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ROTHAMSTED RESEARCH

The Hertfordshire Agricultrual Situation

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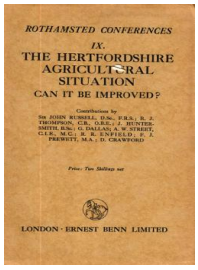

Ix. The Hertfordshire Agricultural Situation

Sir J. Russell

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ROTHAMSTED CONFERENCES

IX. THE HERTFORDSHIRE AGRICULTURAL SITUATION

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THE HERTFORDSHIRE AGRICULTURAL SITUATION

CAN IT BE IMPROVED?

BEING THE REPORT OF A CONFERENCE HELD AT ROTHAMSTED ON JANUARY 11TH 1929 UNDER THE CHAIRMANSHIP OF

SIR JOHN RUSSELL, D.Sc., F.R.S.

With Contributions by

SIR JOHN RUSSELL, D.Sc., F.R.S.; R. J. THOMPSON, C.B., O.B.E.; J. HUNTER-SMITH, B.Sc.; G. DALLAS; A. W. STREET, C.I.E.; R. R. ENFIELD; F. J. PREWETT, M.A.; D. CRAWFORD

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FOREWORD

THE papers in this Report fall into two groups : those which have a direct bearing upon the agriculture of Hertfordshire, and those which apply to the agricultural industry as a whole. In the first group are papers by Sir John Russell, R. J. Thompson, J. Hunter-Smith and G. Dallas.

Sir John Russell deals with the present situation of agriculture in Hertfordshire, in which he points out the importance of efficient marketing.

Mr R. J. Thompson reviews the agricultural production of the county, and follows up Sir John Russell's point in respect of suitable marketing, and also standardization of produce.

Mr J. Hunter-Smith, Principal of Oaklands Farm Institute, explains the objects of the Farm Institute, and the way in which it can help the agriculture of Hertfordshire.

The problem of agricultural labour in Hertfordshire is set out by Mr G. Dallas, of the Workers' Union.

In the second group Mr A. W. Street, of the Ministry of Agriculture, explains the Agricultural Produce (Grading and Marking) Act 1928, in relation to eggs.

Mr R. R. Enfield, also of the Ministry, deals with the help the Short-Term Credit Scheme gives to farmers. The disposal of milk, through "pools" and otherwise, is the subject of a paper by Mr F. J. Prewett, of the Agricultural Economics Research Institute, Oxford.

Mr D. Crawford deals with the prominent question of labour-saving machinery on the farm.

In the Appendix is an account of a co-operative society of Hertfordshire farmers formed for the retailing of milk.

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HERTFORDSHIRE AGRICULTURAL CONFERENCE, 11TH JANUARY 1929

By Sir JOHN RUSSELL, D.Sc., F.R.S.

The purpose of this Conference is to discuss the agricultural situation of Hertfordshire, in the hope of indicating the lines on which farmers and farm-workers may improve their position. All are agreed that the situation is bad, and that if left to itself it would get worse. Agricultural produce is being poured into our cities from overseas, and cold-storage and refrigeration transport are so efficient that the ordinary person cannot distinguish between meat and dairy produce six months old and that which is fresh from our own farms. Worse still, reconstituted cream is now on the market, and though in itself it may do no great harm, it is nevertheless an omen of what may come in the future.

The agriculture of Hertfordshire is so important that it is imperative for us to take all possible steps to preserve it. Although the county is so near London, and has been so much invaded for residential purposes, three-quarters of its area is still devoted to agriculture—no less than 307,000 out of its 400,000 acres. The value of the produce sold off the farms, market-gardens and glass-houses in Hertfordshire alone is estimated by Mr R. J. Thompson at £2,600,000 per annum.

At the last census 11,000 workers were employed in agriculture in the county, in addition to the farmers and their families, on the 6500 holdings of one acre or more in area. Agriculture is one of the very few industries where there is no unemployment, and its workers are perhaps the only ones in the country that cost nothing for the dole. The industry therefore deserves all possible support.

Agriculture in Hertfordshire is apparently more depressed than in some other counties. This is attributable in great part to the fact that there is more arable farming here than usual in England and Wales: 57½ per cent. of all the agricultural land is arable, and on half the area of the county the proportion rises to 70 per cent. or more; fifty years ago 70 per cent. was the proportion throughout the county.

Another direction in which Hertfordshire differs from some of its more successful neighbours is that there is still a considerable amount of general farming—the least profitable of all the kinds of farming. The meat and grain sold each bring in about £500,000 per annum—the grain is mostly wheat, barley having fallen considerably in the last forty years. Specialization, which is more hopeful for the farmer, is becoming more common: milk production is increasing, and now brings in about £500,000 per annum; more eggs and poultry, fruit and vegetables are being produced, the value of each of these two groups of products being, according to Mr Thompson, £175,000 per annum, while the glass-house

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industry (chiefly tomatoes and cucumbers) has increased considerably, and the sales amount to about £500,000 per annum.

A third difference from more prosperous counties is the lower numbers of live stock of all kinds, including poultry, per thousand acres, the proportion being lower than the average for England and Wales. The numbers of sheep, already low, continue to fall, but the numbers of cows and poultry increase.

These are the facts of the agricultural situation. We to-day are considering how the position may be improved. Two directions seem promising: production and marketing.

Production can be improved by increasing the output and by lowering the costs. The yields per acre in Hertfordshire are not particularly high: averaged for the ten years 1917-1926 they are:

	Hertfordshire	*Isle of Ely*	*England*
Wheat (cwt. per acre)	16·4	20·9	17·3
Barley ,, ,,	14·5	19·3	14·9
Oats ,, ,,	14·2	20·6	14·0
Potatoes [1] (tons per acre)	5·5	6·5	6·2
Turnips ,, ,,	11·3	16·8	12·4
Mangolds ,, ,,	19·1	28·1	17·4
Hay—temporary (cwt. per acre)	28·1	34·2	28·6
Hay—permanent (,, ,,)	18·5	22·9	21·1

In most crops Hertfordshire comes below the average for England. The cause is partly natural: the county is by no means the garden of England, and its yields are much less than for the fertile Isle of Ely. But there does seem room for improvement, and we believe this is steadily going on. Fertilizers are both cheap and abundant, and their use is becoming more widely understood; new varieties of crops are being introduced, and the Farm Institute at Oaklands is busily disseminating sound information throughout the county. Even more can be done, however, by lowering the costs of production, which are now too high. It is no use thinking of reducing wages: they are already low enough. The way is to increase the effectiveness of the worker by better organization of the farm and by the use of more machinery, and to reduce the wastes and losses of crops and animals, that are now much higher than they ought to be. Improved organization of the labour and other farm resources is a hopeful direction at which the Oaklands staff are now working. I have seen some remarkable instances where a competent organizer was able to make his farm pay, while his less successful neighbours, though with equal knowledge of agriculture, were losing money. The use of more labour-saving machinery could do a great deal, and is indeed the secret of success of the Canadian, United States and Australian wheat-growers. In nearly every other direction they are less favourably situated than our farmers: their

[1] Highest average yield, Norfolk, 6·9 tons.

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yields are lower, rates of wages are nearly twice as high, interest and other charges nearly equal our rents; and they are liable to troubles—such as rust, drought, hail, frost—that cause us little or no concern; further, they have to send their produce thousands of miles to market. Yet the wonderful implements made by the enterprising American and Canadian makers enable them to do an astonishing amount of work in one day. On wheat farms in Western Australia that I visited this year, one man was expected, in one day, to plough 5 or 6 acres; to cultivate 12 or 14 acres with a disc or skim implement, or 20 acres with spring-tine cultivator; to harrow 40 acres, drill 25 acres, or harvest 8 to 10 acres. The wages are 50s. to 60s. per week, and the yields are 15 to 20 bushels, but the cost per bushel is less than in Hertfordshire.

Losses on the farm are high. The wastage of animals is considerable, and might well be lowered. The average life of a dairy cow in the herd is far too short—only two and a quarter years, according to a recent inquiry in West Sussex, and this figure has independent support. This far exceeds the old allowance for depreciation of 1d. per gallon of milk: indeed on this basis the depreciation is nearer 2½d. per gallon. The matter is being taken up by the Royal Agricultural Society in the hope of finding a remedy. Milk-recording has shown that many cows are not worth their place in a herd, giving too little milk to pay for the cost of keeping them, and egg-recording shows that many hens do not justify their existence; the elimination of these unprofitable animals improves the financial position of the farm. Losses of crops due to diseases and pests, while not in Hertfordshire very serious as a rule, are probably high, and not likely to be less than about 10 per cent. of the produce. In all these directions much is being done to help farmers by the Farm Institute and the Rothamsted and other experimental stations.

However much the farmer may improve his output and lower the cost of production, he may still lose all the advantages thus gained by faulty marketing.

Selling is a specialized business which has a deceptive look of simplicity. Unfortunately, every farmer thinks he is a born salesman, and, unfortunately also, when he is up against the skilful buyer he gets the worst of the bargain, to say nothing of the waste of time in the market. Here the overseas farmer has a great advantage. It is impossible for him to sell individually: he has to sell through his big organization, run by a staff of expert business people who can stand up against the big buyers; in consequence, he gets a larger share of the profits. He can spend his whole time at production, which is his special job, and the selling organization collects, grades and sells his produce, paying him something on the spot and the balance when the sale is completed. The process is highly economical. The New Zealand farmer obtains 75 to 80 per cent. of what the British housewife pays for his dairy produce; many a British farmer, vainly struggling against the big combine, obtains only 50 per cent. There are, however, signs that our wasteful marketing methods are being

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improved. Milk-selling, now done on contracts made by help of the National Farmers' Union, may before long be put on even better lines for the farmer. The Milk Pool started in Scotland enabled Scottish farmers better to stand up against the retailers and secure some of the profit for themselves : even to sell some of their surplus milk in London, under the very noses of the Hertfordshire dairy farmers, which must have paid them, for no one can accuse the Scottish farmers of producing milk simply to lose money. We had hoped to have had Alderman Langford here to-day discussing Milk Pools ; unfortunately for the Conference—but fortunately perhaps for the farmers—he is prevented from speaking by certain negotiations now in such a position that public announcements are undesirable. Mr Prewett is, however, dealing with the subject.

