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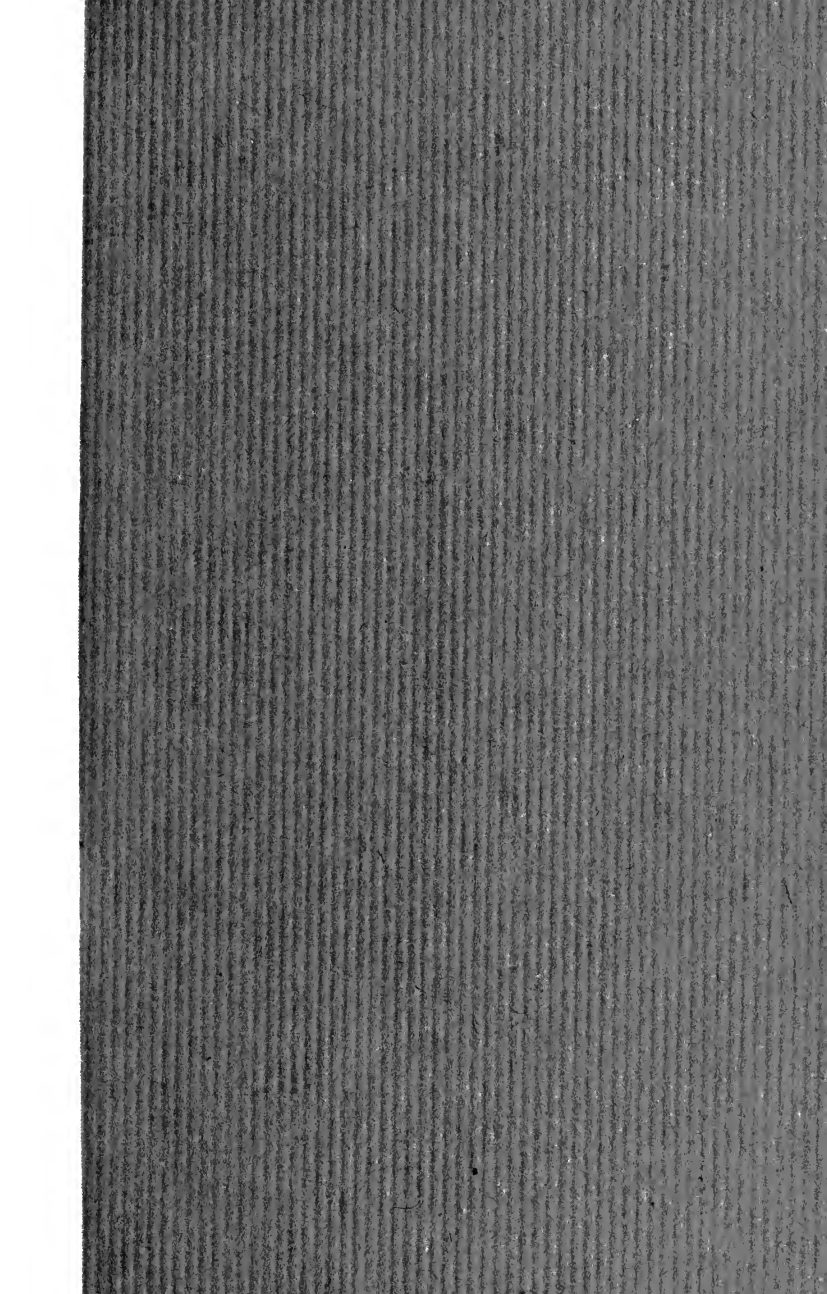
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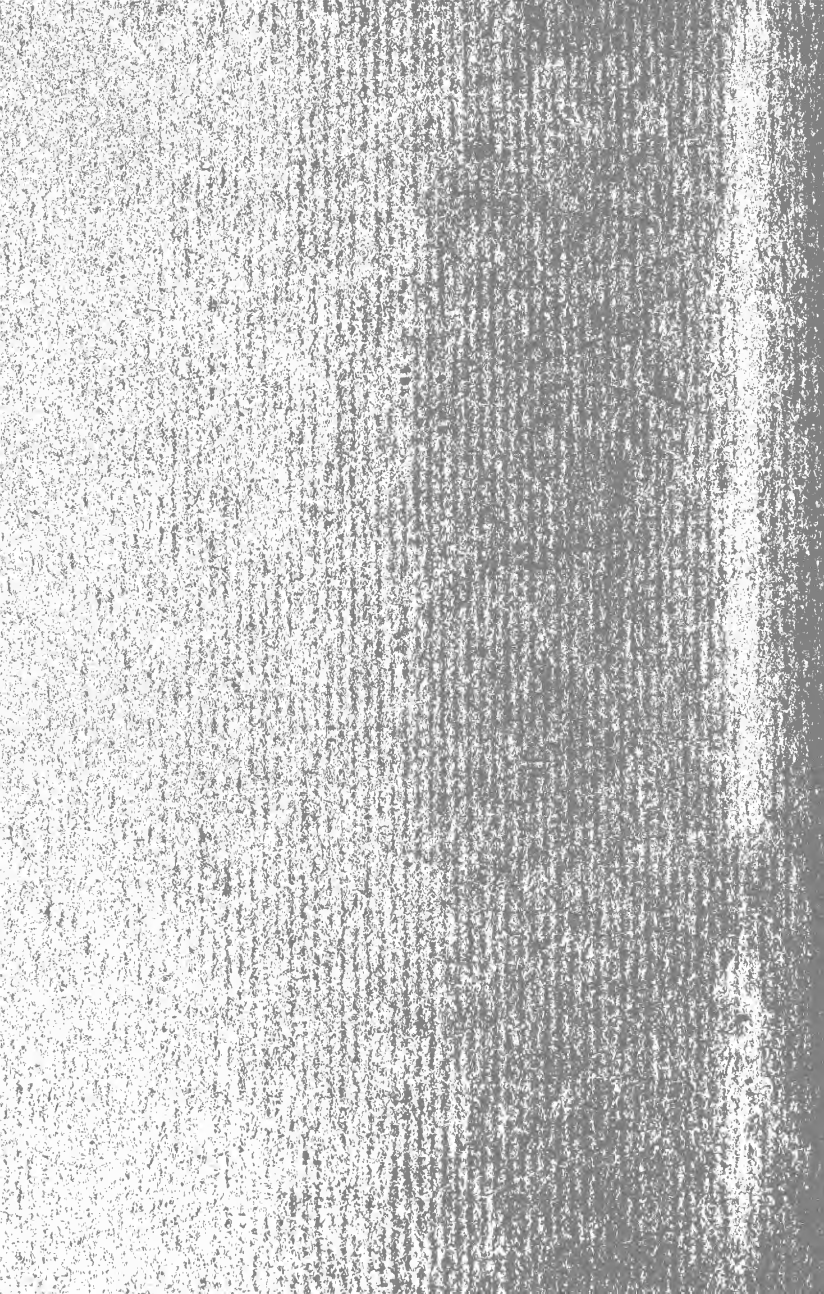


