
- Dipping at 4c/head
- Rams at $36/head

**Freight:**
- Store lambs at 25c/head
- Annual draft ewes to sale yards at 30c/head
- Wool bales at $1.60/bale
- Rams at 75c/head

(b) **Cattle:**

**Animal Health:**
- Drench calves (Bovizole) at 20c/head
- Spray calves (Neocidol) at 5c/head
- Vaccinate heifers (Contagious Abortion) at 35c/head
- Plus travelling $20
- Pregnancy testing at $16/100 cows (every second year)
- Replacement bulls at $400/head

**Freight:**
- 2 year old steers and heifers at $5.60/head
- Cast for age bulls at $5
- Weaners at $2

**PROFITABILITY**

The direct costs can be subtracted from the income to give the "gross margin" per head for each class of livestock. The "gross margin" is the cash which each enterprise contributes towards the fixed costs of the property.

Different classes of sheep and cattle eat different amounts of food. To roughly compare the carrying capacity of two properties, the sheep and cattle which each carries are converted to stock units. A ewe is used as the stock unit. Other animals are compared to the ewe by the relative amount of food they eat.

The flock and herd in this study run were converted to stock units. The results of the budgets can then be applied to a similar type of run with a different balance of sheep and cattle.

The values used were:

<table>
<thead>
<tr>
<th>Stock Unit</th>
<th>Ewes</th>
<th>Wether and hogget</th>
<th>Rams</th>
<th>Breeding cows</th>
<th>Calves</th>
<th>Other cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>0.6</td>
<td>0.8</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The budgets were then drawn up for each range of prices and the gross margins per stock unit were calculated. This compares the net profit earned by a sheep with that earned by a cow. Table 3 shows the results.

When liquid capital and overdraft accommodation is limited, the different amount of capital required to buy either sheep or cattle is important. In this study, the livestock were valued at realistic market valuations. This worked out at:

- Sheep — $4.80 per stock unit
- Cattle — $9.80 per stock unit

Therefore the cattle would need twice as much capital as sheep for the same net return. If we take the difference ($5) at 6 per cent, then the interest of 30c per stock unit is an extra cost of running cattle.

If you have to buy-in to build up stock numbers, then sheep are the logical choice because you need less capital per stock unit. When increasing numbers by breeding (and foregoing sale income) the difference in capital requirement is hidden but no less real.

**TABLE 3 — GROSS MARGINS FOR EACH CLASS OF LIVESTOCK**

<table>
<thead>
<tr>
<th></th>
<th>Pessimistic</th>
<th>Normal</th>
<th>Optimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(a) Cattle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income per cow</td>
<td>$21.50</td>
<td>$28.20</td>
<td>$34.80</td>
</tr>
<tr>
<td>Less direct costs per cow</td>
<td>$5.30</td>
<td>$5.30</td>
<td>$5.30</td>
</tr>
<tr>
<td>Gross margin per cow</td>
<td>$16.20</td>
<td>$22.90</td>
<td>$29.50</td>
</tr>
<tr>
<td>Or gross margin per stock unit</td>
<td>$2.00</td>
<td>$2.80</td>
<td>$3.60</td>
</tr>
<tr>
<td><strong>(b) Sheep</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income per adult sheep</td>
<td>$3.00</td>
<td>$3.60</td>
<td>$4.20</td>
</tr>
<tr>
<td>Less direct costs per adult sheep</td>
<td>$0.80</td>
<td>$0.80</td>
<td>$0.80</td>
</tr>
<tr>
<td>Gross margin per adult sheep</td>
<td>$2.20</td>
<td>$2.80</td>
<td>$3.40</td>
</tr>
<tr>
<td>Or gross margin per stock unit</td>
<td>$2.10</td>
<td>$2.70</td>
<td>$3.30</td>
</tr>
</tbody>
</table>

The figures in Table 3 depend upon the accuracy of the stock conversion ratios and the reliability of the prices chosen, so they are fairly rough and ready. They show, however, that cattle and sheep are about equally profitable at "normal" prices for each.
When the prices of one enterprise go down, and the prices of the other go up, there is a vast difference in profitability between the two. For example, if sheep were at a pessimistic price level and cattle at an optimistic price level then the cattle are $1.50 per stock unit more profitable than the sheep.

No allowance has been made for the difference in labour requirement of sheep and cattle. Most agree that cattle require less labour than do sheep, but it is difficult to place a cash value on the difference. If this difference could have been allowed for in Table 3, the comparison would have been more in favour of cattle.

RELATIONS BETWEEN SHEEP AND CATTLE

The decision to run more cattle or more sheep depends not only upon the profitability of each but also on the productive relation between them. Cattle may be run instead of sheep; with sheep; or in areas where sheep are not wanted.

Competition between cattle and sheep, especially the young stock, is most noticeable in winter. Competition between hoggets and weaner calves may be very acute if the area of improved winter country is small.

On most runs, different blocks of land have a different grazing cost. Country which is easy to muster, or handy to the homestead, or safe, warm and well covered, is low cost grazing land. But country hard to muster, remote from the homestead or cold and with a high snow risk or poor grazing has a high grazing cost. Where cattle and sheep are both run they may compete for the use of the better, low cost blocks.

In this case if one can be run instead of the other, all else being equal, the more profitable of the two enterprises should be increased in size.

Cattle may graze with sheep to the benefit of both where the property is being developed and areas of fern or heavy tussock are being broken in by oversowing, topdressing and trampling with cattle. Here cattle help to develop blocks for sheep and more sheep can be carried because of the cattle.

Cattle may also complement sheep because they have different internal parasites. These parasites do not cross infect between sheep and cattle, so cattle can clean pasture of sheep parasites and sheep do the same for cattle. Thus more stock can be carried by grazing both than if either were grazed alone.

Again, cattle may be carried in addition to sheep when cattle numbers can be increased without any effect on the sheep
numbers. In the high country, this often happens. Some blocks may be too isolated for it to be worthwhile running sheep on them. But because cattle are more easily and less often mustered than sheep, they can profitably use these remote blocks.

Also, cattle can be grazed where sheep cannot on some blocks with an erosion problem. Sheep may damage this country, but cattle are less likely to do so because they do not graze so intensively, or climb to severely eroded areas.

As a rule of thumb, when cattle are supplementary to sheep, the cattle numbers should be expanded until they are competing with the sheep.

SUMMARY

This article discusses factors which affect a decision to increase cattle numbers. The case study shows that cattle can be as profitable as sheep at “normal” prices for each. But, for an individual run, there is no simple answer to the question: “should cattle numbers be increased?” This answer will depend on whether sheep or cattle can make better use of the available grazing, relative stock performances, the production relation of cattle and sheep, and the labour supply. In practice, it often depends on whether the manager likes or dislikes cattle. The most important factor of all is what the owner thinks the prices of beef, mutton and wool will be in the next few years.

STAFF

Mr E. G. White has been appointed to the Institute as Research Officer in Entomology.

Mr White, a New Zealander, is aged 29. He graduated Bachelor of Horticultural Science at Lincoln College in 1962. Then he obtained the degree of Master of Horticultural Science, with first-class honours, at Lincoln College in 1964. He is no stranger to the high country, because his masterate thesis topic was “A Survey and Investigation of the Insect Forms Associated with Some Tussock Grasslands”. At present, he is working towards his Ph.D degree at the University of California.

A major field of research being carried out by the Institute is the revegetation of eroded areas. Insects abound in these depleted areas and Mr White will be investigating the effects of insects on the vegetation. He will start work early in 1968, and his contribution to this important topic will be awaited with great interest.
A DEFENCE OF THE RABBIT CONTROL POLICY

By W. R. Kofoed, Deputy Chairman of the Rabbit Destruction Council.

This article is written at the request of the Editor of this "Review". In his comments the Editor stated that he liked controversial subjects for his articles, and there is no doubt that anything that will make farmers think about rabbits and their depredations is all to the good, for make no mistake about it, the rabbit, although down in numbers is by no means defeated, and Dr. Gibb in the March article is not giving the rabbit menace the concern that it merits.

HISTORY

A generation of New Zealanders, now grown up, has not seen rabbits in large numbers so it is as well to trace the history of the pest in this country.

A hundred years ago (1867) rabbits were successfully established in New Zealand. The spread was spectacular and unexpected, for within ten years the country was being ravaged. Vegetation disappeared and erosion started, stock numbers were drastically reduced and farmers were walking off ruined farms or becoming rabbit farmers.

No effective answer was found until the introduction of the killer policy, the devaluation of the rabbit and the gradual formation of Rabbit Boards throughout the country. The last of New Zealand was covered by Rabbit Boards by the legislation of 1964, three years ago, when County Rabbit Boards covered the remaining areas not already covered by Rabbit Boards.

Rabbit Board members and staffs have brought this country to its present stage of reasonable control of the rabbit, but the goal of complete eradication has still not been achieved.

PRESENT

The cost of last year's operations against rabbits, hares and oppossums was $3,500,000. This is a lot of money, but considering that more than $60,000,000 of our production for the year was gained by rabbit destruction, the expenditure is not unreasonable.

Everyone interested in rabbit destruction knows that soil type, climate and vegetation have a marked effect on rabbit survival. In no large area unsuitable for rabbits is any heavy
programme being carried out, except where the rabbit surprises everyone with a sudden upsurge. In the main these increases are caused by lack of staff or inefficient inspection.

In the area covered by the "Review", the dry areas of South Island hill country still have a very real problem. It is here that by far the largest part of the grant money is used. The Rabbit Destruction Council realises that even a few rabbits can have a marked effect on the vegetation and on erosion in an area where the scars of eighty years of rabbit plague are now healing.