Egg-marketing is also to be improved. The new arrangements involving the National Mark begin on 1st February. They should greatly stimulate the demand for the home production, and fortunately, too, they necessitate central packing and grading establishments, which should ensure greater profit to the producer than at present.

The selling of wheat may, and we hope will, soon be improved. The Wheat Pool already operates in Canada and Australia ; it is being discussed as possible here. We hoped Captain Morris could discuss the project to-day, but it was deemed undesirable for him to make a public announcement as yet. All these efforts are for the purpose of giving the farmer the benefit of big business resulting from uniformity of supplies, standardization of products, honest grading and expert salesmanship. If only the marketing could be improved, so that the farmer might obtain a better share of what the consumer pays, it should not be difficult to increase the consumption of British farm produce. The tomato-growers had a happy experience of what judicious advertising could do in the way of stimulating demand. The town and city populations take only a fraction of the milk, fruit, vegetables and dairy produce they might well consume, and, with some inducement to produce, farmers could turn out more than they do.

All these improvements and developments must cost money, which at present the farmer has not got. It is hoped, however, that the new Credit Scheme of the Government, which Mr Enfield is explaining, will be helpful. Its purpose is to enable the farmer to obtain credit on the security of his stock direct from the bank instead of indirectly through a merchant. The cost of the credit will be less than at present, and the farmer will not be in the hands of the merchant, as often happens now. Difficulties must arise at the outset, but the method deserves careful trial.

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AGRICULTURAL PRODUCTION AND MARKETING IN HERTFORDSHIRE

By R. J. THOMPSON, C.B., O.B.E.
Ministry of Agriculture

The subject with which Sir John Russell asked me to deal was "Agricultural Production in Hertfordshire," but, on consideration, it seemed that I might more usefully contribute to your discussion if I linked some few observations on production with the allied question of marketing.

Relatively to other counties, Hertfordshire, with a total area of 400,000 acres, is the sixth smallest county in England. It has been referred to as the "back garden of London," in allusion to the market-garden and glass-house industries which have been so largely developed in the Lea Valley, but apart from this its agriculture does not seem to have any noticeable form of specialization. One distinguishing feature, however, is its predominantly arable character. Out of an agricultural area of 307,000 acres some 57½ per cent. are arable and the remainder permanent grass, while just one half of the agricultural area is in farms having 70 per cent. or more of arable land. This is by no means so high a proportion as in some other eastern counties—Cambridge, Suffolk and Norfolk, for example—but it is, of course, far above the majority. There were, in fact, only eight other counties having 50 per cent. of their area in these mainly arable holdings.

In common with other eastern counties there has been a gradual slow movement towards a greater proportion of pasture-land. In 1870, instead of 57½ per cent., the proportion of arable was almost exactly 74 per cent. The tendency in this direction has perhaps been less rapid than in some other districts, but there have been some noteworthy changes; thus in 1870 there were some 150,700 acres of corn-land instead of the 94,700 cultivated last year—a decline of 37 per cent. In the same period wheat has fallen from 60,500 to 43,100 acres, and barley from 46,900 to 16,500 acres. This fall in barley-growing is not attributable to the decline in the consumption of beer, as, twenty years ago, in 1908, the area under this crop was only 20,700 acres. Another noticeable change is in the relative abandonment of root-growing, which in its turn is due to the decline in arable sheep-farming. In 1870 some 33,400 acres were devoted to turnips, swedes and mangolds, while at the present time the area is less than 8000 acres. Permanent pasture, on the other hand, has risen from 86,100 to 131,100 acres. Only just over 1000 acres were planted with sugar-beet in 1928, but cabbage, brussels sprouts and cauliflower accounted for 3600 acres.

Turning to live stock, the numbers kept in proportion to the area are generally below the average. For example, notwithstanding its proximity

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to the milk market of London, cow-keeping and milk-producing are by no means so important in Herts as in many other counties of England. On the contrary, the density of the cow population, which was 72 per 1000 acres, compares with an average for the whole of England and Wales of 105. In this respect, however, the position is analogous to counties in the east of England. In the same way the number of "other cattle" is also low, so that whilst the number of cattle of all kinds (including cows) in Herts was 148 for each 1000 acres, in England and Wales, as a whole, it was 239—a difference which is perhaps worth consideration. Although the numbers are still relatively low, there has been an increase since 1870.

Against this increase must be set the decline in sheep, which have fallen from 198,000 in 1870 to 68,800 in 1928. This change is common to the Eastern Counties, where sheep were formerly an important factor in the farming system. In fact, sheep-raising has held its own only in those counties in England and Wales where costs are low owing to the existence of extensive mountain-grazings.

In regard to pigs, Hertford has fewer in proportion to its size than some of its neighbours—Suffolk and Cambridge, for example—but the figure of 111 per 1000 acres is fairly close to the average for the whole country.

With the suburbs of London extending almost into the county itself, it is only natural that egg and poultry production in Hertfordshire should be carried on fairly extensively, but even in this branch of agriculture the number of fowls and other poultry per 1000 acres is less than the average for the country—a fact that seems on the face of it rather surprising. The number of fowls is, however, rapidly increasing: thus in 1924 it was 1022 per 1000 acres, while by 1928 it had risen to 1429.

To discuss in detail the production of the crops and live stock would take too long, and might not prove very profitable, but there is one feature of crop production in the county which is rather noticeable, and that is, that with the solitary exception of oats the average yield per acre of all the crops, including seeds and meadow-hay, is below the average for England and Wales. This may not sound very complimentary to Hertfordshire, but no doubt there are good practical reasons to explain it.

Without entering into the details of production, it may be of interest to attempt to estimate the average annual value. In the case of some crops —such as wheat, which is nearly all sold off the farm—this presents no difficulty. But other crops may be largely used for feeding, and if we estimate the output of live stock—such as meat, milk, poultry, eggs and wool—we are bound to ignore the production of feeding-crops, otherwise they would be counted twice. The estimate refers, therefore, only to products sold off the farm for consumption elsewhere, though it also includes an allowance for consumption in farm households. Obviously, in a calculation of this sort there is a large margin of error, both as regards the actual quantities which should be taken into consideration and as

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regards the value which should be assigned to them, and each of these varies again from year to year. But, allowing for a considerable degree of inaccuracy, the estimate is perhaps interesting, as it gives some idea of the relative importance of the different products as a source of revenue to the average farmer :

Cattle, sheep and pigs	£585,000
Milk and dairy produce	480,000
Eggs and poultry	170,000
Other live stock products	45,000
Wheat and barley	415,000
Potatoes	96,000
Other farm crops	134,000
Fruit and vegetables	175,000
Glass-house produce	500,000
	£2,600,000

On this estimate, the annual average value of the production of the county is about £2,600,000, of which £500,000 is derived from the specialized glass-house industry. If we exclude this, live stock forms the principal source of revenue on the ordinary agricultural side, with milk in the second place and wheat and barley in the third. The live-stock group of products accounts for about 60 per cent. of the total ordinary agricultural production, while the farm-crop group, including fruit and vegetables, contributes the balance. Proportionately to the area, these figures are somewhat below the average for England and Wales—a result which naturally follows from the fact that Hertfordshire carries less live stock per acre than the average, the receipts from the farm crops sold not being sufficient to make up the difference.

This brief outline may possibly raise some points for discussion. To an outside observer, such as myself, the proximity of the London market naturally suggests opportunities for development in the supply of milk, poultry and eggs, potatoes and vegetables ; also in live stock—particularly, perhaps, pigs. But, quite apart from any increase in production, which in itself costs money, there is the possibility of better marketing, and it may be that a partial solution of the problem of getting a satisfactory return for the labour and capital devoted to raising produce is to be found in the adoption of an improved marketing system.

Marketing is the twin sister of production, and they should go hand in hand, but standardization, which is the basis of trade in most commodities, is hardly known in British agriculture, although competing imported supplies are almost invariably standardized as to grade, pack and package. This applies even to such commodities as chilled Argentine beef and New Zealand lamb, while, as is well known, imported bacon, cheese, butter, eggs, wheat and fruit are always put on the market in recognized grades.

In this country, owing to the individual character of agriculture,

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farmers generally grow crops or breed stock without any very definite information as to the needs of the market. Each individual farmer has his own opinion as to what will fetch the best price, but there have hitherto been no clearly accepted standards or grades, recognized by both buyer and seller, as defining quality, and hence as regulating price. We see the result in the multiplicity of sorts and varieties of the same commodities which are offered for sale, and it is just this multiplicity of sorts and varieties which is one of the great obstacles to the successful marketing of British produce. Primarily, it is an obstacle because it hinders commercial dealings, makes the settlement of prices difficult, and means that English produce has always to be dealt with in small lots because each consignment is different from the next; but it is a drawback also because the producer is uncertain what are the particular classes of article which will regularly and on the average fetch the best prices. Whereas, if producers knew exactly what the buyer wanted, and the grade which would be likely to realize the best price, they could aim more successfully at increasing their proportion of best-grade produce. A larger proportion of first-class produce fetching top prices might make an appreciable difference in your estimate of profits, and although to secure this must necessarily demand more care and trouble, it would not perhaps involve any corresponding increase in costs of production.