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# THE FARM AND THE NATION.

BY

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*Author of the "Stock-feeders' Companion," "A Big Stride  
in Agricultural Improvement," etc.*

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## INTRODUCTION.

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Agriculture is more or less in the melting pot! The present opportunities for development on more highly organised, as well as on National lines, appear to be so unique and to present such far reaching possibilities, that I have ventured, somewhat reluctantly, to add yet a few more pages to the printed matter of the day, in the hope that this Booklet may prove acceptable and useful.

The possibility of starvation has forced this country to seriously examine and ruthlessly overhaul existing methods of producing and distributing food. This has revealed many defects, and to my mind one very serious defect has been the utter lack of co-ordination between the Farm and the Nation, which accounts very largely for the title selected for this Booklet.

It was difficult to find in pre-war legislation that the State really regarded Home-Food production as of vital importance to the existence of the Nation; the Farmer was neither asked nor required to produce those crops and those classes of stock which would provide the maximum amount of Food for the Nation.

A few years ago I visited Canada, United States, Denmark, Sweden and Germany, and I confess that the thing which impressed me most from the Agricultural point of view, was not the size of their crops, their methods of growing them, or the quality of their Live Stock; *but the highly organised methods that were in some cases employed in dealing with and distributing the produce of the farm.* This, it appeared to me, was the chief explanation why these countries had been able to compete so successfully with the Home-Product on our own markets.

But looking ahead, what position do we expect Agriculture will occupy after the war is over? Shall we again see a period of dismal agricultural depression, or shall we determine to establish a system which will successfully weather the storms of a world competition in the coming years?

It will be a thousand pities if we do not at the present time look much further ahead than mere emergency methods so as to bring stability to such a basal industry as Agriculture as well as security to the Food Supply of the Nation in the future.

JOHN PORTER.