The work of Rabbit Boards is not perfect and in some cases the shortage of staff, the failure to use the correct methods of rabbit destruction in their proper sequence, and in particular the failure of ratepayers to cooperate with the board has meant that work has been less effective than it should be.

In general, however, Boards are doing efficient work at a low cost and it is in the interests of all ratepayers and indeed every member of the community to see that they keep up to the mark.

RESEARCH

The need for research into methods of destruction has become urgent. It is now twelve years since the introduction of 1080 poison which, while being a good poison, is not popular with farmers because of stock risks and the danger of secondary poisoning of dogs.

Work is being done on a selective poison but, like most research, the programme is long term.

It is pleasing to find that the Animal Ecology division of the D.S.I.R. is looking at work in the field and if the Division would like to make further trials this can surely be organised. Unfortunately, so far the Division has not given us any indication on how to kill rabbits while New Zealand rabbit history has shown that the natural predators have had no effect on rabbit populations.

Mr Bell, the only scientist available for field work, is at present in Australia studying the problem there and we hope he will have some constructive suggestions when he returns.

One of the problems is the shortage of scientists in New Zealand and Government departments are seriously understaffed with science graduates. This is having its effect on the amount and direction of any research. Fortunately Australia has set up a larger organisation and we should be able to benefit from any
findings from their scientists. So far we have heard of no new destruction methods.

**ECONOMIC CONTROL**

Dr. Gibb has suggested that we should introduce some form of economic control and that this should be the limit of our rabbit destruction activities.

The term economic control has often been used in recent years by persons not in the rabbit movement. No definition is available of economic control. If, as appears, it means leaving areas alone till there is a build-up in the rabbit population, then the method has been tried, through lack of staff or inefficiency on occasions. The upsurges which have resulted have been expensive to eliminate and on present knowledge such a policy could be disastrous. There might be a long-term advantage in such a scheme but we need to have much more information before we could experiment with it.

The Rabbit Destruction Council feels that the regeneration of rabbits is so rapid that any aim less than eradication would be inviting trouble.

**CONCLUSION**

It is with diffidence that I write in reply to Dr. Gibb's article in the March Review, because he is an able and well-known animal ecologist for whose views I have the greatest respect. However, I must hasten to defend the only system of rabbit destruction in the last hundred years that has given us any measure of relief from rabbits.

The only example of failure to exterminate rabbits that Dr. Gibb quotes is wartime Malta. The mind reels at the thought of 250,000 Maltese and 50,000 troops "mostly armed", getting out after rabbit stew. Even with only military rifles it is an intriguing thought.

I'm sure Dr. Gibb and other Malta veterans will forgive the suggestion that at last we know what the thuds, bangs and flashes were on Malta. The boys were catching rabbits.

I am sure that there are many ways that Dr. Gibb and his able assistants can help the cause of rabbit destruction and despite his comment of not being in sympathy with present policy I am sure he will be giving that assistance where possible.

The work, methods and outlook of rabbit destruction must advance and change with increasing knowledge, but to change a system that has given this country its first hope of relief and has successfully prevented the devastation by rabbits must not be taken lightly.
NEW ZEALAND'S FASTEST-GROWING EXPORT INDUSTRY

By J. P. Campbell, Tourist and Publicity Department, Wellington.

It is often stated that farm products provide the great bulk of New Zealand's overseas funds. This is quite true, and will
remain true for many years to come. But we must not forget the contribution being made by the fast-growing tourist industry. Make no mistake — tourism is just as much an export industry as the production of meat, wool and dairy products earning, as it does, much needed overseas exchange.

Overseas tourism earned New Zealand $23.2 million in foreign exchange in the last financial year. This does not include the $15 million earned by Air New Zealand, some of which can be credited to tourism. These figures are small by comparison with farming, but they are by no means negligible. Tourism, too, is expanding very rapidly. Fig. 1 shows that, in 1965, overseas earnings of tourism were 360 per cent of what they were eleven years ago. Any industry with this growth rate must be given serious consideration and fostered accordingly.

**FIG. 1**
RATE OF CHANGE IN OVERSEAS FUNDS EARNED BY NZ INDUSTRIES 1953-65

This rapid expansion is part of a world-wide trend and is due to the fact that, as people become more affluent, they spend more of their money on luxury items such as travel. For example, you would have difficulty in finding an Australian who thinks "I shall be glad when I get my next rise of pay because I want to buy more butter". But you would find many Australians who think "I'd like a trip to New Zealand one day". If we could persuade the average Australian to take one New Zealand holiday in his lifetime, we would earn over $50 million a year.
from Australia alone. We must be prepared to exploit this large potential market.

The advent of the jet aircraft and the probable introduction of the “jumbo jets” in the early 1970’s make it likely that air travel will be faster and cheaper in the future. Unless there is a world-wide slump, we can therefore look forward to a further rapid expansion of the tourist industry in the next decade.

But how does this affect the high country farmer? The first point to realise is that the magnificent scenery of the Southern Alps will be a magnet to both overseas and New Zealand holiday-makers. The second point is that a large percentage of these people will be visiting the occupied country, not the National Park wildnesses. An increasing number of the young and energetic find healthy recreation by wading rivers with packs on their backs, but this does not suit the middle aged or the family man. These people will wish to visit Queenstown, Wanaka or Lake Ohau rather than Doubtful Sound or the summit of Mount Sefton. And these are the people with money to spend.

Runholders in the more scenic regions might consider if they can profit from these developments. Two pioneers have already entered the field.

Across the water from Queenstown on Lake Wakatipu, lies Cecil Peak Station. Here the runholder has a built in tourist attraction which he has been wise enough to capitalise on. Twice a day throughout most of the year, the launch from Queenstown takes visitors to Cecil Peak, where they are entertained at morning or afternoon tea by the owner. Tea and cream-topped scones are dispensed whilst the owner discourses on high country farming and other points of interest in his domain. There is also limited tourist accommodation.

Erewhon Station, in the Rangitata, caters for hunters and fishermen and provides some of the best hunting in the country. Here again, an enlightened runholder has seen the tourist potential of his surroundings and prospered accordingly.

Perhaps, in the future, we shall look back on these two men as being the pioneers of a new and important source of wealth for the high country.

Another benefit of tourism to the New Zealand farmer is that overseas tourists eat the equivalent of 40,000 lambs each year. This is not much compared with the total lamb kill, but it is 40,000 lambs that do not have to be marketed overseas. And it is always possible that the American tourist who becomes acquainted with New Zealand lamb here will try it when he
returns home. This could help our attempts to break into the American market with our lambs.

On the other hand, New Zealand farming helps the tourist industry. Overseas farmers’ tours, a sort of combination of holiday and fact-finding mission, are becoming increasingly popular. Farmers, especially those from the New World, are keenly interested in some of the advanced techniques such as aerial oversowing and topdressing, employed here. New Zealand claims the fastest and most efficient sheep shearsers in the world, and the Masterton Golden Shears competition is a great attraction for overseas farmers. Also of interest is New Zealand’s freedom from major stock disease, making it one of the best sources of disease-free pedigree livestock in the world.

A farmer who comes as a tourist might well return in his role as a farmer. The farmer on a serious fact-finding tour may like the country so much that he returns as a tourist. It is therefore clear that the farming and tourist industries have much to offer each other.

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A HIGH-COUNTRY MAN LOOKS AT TOURISM

By A. A. Urquhart, Erewhon Station, Mt. Somers.

When I first rode into “Erewhon” 24 years ago, I realised that here was a piece of country that people would want to come and see in the future. Over the years, I have had my share of trampers and shooters passing through the property. Most of these were reasonable people but, like other runholders, I’ve had those who had no respect for my property. They would use huts without permission, leave them untidy, use up the firewood, leave gates open and so on. The need to do something to cope with these people finalised my decision to go into tourism.

Since I’ve taken in paying guests, I’ve had much less trouble. I find that people who are prepared to pay for their accommodation are always very responsible. They help to patrol the country and so they discourage the undesirables. They can also help by finding stock in trouble. So I see much less of the lout type these days. You can’t keep the irresponsible sort out by putting up notices, but the thought that they might be presented with a bill really scares them away.

FARMING AND TOURISM

The tourist activities I’ve developed include hunting, fishing,
skiing, ice skating and horse riding. It has often been said that managing a sheep flock is a full-time job, so if you go into these other activities, the farming will suffer. My answer to this is that, with tourism on the property, I am able to employ more labour. At slack times when staff is not required for station work it can be put on to tourist activities, and vice versa. However, some men at first are not very impressed with tourism, but this also applies to the folk on the tourist staff as regards to farming. After a short while on the station, both become interested in all activities and are soon eager to help in all fields, thus giving them plenty of changes and not letting them become bored at one job. I never have any trouble in getting staff because I can offer them full-time employment.

I haven't lost my love of sheep, and I always remember that it was these little woolly animals that enabled me to go into tourism. I don't spend as much time with the sheep as I used to, but I make a point of being there at critical times such as shearing. I don't think the standard of my sheep has gone down.*

*(Mr. Urquhart is too modest to say so, but his wool has fetched the top price obtained at Christchurch since Christmas.) Editor.
HUNTING

I think there is a big potential for hunting. I have red deer, chamois and a few thar on the station, but I have access to more thar on a nearby Forest Service block.