It has been the pride of the British farmer in the past that his produce was the best in the world, and no doubt this is true of a proportion of the output, but at present there is a great deal that cannot claim to be first, and is even of doubtful second, quality. Is not one means of combating agricultural depression to be found in the production of more top-grade stuff?

The first step lies in the settlement of definitions of quality grades. This is not a task which can be undertaken by the individual farmer—agreement must be reached by representatives, both of producers and distributors—and in this direction a great advance is being made at the present time. The Agricultural Produce (Grading and Marking) Act, which was passed last year, enables grades to be defined, and in consultation with the National Farmers' Union, and with representatives of the merchants, dealers, and others who are engaged in the sale of the produce after it has left the farmer, grades have been settled for some commodities and others are under consideration. Moreover, in connection with the settlement of grades, which is the first step, schemes are in hand whereby goods sold in accordance with defined grades may also have the advantage of using a National Mark, which is both an advertisement of English produce and an outward and visible sign of guaranteed origin and reliability. This National Mark promises to be a most valuable asset to the home producer by giving the distributive trades in the large markets a token which will engender confidence and stimulate a demand for English agricultural produce.

A scheme applying to apples and pears was brought into operation in

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the autumn of last year and has proved very successful, and a scheme for tomatoes and cucumbers—which is of special interest to this county—and for eggs will be working shortly, while schemes for potatoes, plums, strawberries, and dressed poultry will, it is hoped, be launched this year. Live stock and grain present special difficulties, but means of improving the marketing methods of these are receiving the close consideration both of the Ministry and of the National Farmers' Union.

In the time at my disposal I cannot enlarge on this subject, and indeed it is not necessary, as you are about to hear a paper explaining the egg-marketing scheme which will give you a good idea of the principles and methods underlying the attempts to improve the marketing of agricultural produce.

In conclusion, I would emphasize the connection between production and marketing. Under modern conditions, when the British market is supplied with produce from all parts of the world, the farmer cannot be content just to take his produce to market and expect that he will necessarily get the best prices. That was perhaps the case fifty years ago, but something more is necessary to-day. He needs to study the market and to find out what is the exact grade and class of article for which the best price is given. He can then, on the one hand, aim at the production of that particular grade on his own farm, and by organization with other farmers he should be able to secure its sale on satisfactory lines.

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THE PLACE OF THE OAKLANDS INSTITUTE IN THE COUNTY AGRICULTURE

By J. HUNTER-SMITH, B.Sc.,
Principal, Oaklands Farm Institute

During the short-lived wave of enthusiasm in favour of home-production which swept the country at the end of the war there took place a very considerable expansion of agricultural education and research. One of the developments was the establishment of a number of farm institutes, including the Herts Institute of Agriculture, situated at Oaklands, St Albans. Each of the new Institutes was in a rural area. They were provided with a hostel for residential students and with a farm. Around the latter centres more than usual interest, for, although prior to this period one or two agricultural Institutes were in existence, a farm was not regarded as an essential part of their equipment.

Institute Farms

It might be expected that the provision of a farm for all the post-war Institutes was the expression of some formulated policy with regard to the functions which the farm should fulfil in the work of the new educational institutions. No such definition of policy has been laid down by the authorities, and, in the absence of official pronouncements on this essentially important matter, it is desirable to discuss the subject in some detail. It has, indeed, been suggested that these farms were a break-away from the original intention, which was to provide some twenty acres for experimental or demonstration purposes. Such a procedure would have fitted in with the traditional use made of farms attached to agricultural colleges. The new Institutes would then have become miniature colleges, chiefly engaged in teaching the agricultural sciences, with a demonstration area of land as a non-essential appendage. Had developments taken place in this direction, there would inevitably have arisen a demand for science laboratories as a necessary part of the teaching equipment. Actually, the farm has taken the place of the laboratories (for which there is no demand), and one is led to conclude that a significant change of opinion took place in favour of a different type of education from that which would be provided at a junior agricultural college.

Without an official lead, the "farm" policy of the Institutes has actually shown considerable diversity; some have favoured field and other experimental work to a greater or less degree, while others have

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placed the main emphasis on demonstrating farming methods which can be subjected to the acid test of cost accounts and an annual profit-and-loss account.

The Farm at Oaklands

There has been no dubiety at Oaklands as to which policy should be adopted (quite apart from the fact that the extraordinary variation in the soil would make field experiments either unreliable or extremely costly). This farm is definitely run as far as possible on commercial lines, and that because it is emphatically maintained that a farm so run is the very best laboratory for students whose aim is to make a living out of the land. Their success as farmers or farm-workers will depend primarily on their interest in, enthusiasm for, and knowledge of, farm work and farm management. What could be better for them than to spend a year on a farm where high-quality work is being done and demonstrated, where good management is practised and explained, and where the results are judged, not by opinion or sentiment, but by accurate financial records? This is our conception of the function of the farm at Oaklands. Far from limiting the educational value of the farm, as is done when experimental work is the aim, it brings into focus a complete farming problem, which is purposely made as comprehensive as possible: it secures contact with the farmer's real problems, stimulates interest, and gives practical direction and authority to all the teaching at the Institute. This argument holds good not only for students, but also for educational work in the county. The Principal of the Institute is also County Agricultural Organizer, and the whole of the Institute staff is available to assist in the general advisory and educational work among farmers and others.

From experience gained, we have no hesitation in asserting that a farm run on modern lines and showing a profit, as opposed to an experimental farm, is the soundest argument for agricultural education, the best basis for advisory work or teaching, and the finest asset in county work generally.

Recording

The work of the School of Agricultural Economics at Oxford shows that an enormous amount of information can be extracted from the *ordinary* farm simply by keeping records. Clearly this is one of the main functions of an Institute farm, and one which does not interfere in any way with its commercial basis. As already mentioned, cost accounts are kept and are considered indispensable. But complete control of the farm and the application of systematic methods make it possible to secure far more than the usual accuracy with internal costings. Apart from financial records, the commercial farm presents a wealth of opportunity for collecting useful information, which the farmer wants but does not receive. For some

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years records have been kept relating to grass-lambs, baby-beef, and times of milking. How much more quickly the farmer could be aided if these and kindred records with regard to farm live stock were undertaken co-operatively! Now, however, the Institute can claim the honour of setting in progress, within the Cambridge province, a joint scheme to investigate the causes and extent of "Wastage in Dairy Cows," which is a serious financial drain on the dairy-farmer. Such an investigation should provide data of use to the farmer and the research worker, and is a typical example of the value and need for co-operative recording on commercial farms.

In the field, records have been kept of several crops—census work on barley and sugar-beet, and on wheat (just begun) in conjunction with the School of Agriculture, Cambridge; similarly, on silage, lucerne, grassland, etc. Except in the case of the grass-land records, manuring has not been a factor under observation.

The value of these records has been greatly enhanced by making use of the scientific training of members of the staff. A striking example of this is provided by the trial of the "New Rotation System of Grassland Management" at present proceeding at Oaklands. This, in keeping with the farming policy, is run as the farmer is advised to do it; but, in addition, accurate economic records are kept, and chemical and botanical data concerning the system are being accumulated. It will be seen that such work is also an education for the staff: being of a nature akin to research, it prevents mental stagnation, so apt to afflict those concerned only in teaching.

It is claimed that the policy outlined above, and adopted on the farm at Oaklands, has, in fact, provided excellently for the education of the students, the education of the farmers, and the maintenance of an informed and progressive outlook on the part of the staff. It is not claimed that more than a fraction of the recording work that might be done has been started or accomplished; when more co-operative, systematic work is attempted in these directions some of the problems of farm management will be better understood, and the research worker may receive useful indications as to where his services are required. It may therefore not be inappropriate to appeal for more recording, especially more co-operative recording, on subjects connected with all phases of farming, but bearing in mind the relatively large part that live stock play in British agriculture to-day.

The Present Problems

The analyses and study of the records obtained during the past seven years give one confidence in asserting that the chief problems of the farmer *at present* are connected with management, which includes buying and selling; the elimination of wasted time and effort through ineffective organization, unskilled labour, or badly arranged farms or farm buildings;

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the lack of capital, and of much-needed labour-saving devices. Accordingly, few of the farmer's troubles are referable to the "pure scientist" for solution, for problems connected with manuring, varieties and diseases are second in importance. Advances may still be looked for from the chemist in the realm of manuring, from the geneticist in the sphere of animal- and plant-breeding, and especially from the pathologist in the field of disease control. But the full utilization of discoveries in these directions is conditional on advances which have still to be made in connection with management and with marketing.

It must not be assumed from the foregoing that a good grounding in natural science, and knowledge of the properties of manures, of varieties of crops, control of diseases, food rationing, etc., are regarded as of no importance. What is maintained is, that the man who has this grounding and this knowledge is still faced with the big problem of what may be called the "economics" of farming. The acquisition of the scientific knowledge may be compared to the college training of a general medical practitioner: after he has gained his scientific knowledge he has still to face the task of building up a private practice (or buying one and making it a success). The old idea of agricultural education was that it should be like that of the medical student—omitting any training for the business side. The newer and more rational conception is that in farming the business side is so complex and so vitally important that the training ought to be very largely concerned with it.

This means that the time of the student must be divided between the acquisition of skill (manual, mechanical and managerial), the discussion of farm management and marketing, and such a grounding in the agricultural sciences as will prove an aid to all-round effective and progressive management.

With regard to marketing, the present endeavour must be mainly directed to the formation of the right outlook, in preparation for the marketing reforms which are bound to come sooner rather than later When the gamble of present-day methods is replaced by orderly or organized marketing a bias definitely in favour of a progressive agricultural education will have been secured. There can be no finer example of the possibilities in this direction than the stimulus given to clean-milk production by the introduction of the principle of payment for milk according to quality.