CHURCH ROAD,  
TUPSLEY, HEREFORD.

*January, 1918.*



## THE FARM AND THE NATION.

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It is passing strange that a terrible conflict, which has brought this country to the very verge of starvation, should have been necessary to convince us, that after all the farm is, or ought to be, something more than an isolated and unorganized unit in the production of essential foods for the people of this country.

The State has permitted farmers in the past, to carry on their business more or less unmolested, hence the money returns to be derived from any system of farming, have determined to a large extent, the particular system which would be adopted; and who could blame them, when business men generally, were allowed to do the very same thing?

Speaking generally, the Farmer's concern was not so much to produce the maximum amount of Food for the Nation, as to make a living; although incidentally, he did produce a considerable amount of food for the country. The State had never demanded that the Farmer's main function should be the production of essential Foods: but to a limited extent, supply and demand in a world market, did determine very roughly the stock a Farmer would keep and the crops he would grow.

At the same time it does not follow that in a world market the British Public would be prepared to pay a sufficient price to encourage the Home production of all the principal Food stuffs required: hence the difficulty in which we found ourselves at the commencement of the war, due to this country having relied to such a large extent on other nations for essential foods like wheat.

## NATIONAL CHARACTERISTICS.

Somehow or other the British Nation never seems to trouble about a calamity which *may* come. It has gone, so far as British Agriculture is concerned, largely on the principle of "*Laisser-faire*." In effect it says:—"We are a very busy Nation : we have no time to worry about things which may come. The Nation continues to be fed *from somewhere*, and that is enough for us. When calamities really do come, we will soon set to work and deal with them. Until that day comes we must ask you to be perfectly calm and patient."

There is no doubt that many brilliant pages have been added to History, setting forth the way in which this nation has overcome terrible difficulties in the past ; but indifference to such a *basal* industry as Agriculture or Food-Production, is always attended with very grave risks, which were never more appreciated than at the present time.

The recent developments of Submarine warfare have torn away much of the protection afforded by our insularity, and this on account of the State having neglected Agriculture, has brought this Nation dangerously near to starvation. Had it not been for the untiring efforts of the Board of Agriculture through their War Agricultural Committees, and later their Executive War Agricultural Committees, to which the Board delegated considerable powers to enforce, if need be, better cultivation and greater Food Production on Farms, it is difficult to see how we should have pulled through.

## " INDUSTRIALISED AGRICULTURE."

The development of many highly organised Industries in this Country by keen business men during the last century, has certainly been phenomenal ; especially when one considers that their products have penetrated to the very ends of the earth. The so called Industrial Classes of the present day, have become more or less steeped in an " industrial " atmosphere, where the whole business has been so highly organised as to run like clockwork.

These people have difficulty in really understanding the enormous trouble a Farmer is put to by adverse weather conditions, as well as the disappointment he has often to face in the growing of Food crops. In fact, they are often quite ignorant of the production side of a Farmer's business ; but what they do know something about is the distribution of marketable products, and how they should be done up and put on the market, so as to secure the trade against all comers. It is on this point more than any other that the " Industrial Classes " have very little sympathy to offer to the present methods of marketing Agricultural products by Farmers. When examined through Industrial spectacles, these keen business men see Farm Produce placed on the market in dribblets, with no uniformity of size, or colour or quality. They know perfectly well that markets cannot be held against all comers on these lines, and who will deny that they are not right in this respect ?

## **A. UNIQUE OPPORTUNITY.**

Agriculture may and should become one of the most highly organised industries in the Country. Its opportunities for organization are endless. In fact, the farm will never occupy its proper place in the National Economy until Home Food Production is looked upon as an integral and essential part of the State Policy.

It is quite obvious that British Agriculture will never hold its own among the Nations until the present system has been modified or recast on " Industrial " as well as on National lines. Nothing less will save Agriculture from depression after the War and nothing less will make the Food supply of this Country secure against possible war conditions in the future.

Under the present War conditions, many Foreign supplies of Food are cut off, and in other cases they have been considerably diminished, hence we are forced to rely more and more on the production of as much Food as possible at Home. It is very doubtful if we all realise the unique opportunities this country has, for recasting the whole system of Food Production on " Industrial " and National lines.

National necessity is a sufficient argument for such a step, and when the new system has been inaugurated, the benefits will be readily appreciated, *for Agriculture will have been transformed into one common effort on the part of the country to provide itself with a sufficiency of Home grown essential foods*, and thus be able to meet any emergency that may arise in the future with regard to the cutting off of Foreign supplies.