Over 100 overseas hunters have been to the station from Christmas to May 1967, and I expect to have had over 200 by the end of the year. Australians form the largest group, followed by the Americans. I've also had hunters from England, Europe, Canada and Asia. A German medical specialist may be followed by an American businessman and an Italian Count, and meeting these different people makes life interesting. Some of these men have big money to spend, too. One spent $1000 for hire of a helicopter in two days. This doesn't go into my pocket, but it is good overseas currency for New Zealand.

You have to sum up your hunters to see how far they can walk. I spend the first day doing this and then decide where to take them to get their animals. I take the more energetic hunters further afield.

Some people, when they heard that I was promoting hunting, feared that there would be hordes of deer running about the place and spreading over neighbouring country. This does not happen. For hunting to be valuable, the animals must be kept fairly scarce. My problem is to have enough stags to cope with the demand. I am lucky, though, in that the strain of deer at Erewhon produces good heads. Stocks of chamois are enough for the moment.

Needless to say, I'm not in favour of total extermination of game animals. A game animal is worth a lot more to me than a sheep and I think New Zealanders will come to realise more and more the value of deer both for hunting trophies and venison exports. I do not think, either, that a reasonable number of wild animals will damage the country providing numbers don't get out of hand. We are already taking about 500 animals a year off the property, and there is no fear of a plague of them.

SKIING

I decided that, if I was going in for tourism, I'd go in for it in a big way. So I have invested a lot of money in skiing. I now have a chalet and two ski tows one half a mile long from 5,000ft to 6,100ft, and a learners tow of 400 yards. There is also 4½ miles of road fit for cars up to the ski basin. This ground, being only three hours from Christchurch and two hours from Ashburton, must be one of the most accessible in New Zealand. All equipment can be hired and sleeping accom-
modation for eighty is available at the old Mount Potts homestead, renamed “Erewhon Park”.

This venture has only been going one season so far and I have been more than satisfied with the number of visitors. We have been fully extended to cater for them. Skiing, of course, is obtainable without fees at other basins controlled by ski clubs. At Erewhon, the visitors can spend all their time skiing and they do not have to bother with hut maintenance and are not expected to take part in “working bees”. Many people are prepared to pay to be free of these chores.

Skiing is one of the fastest growing sports in New Zealand and I think there is room for many more ski fields.

OTHER ACTIVITIES

There is a small pond near the homestead which is used for ice skating and I hope to cater for other outdoor activities such as fishing.

Families often come up just to spend a quiet weekend on the station and I think this is a good thing for the back country. It’s an old story that it is difficult to get people to work in the back country. I feel that we high country men have done little to get people back. Boys who have spent a station holiday with their families may well be the shepherds and station hands of the future.

I bought the old power generator from the Hermitage, Mt. Cook, and installed it at Erewhon Park. It is much bigger than I need at the moment but I’m looking to expansion in the future. I am converting the woolshed at Erewhon Park into an indoor game room where visitors can play bowls, table tennis and so on when the weather is bad.

CONCLUSION

I didn’t go into tourism without giving it a great deal of thought. It is not something to be rushed into blindly and it has its pitfalls. But so far the results have been far beyond my first expectations. Capital invested in tourism is giving better returns than from sheep. These days, it is comforting not to have all your eggs in the wool basket.

Also, tourists make life more interesting. It’s an isolated life in the back country and you can get very set in your ways of thinking. My wife and I have enjoyed meeting these different people from all over the world. They think differently from us and we pick up a lot of new ideas.

So we feel that we are learning as well as earning from tourism.
THE HIGH COUNTRY — THEN AND NOW

Craigieburn Creek in 1904.

photo: Ivan E Photographic Book (Springfield)
Craigieburn Creek in 1966.

photo: John Harrison.
THE HIGH COUNTRY — THEN AND NOW

Cora Lynn in 1890.

photo: John Beaumont.
Cora Lynn in 1951.

photo: R. D. Dick.
Craigeburn Stables in 1904.
Site of Craigieburn Stables in 1966.

photo: John Harrison.
THE VALUATION OF HIGH-COUNTRY RUNS
By J. D. Gregan, Valuation Department, Christchurch.

I have frequently heard the jibe that high-country valuation is easy. I have heard the same statement made regarding the valuation of coalmines. The remarks have been passed because in each case the final answer is arrived at by a comparatively simple calculation. They disregard that a great deal of care and thought lie behind the figures chosen for that final calculation.

In this article I shall outline methods which can be used and factors to be considered in valuing a high-country run.

Before embarking on high-country valuation, a valuer must have a thorough knowledge of run management. An experienced valuer will develop an eye for snow risk. Modern techniques have reduced losses from snow so, where losses are high today, a valuer must be qualified to sum up management and to decide whether the manager or the place is at fault. He should understand good stock management, what breeds and classes of stock suit the country, and how their balance alters the revenue. He must know the best use for each part of a run — which areas can best pasture the ewes, wethers, two tooths and hoggets, and when they can be used. He must know if they can be improved by seeding, spelling, fencing or ploughing. But the most important qualification of a valuer is to be able to recognise the different types of country and know how their balance, one with the other, affects the quality of the run as a whole.

So much for the valuer himself. The next stage is his inspection. If he is young and fit he will doubtless be happy to spend many hours riding or slogging on foot to vantage points on peaks or ridges to examine the property thoroughly. In the early stages of his career, this time is not wasted. He will become familiar with vegetation and soils at various levels and will gain a rewardingly thorough knowledge of the topography of the run. With more experience, however, he will be able to assess the salient factors with less physical effort. Indeed, today's tracks and four-wheel drive vehicles have made heavy physical effort unnecessary in the inspection of many runs.

As the key to any run is its winter country, the valuer will inspect this thoroughly, adequately considering its safeness, accessibility and any potential for improvement. The ability to hold sheep on this country, either by fencing or the less
reliable barrier of the first snowfall, should be checked as should the risk of deterioration from erosion, weeds or over-stocking. The inspection of the summer country need not be so detailed but should be conscientious enough to assess such factors as mustering problems, erosion risk, sufficiency and suitability for the type of stock run.

With an awareness of new techniques, a valuer may see, in the traditionally accepted “summer” country, a potential to expand the precious area of winter grazing. But he is a brave man if he attaches undue weight to this without at least hearing the opinion of the existing management.

When the physical improvements — buildings, fencing and other development items — have been inspected and valued, some information must be obtained from the owner or manager if the valuer is to complete a satisfactory valuation. On a down-country farm, a valuer familiar with the area may do a competent job without detailed production figures, but I consider that he is like a pilot without instruments flying in a fog if he tries to value a high-country run without complete figures, preferably for at least five years back.

These should include stock numbers, in their respective classes, preferably shearing tallies. These are more accurate than autumn figures which can depend on the success or otherwise of that muster. Marking tallies and sales of surplus stock, again in classes, should be obtained and, by allowing for killings for dogs or domestic use, death rates can be calculated. Total wool weights for at least five years are essential and if these cannot be supplied on the property the valuer should get the owner’s authority to obtain them from his selling or scouring firm. Figures for cattle carried and sold will complete the stock picture, but details should be obtained of any stock food or grazing purchased as well as of any topdressing or cultivation programme. The normal labour complement is noted as well as the total man days involved in shearing and autumn musters.

The valuer should now be able to make his valuation.

Of course a common yardstick of value must be found before sales of similar properties can be compared. A “per acre” basis obviously cannot be used on country where the carrying capacity may vary from two to ten acres per sheep. Here the best valuer’s break-up of land classes is likely to be no more than a rough estimate.

The method used over a long period by most valuers has been to work on a “stock unit exclusive of buildings” basis. The stock unit is sometimes “per ewe equivalent” but more often
"per sheep". While this is reasonably accurate when comparing properties with a similar standard of management, it is not so good where, for instance, a property has been overstocked at the expense of the country and, usually, of the wool weights. As the real worth of a high-country run is its ability to produce wool, a more logical yardstick is surely "per pound of wool", with a "per acre" or "per stock unit" basis used as a check where similar properties are being compared.

Almost every high country property is sold on a "going concern" basis. Otherwise it would of course, be worth considerably less to a purchaser who had to buy in sufficient stock of the right class and age groups and then get them accustomed to his country. A further complicating factor is that since most high country runs are held on Pastoral Lease, with perhaps a relatively small area of freehold, an adjustment must be made to compare sales as if all were freehold.

Under the Pastoral Lease system a stock limitation is imposed by the Crown and rentals assessed "per thousand ewe equivalents" according to the type of country. Although leases are for a 33 year period, with perpetual right of renewal, recent sales suggest that the normal buyer regards the rental as if it were a "Lease in Perpetuity" and has faith that future governments will be as kindly disposed towards the runholder as they have been in the past two decades. I would not like to forecast the future but I would say that a valuer analysing the sale of a Pastoral Lease today would be making a fair comparison with a freehold property if he capitalised the existing rental (for example say 5 per cent on $900 = $18,000) and added it to the sale price. The next step is to deduct the estimated value of the stock and any plant included in "going concern" sales. These values can be obtained from a list of prices at current high-country fairs, although normally a vendor will accept a slightly more conservative figure than these where the stock form part of the whole transaction. Having reached the net figure for the land, the valuer must next separate out from a sale price the value of the buildings, which could vary from a bachelor owner's whare and derelict woolshed to a mansion-type homestead and a full range of excellent out-buildings. He is then left with a sum which he considers the purchaser paid for land exclusive of stock and buildings. He then divides this by the annual average wool clip to reach a land price paid "per pound of wool", taking into account that the purchaser will be buying on the clip he expects to get in the future and not one which may have been considerably lower, due to some factor such as rabbits, in past years.
He has an answer, certainly, but at this stage the valuer must remember that his duty is to compare "like with like" and that an analysis of a number of sales to prudent and informed purchasers may give him a surprisingly wide range "per pound of wool". Factors such as access, mustering costs, surplus stock available for sale and potential for improvement are among the factors which could influence the price.