The Education of the Resident Student

Entrants.—If Oaklands and other Institutes are to serve as the recognized gateway to a successful career in agriculture, then, obviously, the line of approach must be defined. There ought to be definite links with Elementary, Secondary and other schools, so that children who intend to seek a career on the land, whether as farmers, bailiffs or farm-workers, may receive a suitable preliminary education as well as a ground-work of

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practical experience on which to base the final training they will receive at the farm Institutes.

To derive the greatest benefit from a course at Oaklands I consider the following four requirements to be essential for each student :

(1) A healthy mind and body, combined with an intense keenness for agriculture.

(2) A sound general education, based on rural pursuits, rural history, geography, arithmetic and literature. Education of this kind has the inestimable advantage that it is capable of securing the interest of the child, without which proper mental development is impossible. It is as well adapted, and possibly of more importance, for the child who intends to proceed to the town as for the child remaining in the country.

(3) A simple knowledge of practical or experimental science, such as can be taught in conjunction with a well-managed school garden.

(4) Manual skill acquired partly at school—*e.g.* in the handicraft work and the school garden—and partly during a year or more spent under competent instructors on a good farm.

Requirements (2) and (3), and in part (4) also, raise the whole question of elementary education in the villages—a question with which I am not competent to deal. I may, however, point out it is now becoming widely realized that this needs a thorough overhaul in order to link it with the "living school" which surrounds the brick building.

Requirement (4) raises further controversial points. Assuming that the entrants to Oaklands spend two or more years at a Central or Secondary school, how much of this time should be devoted to acquiring skill in actual manual operations which will be needed when they are engaged on farm work ? Pioneers, such as Mr W. J. Malden, have shown that certain of these operations—*e.g.* hoeing, transplanting, mowing—are eminently suitable for incorporation into the school curriculum, as part of the physical training or as additional manual training. After all, if most boys nowadays are taught to use, *correctly*, a saw and a plane, why not teach them to use also, *in the most skilful way*, other tools—such as a fork, spade, hoe, and scythe ?

Then follow those first years on the farm which are so important in making good farmers or skilled workmen. At this stage two personalities should meet : the keen lad and the competent instructor. Of keenness there should be no lack, for that is the natural inheritance of healthy youth —an inheritance which should be further stimulated by the new type of rural education. On the farm, however, the opportunities of receiving proper instruction vary enormously. One has no hesitation in saying that, unless lads are *taught* while they are young how to use tools, milk, plough, manage horses, and, in fact, how to do every job on the farm, in the best and easiest way, they will never acquire the highest degree of efficiency. The provision of this indispensable education has in the past been left to each farmer, with results which are sometimes good and sometimes bad. The time now seems ripe to augment the farmer's part in a systematic

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manner, in addition to what is accomplished in this direction at school, so that the special skill of particular districts may be acquired in every district.

Our programme for agricultural education therefore consists of the elements at school ; the practical essentials under proper guidance on the farm ; and management, marketing and science at the County Agricultural Institute.

Discussions on Farm Management and Marketing

Probably of all the things with which one would like to equip a student the art of management should come first. Some would maintain that this cannot be taught. Perhaps not in its entirety, any more than a School of Art can with certainty train an A.R.A. The art teacher is, however, not so ambitious as that, but he has realized there is a science in every art, and the greater part of this science certainly can be taught. Is it not so also with the art of management ? Has not the time come for the deduction of certain principles of sound management which can be discussed with the student, and observed in operation on the Institute and other farms ?

Time and space does not permit further discussion of this interesting subject, other than to suggest that cost accounts, process-recording and costing, and co-operative recording should furnish some data ; that trained powers of observation and deduction leading to judicious action must play a part, and that shrewdness in judging men, and guidance in how to handle labour to get the best results with the least fatigue, represent knowledge which is worth obtaining.

In the case of marketing the matter is simpler. During the past four or five years at Oaklands a feature of the work has been the study of marketing problems, the reports of the Astor and Linlithgow committees and the excellent Economic Series of the Ministry of Agriculture serving as a basis. Undoubtedly with the more mature students this side of the training has been a very valuable one.

Grounding in " Science "

Hitherto this has occupied the greater part of the curriculum of the agricultural student. It includes an elementary applied study of soils and manures, of animal nutrition and rationing, the elementary botany of farm crops, the chief varieties of the common crops, some knowledge of surveying, and as much book-keeping as possible. Owing to the lack of any scientific basis to the education of at least 50 per cent. of the entrants to Oaklands, a disproportionate amount of time has had to be given to imparting the rudiments of the natural sciences. If every student arrived with a simple but accurate knowledge of chemistry, physics and biology, and if this knowledge were acquired in a way to stimulate interest in

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natural phenomena, rapid progress could be made with the applied side of these subjects.

Further, there is, as already pointed out, a great dearth of material for anything approaching a "scientific" treatment of the arts and crafts of farming and of farm management.

After Oaklands

A year at Oaklands, with its practical work, study, discussions and social amenities, does undoubtedly serve to create in students a desire to learn, and a realization of the need for progress. Their instruction is not restricted to either practical work, management or science, for the aim is rather to excite interest in every phase of farming, to show that no method or process is fixed or perfect, but that for those who have the will to advance improvements in every direction may be possible. To secure such an outlook is our purpose, as with it everything is attainable and without it the wheels of progress stand still.

We should like to follow our students on to the farms where at least 90 per cent. of them are working in England or abroad, but space forbids. We should also like to discuss the cordial relationship that exists between Oaklands and the farmers in the county. In numberless ways services have been rendered to the men who are now farming; contact and confidence have been easily established through mutual experience with the same daily problems. Much can be done to help farmers by discussion and demonstration, but the root problem remains that of securing effective links between rural education, early farm-training, and the County Institute.

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THE PROBLEM OF AGRICULTURAL LABOUR IN THE COUNTY OF HERTFORD

By GEORGE DALLAS
The Workers' Union

The county of Hertford is predominantly an agricultural one. There is a residential area in the southern part round the fringe of London; there are one or two slowly developing industrial towns, like Watford, St Albans and Letchworth; but apart from these districts the county is purely agricultural.

The relationships between the employers and the workers generally throughout the county are of a fairly harmonious character.

The official organizations on both sides have come to realize that though they look at the problems of agriculture from different angles that is no reason why there should not be mutual respect on both sides, with the result that there is a considerable amount of co-operation on questions other than wages and working conditions. This has been due largely to the type of official representative for the employers and workers. I would pay tribute to the past and present chairmen of the county branch of the N.F.U., and also to the unfailing tact, skill and reasonableness of the county secretary, Captain Reed. The county has suffered in recent years, like the rest of the country, from the depression in agricultural prices, and, as a consequence, the number of agricultural workers employed in the county has considerably decreased. There are 1211 less agricultural workers in the county to-day than in 1921. For a comparatively small county this is a very serious and alarming decrease, in fact the percentage of decrease for the county of Hertford is exactly double that for the whole country. Its proximity to London may make it easier for those who leave the industry to find employment elsewhere.

I have no doubt that if the trade of the country were to improve considerably there would be an even larger number, especially amongst the younger generation, leaving the industry and finding employment in other occupations.

I feel this problem may become very serious within the next few years. There have been greater changes in the rural areas in the last generation than in any preceding one—changes that have all tended to break down the difference between the people in the countryside and the people in towns and cities. First we had the bicycle; then the war, which brought people from all parts of the country and all industries together. Since the war we have had the development of wireless and the motor-bus, so that even the remotest villages are no longer isolated from the industrial

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centres. All these and other influences have combined to awaken new ideas, to arouse new aspirations and to broaden the minds of the agricultural workers. The effect of this has been to create a desire amongst all agricultural workers for a higher standard of life. They look round and see all classes of workers with very considerably higher wages—railway workers, cement workers, brick workers, road-making workers, building trades' workers; in fact every industry in the country—outside of mining and one or two other depressed industries—has made giant strides in its wages and working conditions.

These workers in the other industries have not the handicaps the agricultural workers have—such as living in a tied cottage and therefore being subject to being put out of their home when their employment is changed. These other workers, further, have the benefit of Unemployment Insurance when they happen to be out of work. Naturally, therefore, the young agricultural worker, in comparing his position with the position of other workers, finds that his conditions are considerably inferior, and that agriculture offers little or no hope of advancement, or a reasonable prospect of a better standard of life in the days to come, for the ambitious and enterprising.

I am inclined to think that it will be impossible to maintain this difference, and that the tendency will be more and more for the agricultural worker to leave the countryside for other industries unless there is a considerable levelling up. Recently an inquiry was undertaken by schoolmasters in selected rural parishes at the instance of the Secretary for Education in a South Midland county. The list revealed an almost unanimous desire on the part of the parents of the boys to find employment for them in industries other than agriculture.

On every hand we hear that old skilled agricultural workers as a class are dying out, and they are not being replaced. The Ministry of Agriculture, in a circular issued quite recently, stated that "complaints are constantly made by farmers of the shortage of skilled agricultural workers."

I think this a tragedy, and is to be deplored by everybody of all sections who have the interest of agriculture at heart. There was no finer type in the whole land than the old skilled agricultural craftsman. Not only was he skilled in his industry, but he was of a sturdy, intelligent, law-abiding type—a type which has been well described:

"His dead are in the churchyard—thirty generations laid,
Their names went down in Doomsday Book, when Doomsday Book was made,
And the passion and the piety and the prowess of his line,
Have seeded, rooted, fruited in some land the Law calls mine.