## **FOREIGN COMPETITION.**

For many years previous to the outbreak of the war, Home grown Farm produce has not been able to compete with Foreign supplies even in our own Country. We all know that consumers in our Towns and Villages have welcomed Foreign Bacon, Butter, Eggs and Fruit and have in many cases preferred them to the Home Product for very obvious reasons.

True it is that some of our Farmers market the produce of their own growing, in such a way and of such a quality, as to compare favourably with that from any other Country ; but it is the inability of Farmers in this country under the existing organisation, to supply large quantities of many essential Food Stuffs, of uniform quality and of a particular grade and warranty that causes them to fall so lamentably short of certain other Nations, even in holding and supplying the markets of our own country.



The above imports are staggering in their magnitude, and show that we are far from producing what we require for Home Consumption. Some of this is certainly due to our failure to compete successfully with Foreign importations of Food stuffs. Why should this Country be lagging behind in this respect ?

It is because Agriculture has been allowed to go on, as if Home Food production were not of vital importance to the Nation. There has been practically no National Agricultural Policy in this Country and we are now paying the price.

The great thing which Professor Middleton appears to emphasize in his valuable treatise called "The Recent Development of German Agriculture," is that the German Government has a National Agricultural Policy, which aims at producing the maximum amount of essential Food stuffs for its own Country : it has not allowed Agriculture to be neglected ; but has fostered it and moulded it for the benefit of the Nation, and this has no doubt enabled Germany to hold out against the Allies for so long.

## **STATE GUIDANCE ESSENTIAL.**

The Farmer can never feel that he is part of the common organisation for safe-guarding the Food Supply of the Country, unless the State makes it perfectly clear what Food crops it is that they wish him to grow, and at the same time encourage him to grow the crops or produce the Stock required, by fixing prices for these commodities at figures that will be fair and reasonable and which will give the Farmer confidence in carrying out the work.

Farmers have already demonstrated that they are willing and anxious to support a National Agricultural programme, when the requirements have been made plain and definite.

Lord Selbourne as President of the Board of Agriculture asked the Farmers during 1915 (i.e., the year after the outbreak of war), to increase the number of cattle in the country, and in England alone the response was clearly discernable as will be seen in the following Agricultural Returns :

CATTLE.

1914	..	5,119,445
1915	..	5,280,947
1916	..	5,403,665

This means an increase of nearly 300,000 head in two years in England.

In the early part of 1917, Mr. Prothero as the New President of the Board of Agriculture appealed to the Farmers to grow Potatoes and they have done it, as the following figures for England and Wales show :—

	AREA.	CROP.
1917	507,987 acres	3,339,995 tons
1916	427,948 ..	2,504,516 ..
Increases	80,039 ..	835,479 ..

Submarine warfare has made the importation of food difficult, hence the present Government Policy is generally speaking that British Farmers are asked to produce the maximum amount of essential Food Crops for the Country. Much of the food required will therefore be produced in this Country for the duration of the war ; *but as to where it will come from after the war is over, and what will then be the position of British Agriculture, will depend very largely on the lessons that this country has learned since the war began.* In the meantime however, the Food problem resolves itself into two main heads, viz. :—Increased Food Production and the Distribution of same to the consumer.

## STIMULATING PRODUCTION.

Everyone will agree that the Board of Agriculture has made great efforts to stimulate Food Production. They have set up a new Food Production Department in London, War Agricultural Committees in each County, and later on their County Executive War Agricultural Committees, to the latter of which they have delegated considerable powers. They have provided these Committees with a constant stream of information, suggestions, Reports, &c., in order that they may stimulate the production of essential

Food Crops in their respective Counties ; but even then, the Food will not be forthcoming, if Farmers have to suffer loss through carrying out the Government programme.

*It would appear that the National Food supply can only be secured and maintained, so long as the State requires the Farmer to produce on reasonable terms those crops and those classes of stock, which are essential to the existence of the Nation. There is no fear whatever of over production as long as proper means are taken to deal with the food after it has been produced.*

Three common impediments which have been exercising the minds of Farmers during the last few years, and which have tended to discourage them from doing their utmost for Food production are (1) The fixing of maximum prices too low, (2) Insecurity of tenure, (3) Shortage of Labour.

**Fixing Maximum Prices.**—The power to fix maximum prices for crops and stock is a great responsibility to place in the hands of any man. If a maximum price is made too favourable it may lead to over-production of that particular kind of produce. If it is put too low, there may be an acute shortage.