Most valuers embarking on a programme of high-country valuation will make out a chart of properties sold in comparable districts to the area being valued and will list all significant factors. Then, if a run with a number of detrimental characteristics has sold for, say 75c per pound of wool and an excellent" one. When sales of high-country runs are plentiful, sales where, within that range, the property being valued lies.

Where cattle provide an appreciable portion of a run's income, our "per pound of wool" loses a little of its reliability, although no more than would a "per sheep" or "per ewe equivalent" one. When sales of high-country runs are plentiful, sales of those with cattle can be compared with those without to arrive at the price paid for the land necessary to run one breeding cow or fatten one bullock. Alternatively, a valuer can use the "profit" approach. If a buyer is prepared to pay 90c as capital for the ability of a place to produce a pound of wool netting him, say, 30c after costs are deducted, would he not pay $60 for the ability to rear a calf which would net him $20 a weaner?

Summarising, a valuer's approach to reach the capital value could be as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings, yards, etc. (value to property)</td>
<td>$20,000</td>
</tr>
<tr>
<td>Land (including fencing and any grassing</td>
<td></td>
</tr>
<tr>
<td>improvements) based on 60,000lbs wool</td>
<td></td>
</tr>
<tr>
<td>@ $1 per lb. and 120 run cows @ $60 per cow</td>
<td>$67,200</td>
</tr>
<tr>
<td>Capital Value as freehold</td>
<td>$87,200</td>
</tr>
<tr>
<td>Deduct rent capitalised $900 x 20 (5%)</td>
<td>$18,000</td>
</tr>
<tr>
<td>Sale value of land</td>
<td>$69,200</td>
</tr>
<tr>
<td>Add value of stock and plant—say</td>
<td>$36,800</td>
</tr>
<tr>
<td>As Going Concern</td>
<td>$106,000</td>
</tr>
</tbody>
</table>

A valuer must train himself to think in terms of "going concern" prices. These are the terms in which most runholders
think and, even if a value for the land only is required, it is a valuable check to add the value of stock and plant and then consider the total figure in the light of known sales. To obtain sales of reasonably comparable properties the valuer may often have to go far outside his own district but I am sure that in general the same common denominators apply to the high country from Marlborough to Southland.

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THE SPUR-WINGED PLOVER

(*Lobibyx novaehollandiae*)

By Mrs Maida Barlow, 152 Lewis Street, Invercargill.

This elegant bird, with its broad-winged, floppy flight and penetrating alarm-call will be welcomed on the high-country scene, where it is becoming increasingly apparent.

Close studies by Southland ornithologists have shown that it consumes large quantities of wire-worms and grassgrub, and there is no known record of the bird damaging either crops or stock. It has never been seen to eat carrion, and the species is therefore entirely beneficial to landowners. The most that can be said to its discredit is that an occasional bird will swoop aggressively towards any man or dog approaching—possibly unknowingly—the nest, or more particularly, the chicks. There is to date no record of any bird actually touching a ground intruder, although similar diving attacks upon harriers in the air can result in flying feathers before the harrier makes off. The sharp half-inch spur on the leading edge of the wing, from which the bird gets its name, can be used to effect in these attacks on harriers.

An Australian bird, self-introduced to Southland in the 1930’s, the species is now spreading in ink-blot fashion throughout the South Island. It is firmly established in Southland, spreading throughout Otago, and there are increasing reports from Canterbury and Marlborough of scattered breeding pairs.

A Southland ornithological team, working under the auspices of the Ornithological Society of New Zealand, has colour-banded some hundreds of these birds as part of a study of the distribution and movement of the species. Any sightings (or, of course, recoveries) of banded birds should be reported to me. Each banded bird carries an individual combination of colours, with no more than two bands to a leg. For example, \( A^B \) would indicate an aluminium (silver) band above a blue band on the left
leg, and a white band on the right leg. Any reported sighting of a banded bird will be a valuable contribution to this scientific programme.

This is primarily a bird of the grassland, ground-nesting, and not difficult to recognise. The bird is about the size of the smaller gulls. Its olive-brown, black and white plumage is dramatised by the bright lemon-peel yellow bill and facial mask. The long legs are reddish in the adult. It is a fully protected species.
This article gives a short history of the halfbred sheep; why it was evolved, and its place in the tussock country today.

THE ORIGIN OF THE BREED

The first suggestion I can find of a desire to cross the Merino with an English Breed is that, on 27th April, 1803, Samuel Marsden sent a letter to Sir Joseph Banks in London in which he said:—

"Nothing can be greater than the importance of our improvement of sheep. I think that the Leicester and Lincoln breed would very much improve our flocks could we obtain them. I have written to my agent to purchase me two rams".
The halfbred really came into prominence after 1882 when it became practicable, by freezing, to deliver mutton in first class condition on the London market. Prior to this, wool and tallow were the only exportable produce from sheep, and nearly all the flocks were pure Merino. Then the long struggle commenced to breed a sheep which produced both a good fleece and a carcass attractive to Smithfield. It had also to live and breed on areas of native country where previously only the Merino had proved able to survive. Unfortunately, little is known about the many experiments of the early years, but a number were unsuccessful, and eventually breeders were reduced to the crossing of the Merino with the Lincoln, English Leicester and Border Leicester, and much later the Romney Marsh. Few seemed to persist with the Border-Merino. The halfbred ewe flocks increased everywhere, but because they were only one remove from the Merino, they exceeded expectations for both hardiness and thrift.

Studmasters were now challenged to breed a ram which, when mated to these ewes, would produce progeny retaining both the quality of the half-bred dam and the inherited hardiness of the Merino.

This was done in two ways — Merino ram to long wool ewe — Merino ewe to long wool ram. Both methods were equally successful and are still practised. There is no difference in the progeny of either cross, provided the quality of sire and dam are the same. A much higher lambing percentage can be obtained from the long wool ewe, but for quality of wool and conformation of carcass any preference between the two crossings has no foundation in fact.

HOW THE BREED DEVELOPED

The first flock registered as "halfbred" was that of Sir George Clifford in 1911 with Flock No. 1 — but he had started cross-breeding in 1886 with 3,493 ewes in his first registration.

Other early breeders were Leonard White of Rakaia, Shennan estate of Puketoi, Wm. Aynson of Southland, E. A. Weld of Marlborough and all the second generation of Rutherford. The New Zealand and Australian Land Company were also early breeders. All the above, however, except the Rutherford (who never changed their rams from first cross halfbreds) registered their flocks as Corriedales after this breed’s own stud book was opened in 1923.

High-country management was very different then from what it is today. Flocks were grazed all the year round on purely
native vegetation, and in most cases there were no subdividing fences even between summer and winter country. There was no possibility of supplementary winter feeding, so the sheep had to have a strong constitution. Sir George Clifford of Stoneyhurst, writing in the Canterbury Agricultural College Magazine in 1911, pointed out the difficulty of getting uniformity in a cross of two breeds which are extreme opposites in wool quality. Clifford, a noted studmaster of his day, proved that the quality of a cross depended on the quality of the dam as well as of the sire.

By following this principle he reduced his own first cross culling from 25 per cent to 10 per cent. There is little doubt that some errors were made — such as mating first-class sires to medium to poor quality ewes and expecting good progeny. Also, experience soon taught sheep men not necessarily to expect a medium type wool from the progeny of a fine combing ewe and an ultra strong ram.

This looks all right in theory, but in practice the mating of two extremes tends to cause a series of throwbacks, and complete lack of uniformity. The most popular halfbred sheep today are those carrying a fleece of medium quality wool, so the surest way to achieve this is to mate medium quality ewes with medium quality rams.

The long-famous "Canterbury Lamb", still much sought by our own butchers, was originally the product of halfbred ewes and English Leicester rams.

THE SEVERAL CROSSES

Today there are about 50 registered halfbred flocks, and of these about half are English Leicester Merino cross; the others being Lincoln, Romney and mixed.

The popularity of the English Leicester cross is due to its hardiness and ability to recover quickly if, through climatic conditions, it receives a severe check. Also crimp in the wool, which is a dominant characteristic of the breed, is maintained even at ripe age.

Of later years, Romney halfbreds have increased in some areas, especially where it is not necessary for them to eat daintily. But they do not retain the same wool quality after full maturity. The Lincoln is less hardy than either the Leicester or Romney and comparatively few first cross rams are now bred.

So there is now a wide choice of crosses and blood lines available to the runholder who desires to maintain a halfbred flock. Occasionally we hear of the odd runholder persuaded
for some reason or another to change from a Merino to various types of crossbred flock. On some of the better class country this change may be worthwhile though again there is often little fact to support it. But when it is necessary to carry a large proportion of wethers the Merino cannot as yet be economically displaced.

**IMPROVING THE FLOCK**

The degree of hardiness of the various halfbred strains has been debated throughout the years, but there is conclusive evidence that environment and the rearing conditions of rams are important when a robust and strong constitutioned sheep is essential. Some of our foremost authorities have stated that environment is as important as genetics. Thus the only way a high-country runholder can improve his flock is through the sires he selects. Normally, even if he could afford to, he could seldom purchase ewes from comparable country to his own except those which are cast for age.