Not for any beast that burrows, not for any bird that flies,
Would I lose his large sound counsel, miss his keen amending eyes."

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If men and women of this class and character are to be retained for the countryside there is no question that conditions of employment and social life in the rural areas will have to be vastly improved.

I shall be told that it is impossible to go beyond the present standard, indeed on every hand we hear that the wages paid in agriculture, however low they may be, are above what the industry can afford.

It is not my object to make this paper a controversial one, and I will readily admit that what is not in the industry cannot be taken out of it. My object is merely to state the labour problem as I think it will confront the industry more and more as days go by, and to show that the agricultural workers are as vitally concerned in the economic condition of the industry as any other section of the community. If the industry is depressed they suffer : if it is prosperous they are entitled to share in the prosperity.

I want to say, quite clearly and definitely, that I regard it as my duty as a representative of the agricultural workers to examine every possibility of putting the industry on a more sound economic basis, and to co-operate with all enlightened agriculturists, such as are represented at this Conference, in trying to devise plans to bring prosperity and contentment to the people on the countryside.

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EGG-MARKETING REFORM

By A. W. STREET, C.I.E., M.C.
Ministry of Agriculture

(1) *The Order of Events*

It is unnecessary at this stage to describe in detail the scheme of Egg-Marketing Reform which comes into operation on the 1st of next month. It may, however, be desirable to recite the order of events as they will occur in 1929. On 1st February, then, the Egg-Marketing Scheme comes into operation. On and from 1st March it will be an offence under the Agricultural Produce (Grading and Marking) Act 1928 for anyone to sell or offer for sale any eggs preserved by detectable processes—such as immersion in lime-water, water-glass or oil—unless each individual egg is marked on the shell with the word "Preserved." On and from 21st April it will be an offence under the Merchandise Marks Act 1926 to import any eggs, or to sell or offer for sale by wholesale or retail any imported eggs, unless each individual egg bears on the shell an indication of origin. On and from the same date all premises used for the cold storage and chemical storage of eggs must be registered for the purpose, and any British eggs that have been kept in cold storage or chemical storage must be marked on the shell with the words "Cold Stored" or "Chilled" in the former case, and "Sterilized" in the latter case, before they leave the storage premises. For various reasons it was not found to be practicable to require imported cold-stored or sterilized eggs to be distinguished from other imported eggs in regard to such storage treatment; there will, therefore, be some degree of uncertainty attaching to the imported egg in this respect.

(2) *The Significance of the Changes*

The changes outlined in the time-table given above are of far-reaching importance. The Egg-Marketing Scheme aims at giving better service of home-produced supplies to distributors and consumers in the large centres of population. It provides facilities for placing bulk supplies of graded home produce, efficiently and continuously, in the big industrial areas, and for offering these supplies in a form and manner which will ensure effective competition with imports, a feature being the use of a National Mark to indicate that certain conditions have been observed, and that the produce is, therefore, of guaranteed quality. The keynote of the scheme is standardization, which implies dependable service. The other measures referred to place a wide discretionary power at the disposal of the consuming public, by enabling the housewife to distinguish home from imported produce, fresh from preserved supplies, and fresh British eggs

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from British eggs that have been cold-stored or sterilized ; what matters most at the moment is how this discretion will be exercised as between home and imported produce.

(3) *The Publicity Aspect*

It seems to be the general view that the immediate effect of the marking of imported eggs will be to stimulate demand for home produce. What the permanent effect will be largely depends on how, in the long run, home-produced eggs compare with the imported article in quality, service and price.

Experience shows that efforts to establish and maintain goodwill for any product must be backed up with standards of quality, both as regards the product itself and the manner of offering it, and, further, that the guarantee of quality implied in such standards is most effectively expressed through some form of mark. It is admitted that imported eggs are marketed efficiently ; they are graded to recognized standards and packed in standard non-returnable containers. In the past, however, this marketing efficiency has largely failed to connect at the consumer's end. In future the compulsory marks of origin on imported eggs will supply the missing link, and there is a real danger that such words as "Danish," "Dutch," "French," "Belgian," and so on, will in time become trade marks of commercial importance to the exporting country concerned. It may be anticipated, too, as a fairly obvious business proposition, that any exporting country that values its trade with the United Kingdom will, sooner or later, engage in some form of publicity here which will direct attention to its name as a mark on eggs, and tell the housewife what that name stands for ; the public is getting more and more into the habit of buying branded goods, the names of which have become household words as the result of effective advertisement, and producers must nowadays create their own markets.

Thus emerges the supreme importance of the National Mark scheme to the home producer. Distributors in the large centres of population will get to know that home-produced supplies offered under the Mark are all that they purport to be ; that the Mark, therefore, eliminates chance and saves time in buying ; that, thanks to the packing-station system, there is standard grading, standard packing and continuity of supply of National Mark consignments, and that such consignments meet the needs of present-day business in the same way as competing imports, in that they are easy to obtain, easy to handle and easy to sell. Consumers will learn, through the Mark, that dependable grade standards for home produce have been established by authority, and that produce offered under the Mark can be bought with confidence ; the fact that a feature of the Egg-Marketing Scheme will be the use of National Mark cartons, holding half-a-dozen or a dozen eggs, has its own significance in this connection.

An important factor from a publicity standpoint is that the same

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National Mark is to be used for all kinds of graded home produce. The Mark has already been introduced to the markets by those home growers who are participating in the Fruit-Marketing Scheme: nearly 200,000 standard packages of graded home-grown apples and pears of the 1928 crop have already passed into the channels of trade carrying the National Mark with them. Over 3,000,000 National Mark labels have been printed by H.M. Stationery Office as a first issue for the Egg-Marketing Scheme, and from 1st February onwards these also will carry the message to trade and public. Schemes are ready or maturing for applying the Mark to other graded home-grown products. The Mark will thus largely advertise itself, cumulatively and economically, as one commodity after another is brought within its scope, the degree of effect depending on producers themselves, on the way in which they play their part in extending the scope of National Mark schemes, both locally and to other products, as rapidly as circumstances permit. In various little ways, directly and indirectly, the Ministry and the Empire Marketing Board, for their part, can also help to popularize the Mark; the voice of Government has many times the carrying-power of that of private citizens. A point to note is that, in the National Mark, advertisement and standardization are linked together. Standardization needs advertisement as a platform; on the other hand, advertisement without standardization is ineffective. The National Mark affords, therefore, a basis on which to build a sane, legitimate, business-like sales' campaign for home produce as a whole.

(4) *The Organization Aspect*

Fundamentally, the National Mark scheme can be regarded as the beginning of a movement which, in various ways and in various forms, will be the counterpart for home agriculture of the general reorganization now proceeding in the world of industry outside it. In Germany, for example, the "pulsing inspiration" to-day is rationalization, which began with coal, iron, steel and chemicals, and is now extending to transport and agriculture. Already proposals have been put forward for establishing a National Mark (in the form of an eagle) for German agricultural products graded to national standards—products destined almost wholly for a domestic market.

It will be appreciated, of course, that a policy of standardization of product and package and its accomplishment through the packing-station system is but a necessary preliminary to the formulation of a common marketing policy for the egg industry as a whole. As has been truly said, the day of "petty-packet marketing" is over; a random diffusion of marketing effort no longer meets business needs. One of the big constructive ideas in the Egg-Marketing Scheme is, therefore, the provision that has been made for the various packing stations, co-operative and non-co-operative, to form themselves into regional associations, and ultimately into some form of central organization. The formation of

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associations of packing stations is primarily desirable for reasons of self-discipline on the lines of, say, the cheese-control and butter-control stations in Holland. It also envisages a forward policy in regard to collective advertising on, at any rate, a regional if not a national scale. But latent in the idea are still larger possibilities in the direction of eliminating not only overlapping in the producing areas but also internecine competition between packing stations in the markets of the large consuming centres, and of a co-ordinated policy of market-feeding and storage to iron-out price fluctuations due to the disorderly flow of supplies to market. In this way the Egg-Marketing Scheme will ultimately bring to the individual producer the marketing advantages of large-scale business, with its expert market knowledge and mass-selling methods.

(5) *The Cash Aspect*

The annual value of the total home production of eggs in Great Britain exceeds £16,000,000, *and this exceeds the value of the home wheat crop.* In the county of Hertfordshire, alone, the annual value of the egg output approaches £250,000. A very moderate improvement in the net returns of producers as a whole would mean, therefore, a considerable sum of money to the industry ; by superior organization on packing-station lines, as provided for in the National Mark scheme, farmers' returns can be improved without disturbing the level of consumers' prices.

Then, again, as a keen demand is built up for National Mark eggs in the large consuming centres, so supplies will be steadily drawn off, in an orderly manner, from the areas of surplus production. The producer will feel confidence in the ability of the market to absorb all that he can produce, and a free, healthy and accelerated expansion of productive activity may be expected to ensue.

If, through better marketing organization, the home-egg industry can rapidly increase its share of the total trade, then not only will the industry be advantaged, but a definite contribution to national well-being will be made.

(6) *Conclusion*

Up to the present, 110 applications from packing centres have been received for permission to use the National Mark. These include some of the largest businesses of the kind in the country. There is no virtue in numbers—it is turnover that counts—but it is already clear that the scheme will succeed, and henceforward develop with its own momentum. The fact that the National Farmers' Union has undertaken the work of preliminary organization in connection with the scheme, and is closely co-operating with the Ministry of Agriculture in working out other National Mark schemes, is, of itself, the best possible augury for the ultimate success of this and similar reforms. At the same time, it is probable that relatively

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few producers are alive, as yet, to the real significance of the National Mark movement. It is important, therefore, that no opportunity should be lost of explaining to producers generally the larger purposes of the scheme, its meaning in relation to the general reorganization of the industrial world and the immense changes in outlook and business technique which are necessary in the future if the egg industry is to move forward with the times and direct its marketing activities to definite ends.