Such a shortage has already happened with Beef, due to the original maximum price fixed for January, 1918, being 60/- per live cwt. The effect has been that very few cattle have been fed in stalls or cattle courts during this winter. If a Farmer had bought his store cattle last autumn at 70/- to 80/- per live cwt., and fed them with cake, hay, straw and roots in the usual way, he would have had an adverse cash return on the transaction of anything up to £5 per head. The reluctance of Farmers to feed cattle this Winter will then be readily understood.

Maximum prices may often be fixed in such a way as to have a moral effect on the producers and distributors concerned. No loop-hole should be left for so-called smart business. With a Farmer selling Fat Bullocks, the only things that should count are the quantity and quality of actual Meat and Offals produced. A system based on these lines discourages immoral dealings or sharp practices, which is a considerable advance over the pre-war temptations of marketing.



**Security of Tenure.\***—In order to grow maximum crops, it is necessary to clean, manure and cultivate the land well. It is sometimes requisite to put a lot of work into the fences and water-courses round the arable land. All these improvements mean expense. They may last for several years, and if the tenant has to leave unexpectedly on account of the farm having been sold, he may not be able to realise the amount of money he has invested in improving the land.

The experience of not a few Tenant Farmers has been that a bad Farmer has usually been allowed to go on, more or less, at the old rent, while the hard-working, progressive tenant who has improved his land, has often to face the alternative between an increase in Rent or a notice to quit. Such a clog on the Food Production wheels ought not to be possible: the moral and practical results are both very bad indeed.

*It is quite hopeless to build a healthy, vigorous scheme of increased Food production on the shifting sands of insecurity of Tenure.*

The compensation for improvements made has so often proved unsatisfactory to the outgoing Tenant, that the only way to get the maximum amount of Food produced is (1) To have some check on Rent raising on the Tenants improvements, and (2) To give "good" Farmers security of tenure, or failing that, the option of a two years notice to quit instead of one. A good Land Purchase Scheme would no doubt accelerate Food production wonderfully, as long as the Private money-lenders are either kept out or controlled by the State.

**Shortage of Labour.**—The labour difficulty has been very trying indeed, but Farmers like other folks show themselves to be quite willing to put up with the inevitable.

On the other hand it has been difficult to convince many men in authority that a skilled Farm Workman is exceedingly hard to replace.

Many genuine attempts have now been made to supply the Farmers with the best labour obtainable under existing conditions.

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\* See also English Farming, Past and Present, by R. E. Prothero, pp. 399 & 401.

## A NATIONAL LOSS!

It is one thing to stimulate the maximum production of essential Food crops, but if the Nation is to receive full benefit, it is, at the same time, absolutely necessary to prevent waste in any shape or form. Some of the waste is quite unpardonable and ought to be prevented, if British Agriculture is to hold its own among the nations. The loss to the Nation may actually be in food crops, or it may be loss of manure which would assist in producing larger crops, or it may possibly be through the lack of organization (e.g., local slaughter houses, Factories, &c.) to deal with all kinds of meat and crops in the district in which they are produced, thus causing a great waste of energy in "shipping" commodities about from one market to another, before they reach the consumer.

*Anyhow for this purpose, it will be quite sufficient to refer very briefly to a few cases of waste, which, if converted into terms of "Hard Cash," would amount in the aggregate for Great Britain to no less than millions of pounds each year.*

### WASTE OF MANURE.

In the manuring of Farm crops. the manurial constituent which is the most expensive to buy, and has usually the most marked effect on the growth of crops is that of nitrogen. Millions of pounds are spent each year in the United Kingdom on nitrogenous manures such as, nitrate of soda, sulphate of ammonia, &c., in order to stimulate the growth of crops; yet, all the time, we are allowing very considerable quantities of Nitrogen produced on the farm to run to waste. The amount of loss experienced by the leaching effects of rain on Farmyard Manure in heaps or open yards on most farms is so considerable, that one often wonders how the matter can apparently be taken so lightly.

In the R.A.S.E. Journal for 1916, Dr. Russell gives particulars of an experiment carried out at Woking from Nov. 1st, 1913 to May 20th, 1914, where Farmyard manure was stored in two ways during this period, viz: one heap in a covered shed, and the other in the open. The former lost

8% of its nitrogen (about 1½ lbs. per ton) during storing while the latter lost 33·5% (about 5 lbs. per ton).