The first cross ram, being only one remove from the Merino, is a true hybrid and has the added advantage of hybrid vigour. Many halfbred rams today, however, are second cross or later. I do not believe these to be as good, but the situation has been forced on some breeders by the difficulty of buying stud Merino ewes to keep up their ram breeding ewe flock.

It was from the same original breeds as the halfbred that the Corriedale was evolved by careful selection and inbreeding. Although for many years now recognised as a breed in its own right, it has not been so popular among runholders as the halfbred, and it is usually associated with lower and better country. Nevertheless, under an expert studmaster it too can be bred to withstand our rigorous high-country conditions.

For 80 years the halfbred has had no superior for much of our run country, but it should never be forgotten that one of the most important issues to consider when selecting rams for high country is the conditions under which they and their forbears have been bred and reared. An animal well fed on clover and concentrates to eighteen months of age cannot be expected to fulfil his stud duties if transplanted to native grazing under adverse weather conditions.

With halfbred flocks firmly established on South Island pastoral country, the demand for halfbred rams is probably stronger than ever. Good quality sheep are now seldom if ever sold at Ram Fairs, because top breeders are hard pressed to meet the orders of their own clients. Halfbred ewes have never
been more popular and cast for age ewes are eagerly sought by down-country farmers. When mated to a meat breed ram they produce an early maturing lamb and a payable fleece. These, after all, are what earns the sheep farmer his income.

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**BULLS WITH BAD FEET**

Mr Arnold Bain of Roxburgh wrote to us a short while ago:

"... I am concerned at the number of beef bulls we see today with bad feet. This condition has crept in only in the last few years but I feel there is a need to draw runholders' attention to it. Frankly I'm amazed at the number of bulls offered for sale with bad feet. Far too many. I feel the old adage of "no foot, no horse" applies to our beef bulls too. It is a particularly bad fault to breed into our run cattle who, as you know, have to travel great distances to live. I know of many buyers who, until their attention was drawn to the fact, never ever looked at the feet of the bulls they were buying. . . ."

We showed this letter to Mr M. M. Chisholm of the Molesworth Station and asked for his opinion. He writes:

"I have no special qualification to be a judge of bulls but I do know how the problem affects us here and I agree with Arnold. We have 165 bulls and some of them have bad feet too. Try as one may to avoid the purchase of these beasts you invariably get a few. As far as I know, not many breeders are free of the trouble, though of course there are many studs I haven't seen.

The increase in cattle in the next few years will be tremendous. Runholders are becoming aware that cattle will forage

One of the tipping cradles used at Molesworth for paring feet. They are made by Crowley and Hogg Ltd., Feilding.

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as well as sheep, and at the same time build up the country. We’ve been living too long on browntop and tussock. The high back country and the not so high is going to run hundreds of thousands of head. The runholders and the stud masters will be all in this together. The South Island back country needs the traditional beef breeds with size and ruggedness. There will be a tremendous market for bulls and the problem of poor-footed studs will become a real issue to these people.

Stud men are well aware of the strains giving foot trouble. They may have been introduced to counteract other faults in another strain. It’s a difficult but important task which all breeders must tackle. It’s not an impossible one — many breeders are already working away at it themselves. In all fairness to the Breed Societies I know they are well aware of the problem among their members and would like to eliminate the poor foot altogether.

The inspectors appointed by the Societies from their own ranks can take only limited action and bulls thrown out of any sale or show could still be sold privately in a back pen.

Sometimes I get rings from as far afield as Gisborne and Southland to comment on the feet of the bulls from some stud. It’s not a pleasant question to be asked to answer but it does show how concerned some buyers are.

Buyer resistance will be the quickest way to bring about an improvement. Buyers will have to be educated to bypass every poor-footed bull. There are many other important points to choose for, but what use is a bull if he can’t walk? Sometimes one even sees very high priced stud bulls with doubtful feet sold to other breeders. This is a great pity because it’s from these men that the ordinary runholder buys. One bad bull at this level can do a lot of damage.

We have spent $600 making cradles to try and doctor some bulls’ feet. But this doesn’t solve the problem and really should not be necessary.

It’s when they’re run under hard and dry conditions that any trouble shows up, particularly when they’re in store condition at the end of the season. But that’s only natural grazing after all. The secret of cattle raising in the back country is to be able to hold the bulls, and the cows, in what looks like poor store condition in the winter then bring them back again in the summer.

As Arnold Bain says, the problem of poor footed-bulls is often overlooked. I often wonder how many calves are lost because the bulls are lying up gullies instead of getting about". 
THE WEED POTENTIAL OF LODGEPOLE PINE

By U. Benecke,

Forest and Range Experiment Station, Rangiora.

There has been much argument concerning the weed potential of lodgepole pine (Pinus contorta or P. murrayana). In the North Island the problem has been mainly one of the undesirable spread of an alien tree into a National Park but, in the South Island, the worry has been that lodgepole pine could 'take over' large areas of good tussock grassland. This account summarises the results of recent research. A more detailed account will be published elsewhere.

LODGEPOLE PINE IN ITS NATURAL HABITAT

Lodgepole pine occurs naturally in North America from Alaska to California and from the western seaboard to the eastern slopes of the Rockies. It grows on a very wide range of sites and soils from sea-level to over 10,000ft., under rainfalls from less than 20ins. to more than 100ins. a year and, impartially, in wet bogs or on dry rocky cliffs. It is a very variable species that can be divided into four sub-species each of which could probably be divided into many varieties.
It can make rapid early growth though it seldom attains large dimensions. It has been extensively used for production of hewn sleepers, telegraph poles and mining timber. Today the timber is of considerable commercial value. It possesses excellent pulp and paper-making qualities.

Seedlings demand abundant light and absence of competition from other species for survival and growth. Over much of its range lodgepole is therefore characteristically a ‘fire-weed’ species that is ultimately replaced by other species, e.g. Douglas fir or spruce, or it is confined to sites where competition is slight. Given plenty of light and freedom from competition, however, regeneration can be profuse because of heavy seed production and very rapid seedling development. Cone production may commence at five years of age in open stands but in dense stands cone production may be delayed until trees are 50 years old.

**LODGEPOLE PINE IN NEW ZEALAND**

Lodgepole pine was extensively planted in New Zealand in the late 1920's and early 1930's. It appears that seed of a number of different varieties was used though only two varieties are at all common. One of these, a ‘green’ strain which may have come from low altitude or coastal sources, has shown promise for timber production. Most plantings, however, were of a much inferior ‘yellow’ strain from inland sources. Planting in recent years has been on a reduced scale though research is being carried out to select and test varieties both for timber production and soil conservation purposes.

All varieties currently grown in New Zealand have proved to be prolific cone producers. The first cones on open grown trees may appear at 3-4 years of age, heavy coning commencing at 7-8 years. The cones of both the green and yellow strains open and shed seed readily at maturity though cones of a third and less common variety may remain closed for several years unless exposed to exceptional heat, e.g. to fire.

**LODGEPOLE PINE IN THE SOUTH ISLAND HIGH COUNTRY**

The distribution and spread of lodgepole pine in the South Island high country was investigated in 1963. This survey, covering areas from Marlborough to Otago, revealed that very
little had in fact been planted in run country. A few cases of active spread were recorded, e.g. at Molesworth and Pukaki, but none on the scale reported from central North Island. There were far more cases of natural spread of larch, Corsican pine, ponderosa pine, Douglas fir and other species.

For all species, active spread was usually found to be fairly recent even where the parent trees had been producing sound seed for many years. With few exceptions there had been little survival and growth of seedlings prior to 1950-52. Local information from runholders and others made it evident that effective rabbit control had been a key factor.

Seedlings of all species were found in ungrazed tussock grassland even where in some cases there was a fairly dense tussock cover. In fact, on frosty flats the tussock appeared to act as a nurse to the young seedlings: these rarely survived on severely depleted sites because of frost lift and desiccation. Seedlings did not, however, establish freely where there was a good ground cover of introduced grasses such as browntop, sweet vernal or cocksfoot, either with or without grazing. Improved pastures were free from pine seedlings even where there was a nearby effective seed source as shown by the presence of many seedlings on adjoining unimproved land. Exceptionally, ponderosa pine in one instance had spread successfully into a cocksfoot-dominated pasture, possibly because it is deeper-rooting and needs less moisture than the other conifers mentioned.

In sum, both pasture composition and grazing pressure appeared to influence the capacity of all species to spread, but grazing influences were difficult to assess. Discussions with runholders led to the tentative guess that a stocking rate of less than one sheep to two acres would be necessary for significant survival of lodgepole or other tree seedlings. Vigorous spread was unlikely unless stocking rates fell below one sheep to four acres and pasture composition was favourable to seedling establishment. These guesses, however, required checking. Trials were therefore conducted at the Broken River Field Station of the Department of Agriculture, in the Waimakariri river catchment.

**DIRECT SEEDING TRIAL**

In the spring of 1964, lodgepole pine seeds were sown in 4ft x 6ft plots in improved and unimproved tussock grassland at a rate of 500 seeds per plot. The stocking rate was accurately known and could be controlled. No seedlings were ever found in
the improved pasture plots, grazed or ungrazed, despite favourable climatic conditions for germination and establishment. Competition from the introduced grasses and clovers was sufficient, on its own, to prevent seedling establishment.

In comparison, in unimproved grassland grazed at 2-3 month intervals by merino hoggets and wethers at an annual rate of one sheep to two acres, 29 seedlings per plot were recorded in February 1967. The average height of the best 10 seedlings was 2ins. In ungrazed unimproved grassland there were 78 seedlings per plot with an average height for the best seedlings of 6½ ins. Similar results were obtained on unimproved free range where the effective stocking rate over the area containing the plots probably lay between 1 sheep to 2 acres and 1 sheep to 4 acres.