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THE MINISTRY OF AGRICULTURE'S SHORT-TERM CREDIT SCHEME

(AGRICULTURAL CREDITS ACT 1928: PART II. SHORT-TERM CREDIT)

BY R. R. ENFIELD
Ministry of Agriculture

AT the outset I might perhaps refer briefly to some of the ideas upon which this part of the Act is based.

Short-term credit, whatever the industry may be in which it is employed, must ultimately be derived from the available savings of the general community, and the problem of agricultural credit in the last resort is one of gaining for agriculture the fullest possible access to these savings. Any machinery for the provision of credit, whatever the actual form it may take, must include two distinct sides to it. It must include not only the business of making loans to farmers, but also the business of attracting the deposits of the private depositor, out of which such loans are made. Before the present Act was passed various suggestions had been put forward from time to time for the improvement of short-time agricultural-credit facilities in this country. Two of the most important of these may be mentioned. The first was the establishment of some system of co-operative credit societies on the lines of those prevalent in Germany, Denmark, Hungary, and many other countries. So successful had been the system of these credit institutions, and so rapid its growth in foreign countries, that many people held that this system alone would provide a satisfactory means of improving agricultural credit in this country. The second was the creation of an Agricultural Bank, with rural branches solely engaged in financing agriculture.

Now to both of these plans objections have been raised, but it is perhaps unnecessary to deal with them here, except in regard to one fundamental objection which applies to both. It relates to the second of the two functions referred to above—namely, the ability of such institutions to attract deposits. If organizations of this character were established in this country, and were to function as banks, it would be necessary for them not only to make loans but to receive deposits. But to obtain deposits they would have to face conditions very unlike those prevailing in countries where systems of co-operative credit have prospered. They would have to face the formidable competition for deposits of the joint stock banks. By some means or other it would have been necessary for them to attract rural deposits to themselves and away from the banks. How could this be done? In Great Britain the impregnable financial strength of the great banks gives them a commanding position in the matter of attracting

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rural deposits, against which it would have been extremely difficult, if not impossible, for a new and rival institution to compete.

The position occupied by the great banks and their network of branches in the economic and financial structure of this country profoundly affected the problem of agricultural credit, and offered a very serious, if not insuperable, obstacle to any attempt to create new credit institutions solely concerned with financing agriculture.

The present measure is based on the belief that the vast fund of the nation's deposits will continue to be administered mainly by the joint stock banks, and that any system of agricultural credit which is to conform to modern requirements must be designed in recognition of these conditions, and must therefore be based upon the banks. This conception is at the root of the present measure. It is a measure which aims not at creating new lending institutions but at improving the position of the agricultural industry as a borrower from the existing banks. It aims at increasing the accessibility to agriculture of the great fund of deposits which is controlled by the banks.

Upon what does this accessibility depend? In the last resort it must depend on the character and amount of the security which the farmer can offer, and the purpose of this part of the Act is therefore to mobilize (so to speak), to the fullest possible extent for credit purposes, the wealth which agriculture itself creates. Prior to the passing of the Act a farmer in borrowing from a bank had to rely mainly on his personal credit and on the security of such non-agricultural wealth as he might possess—a life-insurance policy, industrial stocks and shares, etc. He had no satisfactory legal means of borrowing on the direct security of his farming stock. Farming stock, however, in the case of the tenant farmer is often his chief asset. In aggregate the value of the total farming stock of the country amounts to a very large figure, far exceeding the aggregate of bank advances to agriculture.

To overcome this difficulty is the object of Part II. of the Act, and it seeks to do so in the following way:

Section 5 of the Act enables a farmer to create in favour of a bank a charge known as an "agricultural charge" on any or all of his farming stock, and other agricultural assets, with the object of providing security for money advanced to him by the bank. The agricultural charge will be embodied in a document agreed to by the farmer and his bank. It will give the bank certain rights over the property included in the charge, and impose on the farmer certain obligations.

The Act provides that the charge may take one of three forms.

Firstly, it may be a "fixed" charge—that is to say, the document will specify the property affected by the charge. It may, for example, specify a certain number of head of live stock, certain agricultural implements, or the crop of potatoes, wheat, oats, etc., from certain specified fields. In such a case it will be for the farmer to agree with the bank as to what property suits best the particular circumstances of the case.

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Secondly, the charge may be a "floating" charge. This means that the document, instead of specifying certain property, would include either the whole of the property which from time to time belongs to the farmer, and which can under the Act be made the subject of a charge, or such part of it as the farmer and the bank may agree upon. A floating charge might, for example, include the whole of the borrower's farming stock without specifying the number of live stock or acreage of crops, or it might include the whole of his live stock without including any other property, or it might include his live stock and implements without including crops or other assets. Obviously there are many ways in which a floating charge can be drawn up which must depend on the circumstances of each particular case.

Thirdly, the charge might be a combination of these two. In this case the document would specify certain property over which it created a fixed charge, and would also set out the classes of property over which it created a floating charge.

It seems likely that in the majority of cases the most convenient form to adopt will be that of a floating charge.

The next point to consider is the property which can under the Act be charged in the manner just described. The Act defines the property —that is to say, the farming stock and other assets—which may be made the subject of an agricultural charge as follows:

"'Farming stock' means crops or horticultural produce, whether growing or severed from the land, and after severance whether subjected to any treatment or process of manufacture or not; live stock, including poultry and bees, and the produce and progeny thereof; any other agricultural or horticultural produce whether subjected to any treatment or process of manufacture or not; seeds and manures; agricultural vehicles, machinery, and other plant; agricultural tenant's fixtures and other agricultural fixtures which a tenant is by law authorized to remove. . . .

"'Other agricultural assets' means a tenant's right to compensation under the Agricultural Holdings Act, 1923, for improvements, damage by game, disturbance or otherwise, and any other tenant right."

It also states that a fixed charge may include, in the case of live stock, any progeny which may be born after the date of the charge, and, in the case of agricultural plant, any plant which may whilst the charge is in force be substituted for the plant specified in the charge.

So much for the powers to create an agricultural charge. A farmer who has created a fixed charge in favour of a bank on any or all of his property has certain obligations to fulfil. These are provided in Section 6 (2), and are as follows:

"(*a*) An obligation whenever he sells any of the property, or receives any money in respect of other agricultural assets comprised in the charge, forthwith to pay to the bank the amount of the proceeds of the sale or the money so received, except to such extent as the charge otherwise provides or the bank otherwise allows.

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"(*b*) An obligation in the event of the farmer receiving any money under any policy of insurance on any of the property comprised in the charge, or any money paid by way of compensation under the Diseases of Animals Acts, 1894 to 1927, in respect of the destruction of any live stock comprised in the charge, or by way of compensation under the Destructive Insects and Pests Acts, 1877 to 1927, in respect of the destruction of any crops comprised in the charge, forthwith to pay the amount of the sums so received to the bank, except to such extent as the charge otherwise provides or the bank otherwise allows."

In the absence, therefore, of an agreement with the bank providing to the contrary, a farmer who has created a fixed charge must pay the proceeds to the bank.

If the charge is a floating charge the same obligations apply, except that if and so far as the proceeds of sale and other receipts are expended by him in the purchase of farming stock, which on purchase becomes subject to the charge, it is not necessary for a farmer to pay to the bank the proceeds of sale or the amount received in respect of other agricultural assets under policies of insurance or by way of compensation. Thus, if a farmer has created a floating charge on the whole of his live stock he may sell part of the live stock and forthwith use the proceeds to buy other live stock. Any balance of the proceeds not spent in this way would have to be paid to the bank.

Where the charge has been created to secure a sum of money advanced on current account, the obligation to pay the proceeds to the bank means that the farmer must pay these proceeds into his current account with the bank.

It is important to observe that the Act has been so designed as to give the farmer the greatest possible freedom in selling farm stock, notwithstanding that it may be the subject of an agricultural charge. Thus a farmer, even if he has created a charge on his live stock, crops, or other assets, is free to sell them without previous consultation with the bank unless the charge otherwise prescribes; but it cannot be too strongly emphasized that farmers should in all circumstances fulfil strictly and promptly their obligations to pay the proceeds to the bank.

If, *with intent to defraud*, a farmer who has created an agricultural charge fails to comply with these obligations he will be liable on conviction to penal servitude for a term not exceeding three years.

The Act confers on the bank certain rights in respect of the property which is the subject of an agricultural charge, the chief of which is the right (in the case of a fixed charge), on the happening of certain events, to seize and sell the property. The bank must apply the proceeds towards (*a*) the discharge of the liabilities secured by the charge, and (*b*) the cost of seizure and sale, and must pay the surplus, if any, to the farmer. The events which authorize such seizure must be specified in the charge. In the case of a floating charge the bank has the right to give notice in writing to the effect that the charge becomes a fixed charge on the happening of

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any event which, by virtue of the charge, confers on the bank the right to give such a notice.

When the charge has been agreed between the borrower and the bank it must be registered. This will be done by the bank in accordance with regulations made by the Lord Chancellor in respect of the registration of agricultural charges.

An important section of the Act deals with the restriction on publication of agricultural charges. It provides that it shall not be lawful to print for publication or publish any list of agricultural charges, or of the names of farmers who have created them, although the confidential notification by an association representative of a particular trade to its members trading or carrying on business in the district in which property subject to an agricultural charge is situate, of the creation of the charge, shall not be deemed to be publication for the purposes of this section.