Now what does this mean? It means that in a very large proportion of the Farmyard manure made during the Winter months in England, approximately one third of the nitrogen is being lost by the leaching effects of rain: Let us now deduct the loss of nitrogen which takes place with careful storing and protection, viz.: one-twelfth, and even then the preventable loss through leaving Farmyard manure exposed to the leaching effects of rain amounts to approximately one quarter of the nitrogen originally in the manure. Surely this is a big loss to the Country in itself!

Another way in which nitrogen is lost to the Country indirectly is through the majority of Farmers not making full use of Leguminous crops, which collect and elaborate the free nitrogen of the air. These plants store up nitrogen in their roots, and elaborate nitrogen in their stems and leaves; hence the part above ground provides a nitrogenous food for stock, while the sward has accumulated a considerable amount of nitrogen, which becomes available for the succeeding cereal crops after the sward is ploughed under.

*The growing of these crops more extensively therefore offers possibilities of vast economies in the production of crops and meat, yet few there be who really make full use of Nature's wonderful provision.* One of these Leguminous plants viz.: wild white clover, has revolutionised the laying of land down to pasture.\* Without it, laying land down to pasture is more or less a lottery: with it an ideal pasture can be obtained from the very beginning. The Stock carrying power is greatly increased and the sward when ploughed up gives bumper crops.

## WASTE OF FOOD.

It is very depressing to think of the loss of food, which is caused directly and indirectly through what are called "Gluts" under the British system of marketing perishable commodities like fruit and meat. Through lack of organi-

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\* See Author's "Big Stride in Agricultural Improvement." *Hereford Times*. Price 6d.

sation and lack of facilities for conserving or placing in cold storage, these commodities are simply dumped on to our markets, with the result that the market becomes "glutted" and prices offered for them fall to a comparatively unattractive figure. The result is that it no longer pays to produce the meat or to pick and market much soft fruit. This in itself is a loss to the nation and further, the very fact that it is available in excess of present requirements, means that economy in its use and consumption will not be observed as it would be if these "Gluts" were prevented. Hence the loss to the Nation is increased.

*Food Gluts inevitably mean waste of food, which in peace times is very undesirable and in wartime is quite indefensible.*

We cannot possibly hope to make our supply of Home grown food carry us through till the succeeding harvest, without a National system of cold storage, and on such a scale as to accommodate several months supply. The same thing applies to various methods of Food preservation and conservation:

The loss of Grain and other foods to the Nation caused through wood pigeons, rabbits, rats, mice, sparrows, &c. must amount to very many thousands of pounds a year, if not millions: but this is now more or less realised and the numbers of most of these pests are being very considerably reduced.

Another point demanding wide publicity in the interests of the Nation, is the loss indirectly sustained by sowing weak-strawed varieties of wheat. In the wheat variety trials carried out by the Herefordshire County Council, the general result has been that varieties which stood more or less erect at cutting time gave higher yields, while varieties which were laid at Harvest time gave lower yields than was anticipated from the growing crops.

To put this statement into figures one would be fairly safe in calculating the extra "cast" on thrashing out the grain from good standing varieties, at a sack (4 bush.) per acre, although this quantity may often be increased. The Wheat acreage of England in 1915 and 1916 averaged about 2,000,000 acres, consequently any small increased yield

per acre, caused by sowing good standing and heavy cropping varieties, would amount in the aggregate to a very large figure for England alone.

There are many unenclosed patches of land and roadsides in this Country where the herbage simply runs to waste each year, and there would appear to be almost endless scope for cottagers to keep a goat or two each in order to supply themselves and their children with the requisite quantity of milk.

### **WASTE OF ENERGY.**

It almost staggers one to think of the unnecessary work which has been allowed to go on from year to year in this Country. *Why should wheat for example be sent thirty, sixty, or a hundred miles to be milled, and then brought back in the form of flour, and milling offals, to almost the very spot where it was grown? Why should soft fruits be sent on a long and wasteful journey to be made into jam, and then brought back again for consumption in the same district? Surely there is something wrong here!*

This Country will never rise to its highest as long as obvious waste of energy of this kind is permitted. Does it not matter to the nation how much energy is wasted as long as the person who handles it manages to get a living? Surely it does! This waste of energy could be largely overcome by the establishment of Factories and Storehouses in roughly speaking each market district, where the raw material from farms could be dealt with on the spot, and only that food which was actually in excess of local requirements sent to other parts of the Country.