This experiment showed that lodgepole pine will establish successfully from seed on unimproved pasture. Grazing, however, markedly reduces seedling survival and growth. Current indications are that, under continued grazing, few if any seedlings will survive.

SEEDLING TRIAL

As a further check, 1-year-old lodgepole pine seedlings were raised in peat pots filled with soil from the experimental area and were planted out, in the pots, at 4½ft x 9ft spacing within fenced 1/5th acre improved and unimproved grassland plots. These plots were then grazed for 27 months by merino hoggets and wethers at 2-3 month intervals, at the following annual stocking rates.

**Improved grassland:**— 3 sheep to 1 acre, 3 to 2 acres, and 1 to 2 acres.

**Unimproved grassland:**— 1 sheep to 2 acres, 1 to 4 acres, and 1 to 8 acres.

There were three plots at each stocking rate, making 18 plots all told. Three similar sets of plantings were made on adjoining unimproved free range (1 sheep to 2-4 acres).

The improved plots at 3 sheep per acre were hard grazed but the plots at 1 sheep to 2 acres were under-stocked and there was much rank growth. Conditions were similar on the unimproved plots except that surplus growth even at 1 sheep to 8 acres was not rank. Numbers and condition of surviving pine seedlings were assessed before and after each grazing period. Results are summarised in Fig. 1 and Table I.
FIG. 1. SURVIVAL OF LODGEPOLE PINE SEEDLINGS IN TUSSOCK GRASSLAND AT VARIOUS STOCKING RATES

- UNGRAZED
- 1 SHEEP TO 8 ACRES
- FREE RANGE
- 1 SHEEP TO 2 ACRES
- 3 SHEEP TO 2 ACRES
- UNGRAZED
- 1 SHEEP TO 4 ACRES
- 3 SHEEP TO 1 ACRE
- UNIMPROVED GRASSLAND
- IMPROVED GRASSLAND

% SEEDLING SURVIVAL

STOCKING DATE

1964 1965 1966 1967
**TABLE I**

**SURVIVAL OF LODGEPOLE PINE SEEDLINGS UNDER DIFFERENT STOCKING RATES**

**Improved Grassland after 18 months:**
No seedling survival, grazed or ungrazed

**Unimproved Grassland after 27 months:**

<table>
<thead>
<tr>
<th>Stocking Rate</th>
<th>Total Seedling Survival per cent</th>
<th>Healthy Seedling Survival per cent</th>
<th>Mean height in ins. Best 10 seedlings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 sheep to 2 acres</td>
<td>15</td>
<td>0</td>
<td>1 1/2</td>
</tr>
<tr>
<td>1 sheep to 4 acres</td>
<td>20</td>
<td>1 1/2</td>
<td>2 3/4</td>
</tr>
<tr>
<td>1 sheep to 8 acres</td>
<td>58</td>
<td>15</td>
<td>5 3/4</td>
</tr>
<tr>
<td>Ungrazed</td>
<td>94</td>
<td>63</td>
<td>11</td>
</tr>
<tr>
<td>Free Range (1 sheep to 2-4 acres)</td>
<td>23</td>
<td>7</td>
<td>2 1/2</td>
</tr>
</tbody>
</table>

*Mean of 3 plots

Initial establishment was over 90 per cent on all plots. Within 18 months, however, all seedlings had failed on all improved plots even in ungrazed control cages. Once again, competition from introduced grasses and clovers was sufficient, on its own, to reduce survival to zero. Grazing only hastened the process. Seedlings were grazed each time healthy shoots appeared and many were badly damaged by trampling.

On the unimproved plots there was a higher percentage survival maintained for a longer period of time while, within ungrazed control cages, there was high survival and good growth. However, even in this unimproved grassland, all the seedlings that survived grazing for 27 months at 1 sheep to 2 acres were very small, unhealthy, and had been badly damaged. At 1 sheep to 4 acres, 20 per cent of seedlings survived after 27 months but only 1 1/2 per cent were healthy. Even these had suffered some damage. At 1 sheep to 8 acres, on the other hand, survival was high after 27 months and there were many healthy plants, some displaying little if any damage. Final results on the unfenced free range were close to those of the 1 sheep to 4 acre fenced plots.

41
This trial supported the conclusion that lodgepole pine is unlikely to establish naturally from seed on top-dressed and oversown tussock grassland, whether it is grazed or not, but showed that there is a strong possibility of establishment in unimproved tussock grassland where carrying capacity is less than one sheep to four acres.

**RUN SCALE TRIAL**

It is, of course, difficult to apply the results of small-plot experiments to run country in general. A field scale trial has therefore been established at Tara Hills but at this stage interpretation is difficult because of initial great variations in the success of seedling establishment between sites. Nevertheless, there has been poorer seedling survival in low altitude improved grassland than in high altitude unimproved grassland, and on sunny slopes than on shady slopes. Heavy damage to seedlings by trampling or by stones moved by animals has been noticeable, especially on depleted low altitude sites.

In other words, trends in seedling survival are in the direction expected. Considered in conjunction with the free range plots at Broken River, the Tara Hills trial suggests that conclusions drawn from the fenced plots will apply to run country in general.

**ACKNOWLEDGMENTS**

The author wishes to express his thanks to the Department of Agriculture for use of facilities at Broken River and at Tara Hills; Mr G. Urquhart of Flock Hill Station for providing the sheep required, always at the right time; the staff of the Forest and Range Experiment Station who assisted with the trials; and Mr J. T. Holloway for help in preparing this summary.

**COMMENT**

J. T. Holloway,
Director,
Protection Forestry Branch,
Forest Research Institute.

The investigations summarised above indicate clearly that control of lodgepole pine and other conifers on run country is primarily a matter of good grassland management. Employing hindsight, it can now be seen that the spread of woody species, including lodgepole pine, other conifers and sweet brier, was an
inevitable result of effective rabbit control. Sufficient facts are now available, however, for the exercise of forethought.

Under the climatic conditions obtaining over the greater part of the high country, there will always be a risk of spread of woody species where pastures are poor, carrying capacity is low, and grazing is sporadic or uneven. In the case of lodgepole pine, it has been shown that there is a risk of spread where carrying capacities are considerably less than one sheep to two acres, and that the risk is negligible where, through top-dressing and oversowing, carrying capacity can be raised to one sheep to two acres or better. Where pasture improvement work has been undertaken and utilisation is efficient, spread is likely only on to sites that are least responsive to improvement and that are simultaneously avoided by stock.

Lodgepole pine, in its better varieties, is potentially too valuable a species for timber and pulpwood production on difficult sites, and for high-altitude erosion-control planting, for its use to be renounced completely. All that can be recommended is that caution should be employed in its use where there are extensive downwind areas of depleted tussock grassland that cannot be brought up to the indicated standard quickly, and in those relatively few areas where, because of very strong, seasonal, soil moisture deficits, it may always be difficult to achieve or maintain pastures of this standard. The spread of lodgepole and other conifers into unoccupied country is, however, always likely.

Finally it may be said that, where it does spread, it will not be valueless. Left alone, moreover, it will rarely occupy the ground permanently because it is essentially a pioneer species incapable of regeneration in its own shade. In the absence of fire, it will be replaced by shade-tolerant species, native or introduced.

**RUN MAPS**

The interest of the New Zealand public in the high country has been well shown by the success of Graham Hughes's run map. The Institute has sold over 1000 of these and orders are still coming in.

Stocks of Type A (in black and white, price 70c per set of two maps) and Type B (in three colours, with grid and index, price $2.30 per set of three maps) are available. Readers may obtain copies by writing to the Institute. The price includes exchange on cheques.
THE TRESPASSER AND THE LANDOWNER
By F. A. Gordon, Detective Superintendent, New Zealand Police, Christchurch.

The New Zealander’s version of “An Englishman’s home is his castle” seems to vary according to the individual, particularly the one who chooses to wander freely across property only to kill any animals he sees there. He follows the principle “What’s yours is mine — what’s mine’s me own”.

It would be unfair to tar all trespassers with the same brush. Some may not be aware they are trespassing at all. Moreover, nobody becomes a trespasser on open land until they are informed that they are trespassing and told to go. They are liable to prosecution if they refuse to go or if, having left after such a warning, they return. Similarly, if a person passed a “Trespassing” sign, properly worded, he could become a trespasser if it could be proved that the sign was legible, that the person so charged must reasonably be expected to have seen it, and that he was able to read.

The Police Offences Act, 1927 (Section 6A) makes it an offence liable to three months’ imprisonment or a fine of £100 for any person who “wilfully trespasses in any place and neglects or refuses to leave that place after being warned to do so by the owner or occupier or any person acting under the express or implied authority of the owner or occupier”.

In such cases the police make the enquiries, lay the charges and prosecute.

Runholders are not as a rule troubled by people who enter their property to gather mushrooms, to collect pine cones, or to fish. The fisherman does not steal the trout he catches, while the collectors of mushrooms and pine cones do not steal their harvest unless the landowner establishes that he was growing them for sale. It is of course courtesy to ask before one goes on to private property.

STOCK THEFT

Stock thefts are a concern both to the runholder and the Police. Sheep stealing is not as widespread as in the past, but the Police’s difficulty is weakness in identification and the lack of reliable stock records.

