

## PROBLEMS OF MARGINAL LAND FARMING

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UNDER this title a subject which has attracted much attention in recent years was discussed at the Edinburgh meeting of the British Association in a joint session of Sections F (Economics) and M (Agriculture), at which I had been invited to preside. Before vacating the chair, the president of Section M (Dr. E. M. Crowther) opened the proceedings by posing a question as to the precise meaning of the title. None of the speakers, however, gave an unequivocal answer to Dr. Crowther's question. Indeed, it was pointed out that when it had come to drafting legislation designed to give assistance to marginal land farmers for the rehabilitation of their holdings, nobody would venture to use the phrase marginal land at all; it became 'livestock-rearing land'.

All the papers read and the contributions to the debate did, in fact, accept that the main problems involved are those of the farmers (mostly small farmers) in the upland areas the main productive function of which is the rearing of store cattle and sheep. The chairman pointed out that there are at least three aspects of the problems involved: first, that of the technical agricultural difficulties in the management and improvement of land and stock; secondly, that of the economic and sociological factors affecting the welfare and prosperity of this sector of agriculture; and thirdly, that of the wider economic justification, or otherwise, of devoting national resources to food production on the less fertile land of Great Britain. It is at least arguable that the country would need to use to the utmost both the better and the poorer land.

Prof. W. Ellison, of Aberystwyth, gave a most interesting analysis, based on surveys and investigations in England and Wales and Scotland, of the probable costs involved in the rehabilitation of land and equipment in the upland areas, and of the increased returns which might be expected after the improvements had been carried out. Broadly, it appeared that costs working out at about £32.5 per acre could, over a period of years, be almost exactly recovered in higher returns. In Prof. Ellison's view this would not be attractive without the present subsidies (for liming, drainage, hill cattle, etc.) plus the 50 per cent grants for rehabilitation schemes now available under the Livestock Rearing Act, 1951. The money available under this Act, it was pointed out, would probably enable at least one million acres (out of some 3.75 million 'improvable' acres in Great Britain) to be rehabilitated. It was estimated that more than 50 per cent of all improvement expenditure would be on equipment, that is, rehabilitation of the holding rather than improvement of the land.

If all the improvable livestock-rearing land could be dealt with on these lines, Prof. Ellison concluded, additional output could be obtained equivalent to between 350,000 and 400,000 store cattle, providing when fattened an extra 100,000 tons of meat. This is rather more than a third of the meat imported from Argentina in 1949 and a little less than Australian supplies.

Mr. O. J. Beilby, advisory officer on agricultural economics in the Scottish Department, emphasized at the outset that while the agriculturist thinks of marginal land as being 'land on the margin of cultiva-

tion', the economist thinks in terms of the margin of profitability, and therefore of the farm rather than of the land. He pointed out that it has been roughly estimated that there are some 45,000 stock-rearing farms in Great Britain. They account for about 12 per cent of the acreage of all crops and grass, and support some 23 per cent of the sheep and 12 per cent of the cattle in the country. A sample of 122 such farms in Scotland has shown that cattle account for 24 per cent of the output, sheep 29 per cent, crops 26 per cent and poultry and eggs 15 per cent.

Nearly 60 per cent of stock-rearing farms in Scotland are rented at less than £50 per annum. The sample showed an average net income of £488 per annum (including £272 from subsidies). It appears that if the thirteen larger farms in the sample were excluded, the figure would be only £366 (including £220 of subsidies!).

The basic problem, according to Mr. Beilby, is to increase the earning capacity of the farm unit, by increased size of farm, or greater intensity of production. The former method would reduce the number of farmers: it would therefore raise problems of rural depopulation and, by leading to a more *extensive* system of farming, it might well be inconsistent with the needs of the country for maximum food production.

The sociological problems thus touched on by Mr. Beilby were followed up by Dr. Joseph Duncan in the third paper of the morning. The conditions in which marginal land farming is commonly found—such as high altitude, inherently poor soil, exposed situation, short growing-season, distance from markets—do not make it attractive to farmers with capital, and it is carried on usually with the aid of family labour by small men accustomed to a frugal standard of living. The more enterprising tend to leave such areas, and in the past hundred years there has been in many districts a marked depopulation trend. In such conditions the quality of the social life is bound to deteriorate. The community "tends to become a closed one and to lose variety. A shrinking community sheds its tradesmen and its functionaries".

Very many of the farmers on upland farms do not now earn as much as do wage earners on the lowland farms, and because of this and the social isolation there is a constant drain away of young people, who have, thanks to improved transport, discovered that there are more attractive places in which to live and work.

More capital and larger farms seem to Dr. Duncan to be the best solution of the economic problem, though as an alternative upland farms might be taken over by lowland farmers and run in conjunction with lowland farms. Neither method would, however, ease the social problem; and to ensure the kind of community which would solve that problem, it seemed to Dr. Duncan that forestry is essential; there is no good reason why farming and forestry should be regarded as competitive, and on the social side, forests offer more hope of a re-integration of community life in the uplands than anything else.