### **WASTE OF TIME.**

It will surprise no one, if I refer to our system of weights and measures under this head; but the thing which does surprise many is, how we should have clung to such an illogical, cumbersome system for so long. The chief arguments in its favour appear to be that (1) it is the system we found when we entered the world and (2) it lends itself more or less to the bartering system, where it is considered to be necessary to meet one another half-way.

In the first place this long-drawn out, see-saw kind of bargaining is, generally speaking, a terrible waste of time. Britons, however, love to barter, consequently I will say no more about this point ; but surely no one will gainsay that our system of weights and measures is unnecessarily cumbersome and unnecessarily difficult. It harasses us at school, and occupies much valuable time which ought to be more profitably spent in studying more useful subjects. Even after our School days are over, it continues to harass and confuse us for the rest of our lives. We ought not to require a pen and paper to tell how many stones there are in , say, 1,657 lbs., nor should this process be necessary to tell how much the same quantity of produce would come to at a penny per lb. This could be ascertained quite easily and accurately with a decimal system.

Further the Government has now become a gigantic purchasing body, and for this reason among others, has to fix prices for commodities it wishes to purchase. They had therefore a unique opportunity of paving the way to a reformed system, but so far they have not done so, because Farmers are still required to sell wheat on the 63lb. bushel, while the Government offer them seed wheat on the basis of a 60lb. bushel.

*This elusive term called bushel ! It is no longer a measure it is a weight, and yet after all it is not a weight, but a variety of weights, which can be varied at will, within certain limits, by so-called members of " The Trade," according as they are buyers or sellers.*

In very truth these men are most privileged members of the State ! There must be some reason for this variety of Bushel weights. Does it really pay " The Trade " to have a difficult system of weights and measures, or is there some other reason for so doing ?

Be this as it may, it will not be surprising if reform in our system of weights and measures emanates from the initiative of " The Trade." This would only be History repeating itself, seeing that the establishment of the new Government seed testing Station, has followed the bold step of a well-known seed firm, who 35 years ago guaranteed the purity and germination of their seeds. An almost analogous case is the present simplified system of purchasing Basic

Slag, due to one large firm cutting away from the system of stating the analysis in a roundabout way which few people understood, and stating outright the percentage of citric soluble Phosphate in their Basic Slag.

So may it be with the simplification of our system of weights and measures. We shall no doubt, have one of our big firms delighting the country, by making it known to their customers, "*That on account of their Staff consisting largely of women-workers and men of low medical category, all grain cake, meals or manure, as the case may be, will in future be sold in bags weighing 100 lbs..*" This will be found a much more convenient weight to handle, and further it will be much easier to check the weight of the consignment. What an enormous advance this would be towards uniformity in place of the "hundred and one" weights in existence!

The chief\* modifications then required to make a Decimal system out of our existing system of measures and coinage, would be to make our pint one-tenth of an Imperial gallon, and our penny one-tenth of a shilling. These small modifications in our system could be made with practically no inconvenience to anyone. Thousands of British Soldiers are using the decimal system every day in France, and it is more than likely they will not take quite so kindly to the British system on their return.

## WASTE OF CAPITAL.

Much capital is often frittered away on Farm Buildings, since many of these appear to be put up on the principle of maximum expense and minimum utility. A glaring example is the common type of Piggery, where Pigs are scorched in summer and starved in winter. The Pigs are generally very dirty and the Piggery is of little use for anything else. A small horse box† is infinitely better and can be used for many other purposes.

In all Farm Buildings, the emphasis needs to be laid on utility and economy, otherwise the Landlord's capital is wasted and the burden on the Tenant increased unnecessarily. The modern hay barn is a good example of utility and economy combined.

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\* See also Appendix, pages 30 and 31.

† See Mr. Bruce's Article in the 1917 Transactions of the Highland and Agricultural Society, for a very good type of Piggery, pp. 93 and 95.

## ECONOMICAL DISTRIBUTION.

The British method of distributing Farm Produce to the consumers has afforded ample scope for criticism; but it offers a splendid opportunity for the State to make what would prove to be one of the greatest reforms in the history of this country. We have allowed a state of affairs to exist where essential foods are "shuttle-cocked" about from one person to another, to an alarming extent before they have reached the consumer. Much of this transportation of food was quite unnecessary, and simply had the effect of pushing down the price paid to the Farmer, which means discouraging Food Production, and raising the price charged to the consumer, which means increasing the burden unnecessarily on the poorer classes.