I cannot overstress the need for proper and definite identification of stock. Our investigations are prejudiced from the outset if an animal cannot be readily identified by its owner.
Registered earmarks or tags are the normal and accepted means of identification but stock is often bought-in with a multiplicity of earmarks and no record kept of them. Thus identification in a court of law is a virtual impossibility. Jurymen are not farmers.

Stock owners can combat stock shortages by:

(a) Correctly earmarking or branding each animal.
(b) Keeping proper tallies of all stock at shearing, docking, crutching, dipping, etc., and at each movement of stock.

Not long ago we investigated a complaint of sheep stealing and we found that the allegation could not be sustained because of inadequate records and means of identification.

The complaint alleged theft of 1,000 sheep. The only tally considered reliable was taken five years before. No lamb tallies were recorded. The farmer allowed for an estimated natural increase each year, less an allowance of 10 per cent death rate and six killers per month. He based his allegation of theft on the difference between what he thought he should have and what his final muster revealed.

The Police conducted a further muster and found 200 more sheep. When a proper assessment had been made, the farmer seemed to have a surplus instead of a shortage.

Many of his sheep had different earmarks from what he had described to us. So, had there in fact been a theft, he could not have identified his own property.

**PROBLEM SHOOTERS**

Bodies such as the Deerstalkers' Association usually have responsible members who present no problem to the landowner. Trouble comes from the type of shooter who goes anywhere at any time in search of anything to shoot and so frequently shoots either himself or one of his mates or in the absence of game, shoots the landowner's stock.

Landowners are entitled to know who is shooting on their property and have the right to refuse or allow any person to enter upon it. They should grant permission to enter property prior to entry and on each occasion. Only one shooting party should be allowed at the one time.

Farmers are protected legally by the Stock Act 1908 (vide Statutes Amendments Act 1947 Section 16). This makes it an offence carrying a fine of £100 for "any person, without authority of the occupier, to go on any private land, with dog or firearm, and disturb any stock depastured thereon". In this section
"Private Land" has a wider interpretation and would include leasehold property, but the occupier himself must lay the charge. He has no power of arrest.

The indiscriminate shooting of stock is another problem because, in shooting a sheep or a cattle beast, the person responsible does not commit theft unless he takes the skin or some of the carcass for meat. He only commits a minor offence of "wilful damage" which carries a smaller penalty than the penalty for theft.

On the other hand, the law does not include the taking of a deer as theft unless the deer was a tame one and was actually confined when shot.

Problem shooters may not be strong in numbers but they make their presence felt in more ways than one. One way to deal with them is to decline permission to any hunter not known to the runholder or not vouched for to the runholder's satisfaction.

Unauthorised shooters should be firmly but discreetly told they are trespassing and ordered from the property. If they refuse to go, or if they return, the landowner has the right to report them to the Police as trespassers and a prosecution should result. A few prosecutions would soon pass the message on to even the most persistent of trespassers. But just one reminder — don't forget to take the number of any motor vehicle they may be using. Some people give funny names.

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A TABLE OF EWE EQUIVALENTS

By I. E. Coop, Professor of Animal Science, Lincoln College.

A full review of the Ewe Equivalent system was published in the November 1965 number of "New Zealand Agricultural Science". This note is a very brief summary of that article.

There are several ways of expressing farm production such as butterfat per acre, wool per acre or meat per acre, and these indices can also be used for comparing production on different farms. However, it is much more difficult to calculate or to compare the stock carried per acre on different pastures, crops or properties each carrying varying numbers of sheep or cattle. When these include ewes, wethers, hoggets, cows, calves or yearlings, each needing a different amount of food, the problem is even more difficult.
The ewe equivalent (E.E.) or stock unit (S.U.) is often used as a common ground for comparison. Different classes of stock are converted to ewe equivalents on the basis of how much feed they eat. The standard ewe is taken as a 120 lb ewe weaning one lamb. For example, a beef cow which eats six times as much feed as a ewe would be counted as six ewe equivalents.

Much scientific work has been done in New Zealand, Britain and America to measure the quantities of food eaten by different classes of stock, and to compare the value of different foods. The results of this work do not always agree with each other and are liable to considerable error. After assessing most of the experiments, I believe that the following figures are as close to the truth as possible:—

<table>
<thead>
<tr>
<th>Class of stock</th>
<th>Liveweight (Lbs.)</th>
<th>Ewe Equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ewe (Merino)</td>
<td>80</td>
<td>0.8</td>
</tr>
<tr>
<td>Ewe</td>
<td>100</td>
<td>0.9</td>
</tr>
<tr>
<td>Ewe (Standard Ewe)</td>
<td>120</td>
<td>1.0</td>
</tr>
<tr>
<td>Ewe (Southland Romney)</td>
<td>140</td>
<td>1.1</td>
</tr>
<tr>
<td>Wether</td>
<td>80→90</td>
<td>0.6</td>
</tr>
<tr>
<td>Hogget</td>
<td>50→90</td>
<td>0.7</td>
</tr>
<tr>
<td>Ram</td>
<td>160</td>
<td>0.8</td>
</tr>
<tr>
<td>Jersey Cow</td>
<td>800</td>
<td>6.5</td>
</tr>
<tr>
<td>Friesian Cow (Town Milk)</td>
<td>1,200</td>
<td>8.5</td>
</tr>
<tr>
<td>Beef Breeding Cow</td>
<td>1,000</td>
<td>6.0</td>
</tr>
<tr>
<td>Weaner</td>
<td>300→600</td>
<td>3.5</td>
</tr>
<tr>
<td>Yearling</td>
<td>600→800</td>
<td>4.0</td>
</tr>
<tr>
<td>Two-year-old</td>
<td>800→1,000</td>
<td>4.5</td>
</tr>
<tr>
<td>Weaner (fattening)</td>
<td>350→750</td>
<td>4.0</td>
</tr>
<tr>
<td>Yearling (country)</td>
<td>750→1,100</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Example: A Merino run with 3,000 ewes (2,400 E.E.), 2,000 wethers (1,200 E.E.), 2,000 hoggets (1,400 E.E.), 100 rams (80 E.E.), 60 cows (360 E.E.), 40 yearlings (160 E.E.), and 50 calves (175 E.E.), is carrying 5,775 E.E. If its area is 29,000 acres, it is grazing or 5 acres per ewe equivalent.

The simple E.E. figures given in the Table represent an average food requirement for each class of stock. This food requirement can vary according to the climate, the fleece length, the shelter available, the intensive or extensive nature of the grazing, the liveweight gains and so on, and this is why the
figures are to be taken as guides rather than exact figures. The conversion figures for cattle are less reliable than those for sheep and many errors could arise when comparing an all-cattle property with an all-sheep property. But the errors should not be so great when the majority of the stock are either sheep or cattle and also when the types of farm being compared are similar.

Nevertheless, the table does give a useful guide for comparing the stocking rates of farms. It must be remembered that the overall farm figure in terms of ewe equivalent is not the carrying capacity of the farm — it is a figure of what the farm is currently carrying. It should be related too to the level of production — fleece weight, lambing percentage etc. to assess whether the stock carried might be above or below optimum.

LETTER TO THE EDITOR

Botany Department,
University of Canterbury,
Christchurch, 1.,
New Zealand.

Dear Sir,

Readers of the “Review” might be interested in the kind of work that the University of Canterbury has been and is doing in the Waimakariri.

For more than 50 years a mountain biological station has been maintained at Cass on the Grasmere run and several thousand undergraduate students have had botanical, zoological, geographical, geological, agricultural, engineering and other training there. In the last few years from 50-80 botany students alone have been taught there each year. Further, hundreds of trainee teachers, school pupils and miscellaneous other people including Catchment Board, D.S.I.R. and Agriculture Department personnel have used the station as a base. At Cass and on other parts of the University lands in the Waimakariri, some 60 research projects (over a third of them directly involved with some of the important problems of the Waimakariri Catchment) have been done by Masters and Ph.D. students, and several projects are at present underway on the ecology, hydrology, geomorphology and climatology of the area. In fact about as much published scientific information on various aspects of the Waimakariri basin has been produced by University workers as by any other agency. Many of the scientists actively engaged in research on the area have had their training at the Univer-
Apart from publications and theses quoted in the bibliography of the Institute’s Waimakariri report (by Molloy, Gage, Fisher, Speight, Cockayne, Foweraker, Burrows, Malcolm, Moffat, Nurse, Phillipson and Brownlie, Relph, Sewell, White, Robinson, Coop, et.al and Walker et.al), University workers have carried out various other researches of direct concern to one or another aspects of problems of the Waimakariri. These include:

Cumberland, K. B. 1944: High-Country Run.
The Geography of Extensive Pastoralism in N.Z.
Econ. Geog. 20: 3.


J. Ecol. 49, 581.

N.Z. Geographer 16, 57.


Soons, Jane M. 1967: Erosion by Needle Ice in the Southern Alps, N.Z.
7th INQUA Congress Proc. 10.

Soons, Jane M. and Rayner, J. N. 1967:
Microclimate and Erosion Processes in the Southern Alps N.Z.
Geografiska Annaler, in press.


Thesis and post-graduate research is ensuing on mass movement, heat balance studies, rainfall, run-off and erosion, soil moisture, soil heat flow, the ecology of the beech forest edge and the causal ecology of some alpine grasslands.

The use of the Cass area for research and teaching has, for a good number of years, been by courtesy of Mr D. McLeod of Grasmere, and we are grateful to him for his tolerance and assistance.