The Act also makes certain provisions in regard to agricultural co-operative societies registered under the Industrial and Provident Societies Acts, 1893 to 1928. Such a society is empowered to issue a debenture creating in favour of a bank a floating charge on property which is vested in the society and is farming stock within the meaning of the Act. The effect of this is to give to a co-operative society similar powers to those provided for individual farmers to charge farming stock to a bank as security for a bank advance.

The Act came into force on 1st October 1928, but for the next two years is subject to the special provisions of Section 12, which states that :

"Until the first day of January, nineteen hundred and thirty-one, the foregoing provisions of this Part of this Act shall be subject to the following modification :

"Where a bank has before the passing of this Act made advances to a farmer, whether by means of an overdraft or otherwise, an agricultural charge created in favour of the bank shall be enforceable only in respect of moneys advanced in addition to and in excess of a sum equal to the amount of such advances outstanding at the passing of this Act."

Now the Act imposes no kind of restriction on the purposes for which farmers may borrow money under its provisions. Suppose, for example, the market is bad for live stock, for hay, or for other produce, and the farmer wishes to hold the produce temporarily in the hope of the market improving, he could go to the bank and offer an agricultural charge on the produce as security for an advance of money which would enable him to carry on until the time came to sell the produce and repay the loan. By such means it is hoped that the Act may contribute to what is often called the "orderly marketing" of farm produce. It should, in effect, give the farmer a breathing space at harvest-time, and, at least to some extent, reduce the tendency to overload the markets in certain months of the year.

There is another aspect of this matter. If the Act leads in time to the greater part of short-term credit employed in farming being supplied

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directly by the banks the farmer may derive from it two indirect advantages. The first is that he will know exactly what his credit costs, and will therefore be in a better position to calculate whether it pays to borrow money to be applied to any particular purpose on the farm. The other is that, in so far as he tends to make the bank his sole creditor, the farmer will be freer to pay cash for farm requisites purchased from merchants, and thus take advantage of the discount for cash often allowed by such merchants. Moreover, in his general transactions, it would tend to free him from the encumbrance of a number of miscellaneous debts.

Since the passing of this Act some 600 agricultural charges have been registered notwithstanding the limitations imposed by Section 12. It must of course be a matter of time before a measure such as this, affecting, as it very well may, almost every branch of the agricultural industry, can reach its full utility. The future must depend mainly on the attitude towards it shown by the farmers on the one hand and the banks on the other. It is, of course, obvious that bank managers will require a little time to gain experience of the Act, just as they would in the case of any other legislation affecting banking practice, but it is to be hoped that with the passage of time it will lead to the establishment of the business of agricultural finance on a modern footing, administered, as it should be, by the leading financial institutions of the country.

In conclusion, I suggest that farmers would be well advised not to pass a hasty judgment upon this Act. The Act is the result of more than three years' close study of the problem of agricultural credit, which in itself is an extremely difficult problem. The full scope of the Act cannot be understood merely by a hasty glance through its provisions. The farmers' best course is to go into the matter fully with their bank managers and explore with them the ways in which the Act can be made to serve the most useful purpose.

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MILK-MARKETING BY POOLS AND OTHERWISE

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In discussing Milk-Marketing it is quite impossible to localize Hertfordshire, as this county forms one of many contributing to the London market. I propose, therefore, to take a general view, the more so as no detached group of milk producers, organizing separately from the county as a whole, can hope to secure a great increase in prices, as this market, at a certain point, would be invaded from districts ordinarily producing for manufacture. But local organization does readily bring about a considerable increase in price, and, finally, a network of these local organizations, in federation, might put the milk industry in the farmers' pocket so long as liquid milk is not imported.

As time is limited, I propose not to concern myself with the details of organization, which are readily available from N.F.U. headquarters as administrators of the Agricultural Organization Society.

Of all the major commodities produced by the English farmer, liquid milk alone is not subject to direct foreign competition in the home market. Organization by the English milk producer is, therefore, natural and effective as compared with organization for the sale of other commodities, of which, in general, more than half of our requirements are imported. While the consumption of milk is nearly constant the year round, production varies from 10 to 50 per cent. as between winter and summer, and gives rise to considerable quantities surplus to liquid requirements, which must be manufactured, and which therefore come into direct competition with foreign supplies at a price based on their lower cost, due, further, to a lower standard of living.

Milk, as a commodity to be marketed in the most efficient way, presents certain contrasts as compared, for example, with wheat or wool, in that it is of continuous production, is highly perishable, and is in constant immediate demand. From the farmers' point of view organization is chiefly assisted by the fact that the liquid market is a home monopoly, and prejudiced in that production varies while consumption is constant, leaving a certain proportion of the output to be manufactured and to come into direct competition with imported supplies. A great part of the problem of milk-marketing lies in the endeavour of the buyers to use this surplus as a lever to depress liquid prices, and in the individualistic effort of producers to get the whole of their output on to the liquid market, and to leave some other farmer to sell in the manufacturing market.

There arises, then, for almost all parts of the country, and particularly for the south-west, the problem of disposing in summer of a quantity of milk surplus to liquid demand. This surplus quantity, made up into

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cheese, butter, dried and condensed milk, etc., since it comes into direct competition with similar commodities imported from abroad, must meet those importations on the basis of price and quality. It is not surprising, therefore, that, in the annual negotiations on a national scale between the representatives of the producers and of the distributors, in operation since 1922, to fix prices for the forthcoming year, a sharp distinction in price has been agreed upon between payment for milk destined for liquid consumption, a market free from outside competition, and payment for milk that must be manufactured, a market subject to direct world-competition. But, with the seasonal variations in our milk supply, the farmers have had no means of assuring themselves that milk bought at manufacturing prices does not enter the liquid market, particularly as the buyer takes the full output, irrespective of his liquid requirements. That such has been the case is beyond dispute. The existing national negotiations between producers and distributors to fix the prices and conditions of the sale of milk are not binding upon either the individual producer or distributor. In practice, for certain of the Midland and South-Western counties these agreed terms are accepted by producer and buyer, especially where producer and buyer are in a large way of business. But in the extreme Western counties, and in certain midland counties, where an important means of disposal of milk is by factory manufacture, the producer has usually received less than these agreed terms, while in the industrial Midlands and North he has received more.

I suggest that from the producers' point of view an attempt at national price-fixing is wrong. Marketing conditions for milk are not alike in all parts of the country. It is true that the national negotiations avowedly leave the issue open for local modification to meet local conditions. But there is no economic basis for national price-fixing. In Cornwall, for example, to consider certain dairying counties, the bulk of the milk is manufactured into butter or cream, either in factories or on the farm; in Somerset, disposal is about equally divided between liquid export to London and Bristol, and manufactured into condensed and dried milk by factories, or into cheese by factories or on the farm; in Wiltshire, Berkshire and Buckinghamshire the bulk is exported for liquid consumption to London; in Nottinghamshire, Derbyshire, the West Riding and Lancashire, milk is almost exclusively sold for liquid consumption, not by export to a distance through wholesalers, as in Wiltshire and Berkshire, but by sale to retailers or by retail direct in the near-by industrial towns. So, for every county in England, and for parts of each county, social and geographical conditions have fixed different markets, and there are left for attainment varying ideals of marketing efficiency. The Cornish, the Wiltshire and the Lancashire farmer, meeting together to bargain with the distributors, have not, and cannot have, a thorough community of interest among themselves. The Cornish farmer is thinking of the butter-and-cream market, the Wiltshire farmer of the London wholesale export market, the Lancashire farmer of his adjacent retail market. Against this

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divergence of interest, wholesalers, retailers and manufacturers of milk work under similar conditions for all parts of the country, save that, of course, the manufacturer avoids those thickly populated districts where the whole of the milk production is required for liquid consumption, or those rural districts whence the whole output is dispatched to some such large, even if distant, market as London.

This divergence of interest has weakened the bargaining power of the farmer. In addition, he is weakened, in collective action, by the large number of individuals concerned and by the small scale of operations of each, as compared with the small number of distributive firms, among which combination proceeds daily to form fewer and larger units.

What is required, I am sure, on the part of the farmers is organization on the basis of markets, and by this I mean trading organization of which the contracts with individuals are legally binding. The farmers who organize together will then have that solidarity of interest which they now lack. I do not propose that farmers in general should distribute or manufacture their milk. The production of milk is a full-time job for anyone, and it would, I am sure, be bad business to attempt to scrap the skilled middleman service now in existence. The middleman is not to be eliminated; on the contrary, he is to be worked harder, and his functions widened.

I need hardly refer you, at this point, to the Scottish Milk Agency, a co-operative organization which began operations in October 1927. It was formed through the collaboration of the Scottish Agricultural Organization Society and the Scottish National Farmers' Union, and in October 1928 had a membership of 2250, including those farmers supplying creameries affiliated with the Agency. The Agency aims ultimately at pooling the milk supply of Scotland, and operates already in Glasgow, the Clyde Valley, Edinburgh, Aberdeen and Inverness. The Agency acts as a buyer and seller of milk. It does not for the present own creameries or material equipment. Direct dealing between producer and distributor is not affected by the Agency. Its object up to the present stage of development is to displace the individual for the group in bargaining, and so to give to each individual the power of all farmers collectively. The Agency will no doubt adapt itself to changing conditions, as experience may dictate, while maintaining its original purpose—that is, to secure collective in place of individual marketing among farmers.

Members of the Agency contract to sell their whole output through the Pool for three years. Prices are fixed for one year in advance by agreement between the Agency and the distributors' associations. The actual sale of milk is by contract between producer and distributor, but these contracts are registered with the Agency, which collects payment from the buyer, and passes on the money, less 1d. per gallon for working expenses, to the producer. This levy of 1d. per gallon is intended also to build up a fund to enable full liquid rates to be paid for milk for which a liquid market may not have been found. The Agency guarantees its members the prices it has agreed upon with the distributors' associations

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up to 125 per cent. of their average daily production from November to February. Surplus milk is paid for at manufacturing prices, and is dealt with in creameries which are members of the Agency. It will be seen that these terms are more favourable than those ruling under the current agreement in England. During 1928 the members of the Agency received, roughly, 1d. per gallon more for their milk than was received on the usual contract conditions in Scotland.