In opening the general discussion, Mr. A. R. Wannop, technical development officer in the Scottish Department, stressed the importance of maintaining the necessary interdependence of lowlands and uplands as regards both cattle and sheep. He

thought we should be careful not to over-capitalise the upland farms, and pointed out that expenditure on the scale suggested by Prof. Ellison might add £2-£3 per cwt. to the cost of production of a weaned suckled calf. There is great need, he said, for a new building technique to cheapen the costs of rehabilitation. A self-feeding pit silo, as used in America, would be a boon. Above all, greater attention should be given to advisory work, directed more to the economy of the whole farm than to details of land improvement.

Mr. Phillips Price and Mr. Gorrie (Ceylon) took up and supported Dr. Duncan's plea for afforestation. As Mr. Price pointed out, Nature abhors continuous cropping, and lack of balance is just as detrimental in the case of livestock as in cultivation. Mr. Gorrie spoke of the benefits derived from the shelter belts established in the eighteenth century, and suggested that progress in the upland areas is dependent on the supply of labour and machinery.

Three or four farmers, from both sides of the Border, made useful contributions to the debate, in which varying views were expressed as to the economics of the business. Mr. J. A. Symon, formerly chief inspector of the Scottish Department, thought that too much attention is paid to that aspect and referred to the go-ahead enterprise of some farmers in the reclamation of land in Orkney and elsewhere.

Perhaps the question still remains: What exactly is marginal land? I am tempted to quote from a delightful little 'essay' written in the early 'forties by a member of a war-time executive committee in the Border country:

"Marginal land was discovered by the Farmers' Union in 1940. Prior to that date there was none of it: to-day there is little else but. The Department, later, recognized its existence. They have regretted their action ever since. Nobody quite knows where it is except the man who farms it. But Members should be suspicious of any land situated near a margin. Such land is almost certain to be marginal land.

"Sub-marginal land is found under marginal land. Sub-soil is not the same thing. Super-marginal land was also discovered on the same day by the same explorer. All land situated above marginal land is super-marginal. These sub and super discoveries should greatly simplify the work of Members."

However, this member and his colleagues, and those of other executive committees in Scotland, have done a good and conscientious job during the past eight years in the administration of the Marginal Agricultural Production Scheme. There are undoubtedly long-term problems still to be solved, but at least these upland farmers, contributing some 10 per cent of the total agricultural output of the country, have been enabled with State assistance to keep going and to make a reasonable contribution to the nation's food supplies.

## HIGHER TECHNOLOGICAL EDUCATION IN GREAT BRITAIN

AT a discussion on higher technological education on August 13 before Section L (Education) at the British Association meeting at Edinburgh, over which Sir Hector Hetherington presided, Mr. H. J. Cull gave a well-balanced and concise review of the technical colleges and their development and an appreciation of the contribution they could make in

this field. He claimed that higher technological work is a natural part of the development of these institutions, as is indicated by the growth and success of their work in providing courses for Ordinary and Higher National Certificates and for external University of London degrees, as well as, in the larger colleges, for general science degrees, special science degrees and engineering degrees. A technological course of degree standard is a natural development if the needs of industry are to be met, and such a course should include more fundamental science than is usual in National Certificate and diploma courses, and more applied science and technology than finds a place in the external degree syllabuses. If liaison with industry is maintained and developed, the colleges consider that they could provide courses which, with the freedom of an internal examining system, could well be different from the external degree.

Mr. Cull emphasized here that periods of full-time study would be necessary, but that with the co-operation and goodwill of industry there should be no major problem in planning the association of study with experience as a vital part of the course. On the question of the award to be received by the successful student, Mr. Cull indicated the alternative proposals, but urged that early decision is imperative and that any award should carry national recognition. Post-graduate training, he thought, would present less formidable problems if such schemes were allowed to develop, and particularly if the postgraduate courses were developed in association with neighbouring universities. Here, particularly, questions of accommodation and of staff, in his opinion, are important, and equipment and apparatus are expensive items; on the staff side, quality is as important as numbers, and to obtain staff of the requisite quality with real experience of industry and its needs is not easy. He thought that, if properly used, the scales of the recent Burnham report give scope for such appointments to be made. Solution of the problems of accommodation of staff would, moreover, permit the gradual establishment of real centres of research, with teams of research workers, including staff and students, and possibly, in some problems, some workers on a part-time basis from industry. Many of the problems investigated might conceivably come from industry itself, and just as some industrial firms find themselves touching the field of fundamental science, so some investigations in the technical colleges might be concerned with direct industrial problems.

Mr. Cull recognized that not every technical college could or should be called on to provide higher technological courses, and that some regional planning would be necessary. He recognized, too, the critical importance of finance, though he passed over the question of local administration in relation to the academic freedom of the teacher and investigator. He was confident, however, that the technical colleges could provide not only the technicians but also the technologists needed in Great Britain, and that there is in the colleges the enthusiasm to do this work once it is given direction and the student the necessary incentive.

Prof. J. C. Prescott, dealing with the university aspect of the problem, distinguished at the outset between two schools of thought: one regards higher technological courses as providing an opportunity of treating specific advances in technology; the other advocates courses in which the emphasis is upon fundamentals and in which recent technological developments appear as illustrations of the more