Yours faithfully,
C. J. Burrows,
Lecturer in Botany.
DISCUSSION ON RURAL EDUCATION

One of the great problems faced by back-country people is the education of their children. Mr Michael Murchison of Lake Coleridge Station is keenly interested in this problem and we recently arranged a meeting between him and Mr S. S. P. Hamilton, the Education Department's Superintendent of Education for the Southern Region. This is a report of their discussion.

HAMILTON

Perhaps we should begin by looking at some of the current developments in rural education. One seldom hears unfavourable criticism of the general provision at the primary level. I think it’s reasonable to say we have developed in New Zealand a pattern of rural primary education that suits country folk. The typical primary teacher and his sole, two- or three-teacher establishment is at the heart of the country community fully identified with its cultural and social life. That’s how country people and we want it to be.

But it’s much more difficult and more complex to give country children equal opportunities at the secondary level and this is one of the main current tasks of the Government and the Department. A beginning was made with the acceptance of the recommendation of the Commission’s report in 1962 that Form I-VI high schools be established in rural areas. There are now nine Form I-VI high schools and a further six are planned.

MURCHISON

How is it decided where these will be?

HAMILTON

The present intention is to translate existing district high schools although eventually some of the smaller Form III-VI high schools may become Form I-VI schools. The six chosen will be among the larger district high schools favourably placed and having the most pressing need. It can be expected that in due course virtually all the large district high schools with stable or growing roll numbers will translate to Form I-VI schools.

MURCHISON

How about the smaller district high schools?

HAMILTON

It is intended to make a start with a new kind of school which for want of a better name is at present called the “area” school. Two — probably one in each island — are planned for a start. The area school is expected to achieve a planned and
co-ordinated programme from infant classes to Form V, or possibly to Form VI. The principal will need to be a versatile person qualified to give leadership to all staff. Although much detailed planning is still ahead, staffing will reflect the unity of the school. So too will procedures for control, appointment, inspection, assessment of teachers and that sort of thing. The area school will take in Form I and II pupils from the neighbouring schools and one would look for close consultation in programme development between the area school and its contributing schools. Area schools will succeed — as have Form I-VI schools — if the general educational tone of the district is favourable and if they capture the imagination of the community. I hope that in the "seventies" virtually all the 71 district high schools in New Zealand will become either Form I-VI or area schools.

MURCHISON

I'm glad to hear of this and I'm sure these developments will be all to the good, but they don't help the people who live off the school bus route. So many of us in the back country and other areas are in this position.

HAMILTON

I just wonder how many people really are off a bus route. If you added them up you might find that there were far fewer than you think. In Southland, for instance, only very remote areas like Glenorchy and some parts of the Catlins will be out of range of our high schools or district high schools.

MURCHISON

I don't have figures, of course, but I'm thinking not only of runholders and their employees, but hydro workers, other Government employees, rabbit board employees and so on; the problem being with all people who are off the school bus routes.

HAMILTON

It might be a good idea if we found out just how many children were involved. If the numbers off the school bus routes were very small, it might be shown that the total cost of additional assistance wouldn't amount to much. Do you think that a body like the Federated Farmers or the Tussock Grasslands Institute could organise a count of back-country children unable but wanting to get to State secondary school?
MURCHISON

I hadn’t thought of that, but it could be well worth considering. Another point to bear in mind is that, although there may not be very many children in the back country, this doesn’t mean that the problem isn’t serious. Many parents leave the back country when their children reach secondary school age. A lot of first-class employees have been lost to us this way. They just can’t afford to send several children to boarding school and you can’t blame them for leaving. For example, I know of a Rabbit Board employee with four sons. He can’t find boarding places at the State schools in Christchurch; all he can get are places in a private school and, with the existing boarding bursaries, this is quite beyond his means. What choice has he got?

HAMILTON

I have heard reports before of people who couldn’t find boarding places in State school hostels, but do you know how hard they looked for them?

MURCHISON

I know that the case I mentioned is genuine, for several of us tried to help this man and we had no success. I think that hostel accommodation is particularly short in Christchurch: vacancies outside Canterbury and North Otago are no use to us here or vice versa.

HAMILTON

You have a point there. In the next ten years more hostel accommodation will be built or replaced but this won’t add greatly to the spaces available.

MURCHISON

One problem is that some State hostel accommodation is occupied by children who don’t really need to be there. They may be children whose parents went to the school and are not country children at all. Is there anything you can do about this?

HAMILTON

New Zealand State schools are run by Boards of Governors who have a great deal of independence. The Education Department therefore can’t say “no-one who lives near a high school may occupy a bed in a hostel”. You might argue that it would be better if we could dictate to Boards of Governors on such matters, but I doubt it. One of the strengths of the public
secondary schools in New Zealand is the degree of support and prestige they enjoy because of their large measure of independence.

What the Department does however, is to provide funds for hostels on the basis of “per cent of eligible boarders”. An “eligible boarder” is one whose home is outside reach of a high school or district high school, or one entitled to an academic or other special bursary. In the case of a new hostel the Department meets the full cost if it is shown than 75 per cent of boarders are “eligible”. Below that percentage the Board of Governors must itself meet a proportion of the cost.

MURCHISON
I hadn’t realised that.

HAMILTON
Talking about the social prestige of State schools brings me round to an important point. Farmers all too often want double standards in education. They would like the State to provide enough schools in their area to attract good farm labour. Yet, however good we make the State schools, many don’t support them by sending their own children to them. If they would support their local secondary or district high schools it would give a big fillip to rural education and enable us to justify the provision of further facilities.

MURCHISON
There is a certain amount of truth in what you say. But what about the Catholic children going to their schools, and why should the country persons not have a right to send a child where he wants to as much as a town or city person? Would you like to see private schools abolished?

HAMILTON
Definitely not. I respect the private school. I would like to see the situation arise where more people chose to send their children to State schools, but I wouldn’t wish to interfere in any way with the parents’ right of choice.

MURCHISON
Even for those from remote areas who do use the State schools, the present boarding bursaries are quite inadequate. The boarding bursary is $40 per term and most State school boarding fees are about $100-$130 per term. This gap of $70-$90 per term is too large for the ordinary farm worker or persons living in a remote area.
HAMILTON

To offset that you don’t have the cost of feeding a child whilst it’s away at school. How much do you reckon it costs to feed a child?

MURCHISON

Not as much as $70-$90 a term — especially in the country where some families get free meat, milk and potatoes and other allowances as part of their wages. There are other expenses such as travel costs, extra clothes, etc. associated with having a child away at boarding school. The boarding bursary should be increased considerably to compensate for out-of-pocket expenses and make the cash cost more realistic to a wage earner.

HAMILTON

I wouldn’t quarrel with that. Government tries to keep costs down to a reasonable level, but raising the boarding bursary would no doubt help towards solving your problems at, perhaps, relatively less additional cost than we imagine. Another way in which Government costs might be kept down would be to make more use of private board in cities instead of building more expensive hostel accommodation. Boarding bursaries are available for private board and many university students use private board to advantage.

MURCHISON

Parents would want to be very sure that conditions would be satisfactory before they agreed to have their children staying in a strange house in a city. I can see problems.

HAMILTON

Quite so. The child would need to have a separate room, adequate supervision, agreeable social conditions, good food, and so on. The type of person who sometimes makes a satisfactory landlady is the youngish widow with children of her own. Some city secondary schools are able to recommend board of this kind. It could perhaps be developed more systematically.

MURCHISON

It could be tried. The important thing is to have something to offer. At present there is all too often nothing to offer.

HAMILTON

Well, I’ve enjoyed this discussion and it has given me some insight into your problems. I hope that we can make some progress towards solving them in the next few years.
MURCHISON

I hope so, too. We realise that if we live in the high country we can’t expect just the same service as if we lived in the city. But we do feel that more must be done to help us and others in remote areas on education — especially secondary education — without the Government having to go to unrealistic expense.

BOOK REVIEW

The Kettle on the Fuchsia; the Story of Orari Gorge by Barbara Harper. pp. 172 (A. H. and A. W. Reed) $2.50.

Books about the high-country runs always seem to be in demand in this suburban age. Mrs Harper’s story of Orari Gorge in South Canterbury should, therefore, find a ready-made public.

The station was founded by Charles Tripp and by far the greater part of the book is built around his life, from the pioneering days to his death in 1897. Mrs Harper paints an attractive picture of him. He obviously had a capacity for hard work, enthusiasm, a gift for handling his staff and an unshakeable belief that difficulties were made to be overcome. Tripp was one of the first to recognise the rabbit menace and quickly became a leader in the fight against the pest. His introduction of blow flies in the hopes that they would eat up house flies was an interesting early attempt at biological control. Tripp’s enthusiasm for burning would not go down well in this era of Catchment Boards, but his statement that “nothing I have ever done on the run has paid me as well as burning” shows why the practice was so well regarded.

Mrs Harper covers the personal side of the Tripp family particularly well and recaptures very vividly the lives of the Quality in those days. A family tree might well have been printed to help the reader sort out the numerous Tripp children. This reviewer, too, rather regrets that the story of the station after 1897 was compressed into only nineteen pages.

But these are small quibbles. Mrs Harper is to be congratulated on giving us a charming account of a high-country run in its Victorian heyday.
TUSSOCK GRASSLANDS AND MOUNTAIN LANDS INSTITUTE

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L. P. Chapman (Deputy Chairman), New Zealand Wool Board.

I. L. Baumgart, Department of Scientific and Industrial Research.

Dr. M. M. Burns, Lincoln College.

J. Fitzharris, Department of Lands and Survey.


W. V. Hadfield, Department of Agriculture.

J. T. Holloway, New Zealand Forest Service.


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