The Scottish Milk Agency is purely a marketing association, and is based upon a number of definite markets, of which it controls a substantial proportion of the supply. It differentiates sharply the functions of production and marketing, and indicates that, while economic production is an individualistic function, marketing is a collective one.

The principle of the Scottish Milk Agency can be applied to all other markets similarly supplied, to a large extent, from such a distance as to necessitate the services of a wholesaler. The farmers' organization now getting under way in Manchester illustrates again the importance of organizing for a distinct market, although here, as transport and distance do not enter, negotiations occur with retailers, or sale is carried out direct to the consumer. The Cheshire and Cheddar Cheese Federations, while not, as yet, trading organizations, are based upon securing a direct market for domestic-made cheese. I foresee, similarly, that producers supplying factories will organize on the basis of that factory, their market ; in fact, this is already the case with regard to one Somerset factory. With one exception, such organization is natural and simple, for the producers are fairly closely grouped in relation to their market. That exception is London, which draws its supplies from the whole of the South and Midlands. Organization for the London market will be effective only when this vast number of widely scattered producers can be brought to realize its identity of interest. If only 40 per cent. of these producers combine in a legally binding contract their stand against the buyers can be frustrated by the importation of milk from districts ordinarily devoted to manufacture—for example, Devon and Cornwall. The great majority of producers concerned in each market must, therefore, bind themselves together before they can ensure that they will receive a fair share in the consumers' price of that market.

There remains one point I should like to mention again, one of particular importance to liquid exporting districts, and that is, the surplus. There will always, in the nature of things, be this surplus. Farmers, in forming pools, must equip themselves, jointly or individually, to dispose of this surplus unless there exist in their neighbourhood factories with which they can contract. At all events they must keep the issue clear between their monopoly market, for liquid supplies, and their competitive market, for manufactured supplies. They must see to it that the liquid distributor at all seasons has his necessary quantities, and no more, and that the surplus is manufactured by the farmers' pool or disposed of for manufacture under separate contract.

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LABOUR-SAVING MACHINERY AS A MEANS OF LOWERING COST OF PRODUCTION

By D. CRAWFORD
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I APPROACH this subject with a good deal of diffidence, especially after the able paper so recently read by Mr Bond at the Farmers' Club on 5th November, and published in their journal for November last. Also I have seen land well tilled and growing good crops where little machinery is used, but there the land-worker has not been accustomed to the same standard of living as in this country, the wages—so I was informed—being about 1s. per day for men, and 6d. per day for women. Naturally, with labour-costs as low as this, the land was well tilled and practically weed-free. In contrast to these low wages there are those paid by farmers in the young countries of the West, wages which are often eight and ten times as much, and workers difficult to obtain even at that price. Yet these countries are able to rule the world's cereal prices. It is an old adage that "necessity is the mother of invention," and here the agricultural engineer has tried, and partially filled the want.

I had a letter the other day from Mr Kerl, a friend I made in America in 1927, who visited here last year. He informed me that a man and his son, with an eight-bottom 14 in. plough, ploughed 75 acres in 24 hours, the power unit being a caterpillar tractor working night and day, using headlights. I do not say, nor do I think, that the same class of plough is suitable for all classes of soil in this country, or in this small county of Hertfordshire.

In the past we have concentrated too much on the output per acre, and forgotten the economic side—*i.e.* the capital output per man employed. Let us, therefore, consider whether with the adoption of labour-saving machines we may be able to increase the output per man and thereby lower cost of production.

I know I shall be met with the argument, Where is the capital to come from? Also, will it be economic, after the capital outlay, wear, tear and depreciation have been taken into consideration? These difficulties I can quite understand, considering the majority of implements on the farm are used for only two or three weeks out of the fifty-two. How are these machines to be housed to prevent weather decay during the period they are not in commission? These obstacles may perhaps be overcome by the Agricultural Credits Act. Nevertheless, bearing all these points in mind, I do not think the cost of production can be reduced without the land-worker reducing his or her standard of living, although he or she will need to use a little more brain and a little less brawn. More care should

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be given to farm machines after they have done their season's work, before they are stored. They should be properly cleaned, adjusted and coated with a preservative. The cheapest and most efficient that I have found is a mixture of gas tar and paraffin, in the proportion of two-thirds tar to one-third paraffin, thoroughly mixed and applied cold. This coating sets hard, resists weather and acids, and lengthens the life of the machine.

The advance of education is slowly overcoming the reluctance of some farmers to introduce new machinery. The modern generation is of a mechanical mind and is capable of using the new tools with the intelligence they require.

Cultivation, Seeding and Manuring

In my opinion, each machine controlled by one man will require to be larger, enabling him in the minimum to double his output. The power unit will likewise have to be increased, whether it be horses or tractors. If horses, he must double or treble his team, and to my mind the horses should be of the clean-legged type, so that they will not need so much grooming. All implements should be made of steel, to lessen weight—except those that require weight—and all fitted with a seat. Harrows should have hardened steel points, to prevent wear, as those with sharp points often do better work, once over, than twice with stubbed. I think the check-drill should be introduced where the crop has to be hand-singled, as this would lessen the hand-work later on. The crop could then be cleaned with the horse-hoe, working up and down as well as across the rows. Farmyard-manure spreaders would help, if they are procurable at a reasonable price, also manure loaders, as both these operations entail heavy manual labour.

Hay

This crop is now cut and cured with little manual labour, but the stacking is costing too much. The sweep and elevator have lessened the heavy labour on this crop, but the hay stacker—as used in America in place of the elevator—would still further lessen the stacking costs by several shillings per acre, and make the task of the worker much less muscular.

Harvesting Cereals

This operation is now much easier than it was in our forefathers' time, and I do not see how it can be very much improved in our climate, except by barley-growers, who might be able to use the header and thrasher with advantage. This machine is, however, very costly, and would be an economic proposition only for the large grower.

Thrashing machinery might be improved so that a less number of hands are required to operate it. One must bear in mind that it would

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not be an economic proposition to hash over and spoil the straw, as this is worth being taken care of, being a valuable by-product, especially of the wheat and oat crops.

Potato-raising

I do not see how potato-raising can be much simplified. In this county, with its stony soil, the hoover or elevator type of raiser does not work satisfactorily ; potatoes have to be gathered by hand.

Grading ready for market is done now often by machinery in place of hand-riddles. I have lately fixed a small $\frac{3}{4}$ h.p. internal-combustion engine on a circular potato-sorter to take the place of a man ; it is less costly, and the job of turning a wheel all day was never popular with my men. This small power unit weighs only 30 lb., which is a consideration, as the machine has to be man-handled when moved along the pit. This power unit might easily be used for other hand-power machines.

Dairying

This branch has made great strides during the last few years. The use of concentrates and drinking-bowls have done much to take the place of expensively grown root crops.

The milking machine is now gradually taking the place of the hand-milker ; but it will be some time yet before the farmer and his workers are educated to the proper handling of this machine to make it the success which it deserves.

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APPENDIX TO CONFERENCE REPORT

HARPENDEN DAIRIES LIMITED: AN INSTANCE OF SUCCESSFUL CO-OPERATIVE ACTION AMONG FARMERS FOR RETAIL MILK-SELLING

A GROUP of farmers round Harpenden have for some years combined to form a co-operative society, the Harpenden Dairies Limited, for selling their milk retail in the village. The capital of the society is £2345, being subscribed by the farmers themselves, in the first instance on the basis of three £1 shares for every gallon of milk per day which they contract to supply. This rule is now not enforced, as no more capital is required. The shares are all held by members. The milk handled amounts to 400 to 600 gallons daily, and there are eleven farmers in the scheme. The basis of payment is the National Farmers' Union contract rate, with the following modifications:

(1) The society supplies the churns and incidental appliances, straining-cloths, etc.

(2) There is no railway freight and none of the deductions of the National Farmers' Union contracts.

(3) The society collects milk from the farmers at a specially cheap rate—*i.e.* 2½d. per mile and ¼d. per gallon—any profits on the transport account being returned in the form of bonuses.

(4) It gives the following bonuses:

(*a*) Where there is one Jersey or Guernsey in five cows of the dairy herd, and provided the milk contains an average 4 per cent. of butter fat	1d. per gallon
One Jersey or Guernsey in eight . .	½d. ,,
(*b*) For County Grade A Licence . . .	1½d. ,,
(*c*) For Ministry of Health Licence . .	3d. ,,
(*d*) For farmers steaming dairy utensils twice daily	£18 per annum
(*e*) On milk from tuberculin-tested herds .	1d. per gallon

Occasional special bonuses per gallon, which are of the nature of interim dividends. Total payment of bonuses amounts to about 10 per cent. of total payment for milk. Counting everything, the advantage comes to about 2d. or 3d. per gallon in cash —*i.e.* farmers receive in January 1s. 8d. instead of 1s. 5d., in addition to the savings above specified.

(5) A farmer contracts to deliver a certain quantity, and may vary his contract to the extent of 25 per cent.—*i.e.* if he contracts for 40 gallons

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per day he may go to 50 gallons. Milk supplied in excess of this is paid for at the manufacturers' price of the National Farmers' Union. For a deficiency he is fined 3d. per gallon.

(6) The society also collects all eggs, pays for them at wholesale price, and returns the surplus profits by way of bonuses.

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