*If the Nation is to obtain the maximum amount of security for its citizens in the shape of Home-grown food, it is absolutely necessary to reduce the labour employed in distributing food to the very minimum, so as to set as much labour as possible free for the production of essential Foods, e.g. meat, grain, fruit, etc., from the land; and it is only the countries which adopt this principle that will be able to hold their own, in the long run, among the nations of the earth.*

This country is in a very advantageous position, seeing it has one of the finest markets in the World at its very door. Hence the chief thing remaining is to suggest a system or organisation that will enable Farm Produce to be distributed with the minimum amount of labour.

## DISTRIBUTION OF CHEESE.

It is fortunate that the Board of Agriculture should already have given a lead—not a big one, but an exceedingly useful one—in instigating a scheme to demonstrate the advantages of collective cheese-making in various counties in England. No doubt the primary object was to conserve surplus milk and provide a valuable nitrogenous food which could be stored till required; but these demonstrations have done a great deal more. Take for example the Wellington Cheese-making Centre, carried out as a demonstration by the Herefordshire County Council during the season of 1917.



The Board of Agriculture supplied the necessary cheese-making utensils and the Agricultural Education Department engaged a qualified Instructress to take charge of the Dairy, with the assistance of a local Committee of milk suppliers. Twenty-seven Farmers agreed to spare the comparatively small quantities of surplus milk they had, for the school, and arrangements were made to fetch it from their respective farms, which were scattered over a district of fully 5 miles radius.

In this way 236,159 lbs. of milk were converted into cheese, which yielded when ripe 23,660 lbs. of prime quality cheese. After deducting all expenses, save the hire of the utensils loaned by the Board and the salary of the Instructress in charge, the suppliers received on an average 14d. per gallon for the surplus summer milk. Even if interest on the money, depreciation of plant and salary of cheesemaker had been debited against the milk suppliers they would still have got fully 13d. per gallon for the milk at the farm.

*The disposal of these cheeses is important, seeing that they were sold either direct to the consumer or the big retail grocers in the county.* The season's make, being of uniform quality, soon sold out, and it is sufficient to add, that this demonstration has already led to the formation of a registered cooperative society in this district.

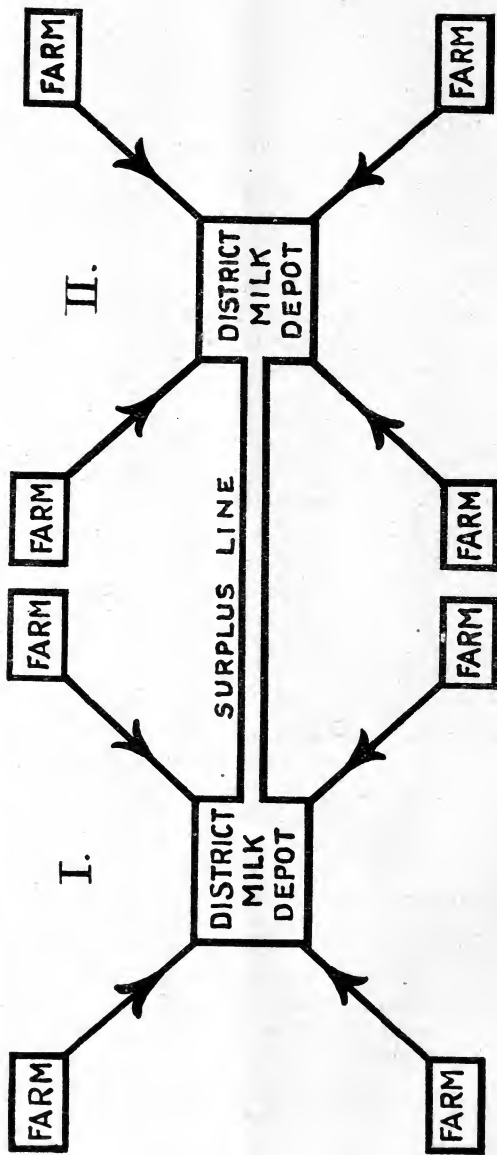
Look for a moment at the other side. Had this Demonstration not been made, the surplus milk would most likely have been given to calves or made into butter. Even if the Farmers had all decided to make cheeses, it would have meant that 27 sets of apparatus would have been required, and that no less than 27 persons would have been making cheeses each day. Further there would have been at least 27 different qualities of cheese. The variation in quality would not have made the cheeses acceptable to the larger retail grocers in the county, and the individual Farmers would only have been able to supply very small quantities at a time. In addition there would have been 27 times as many folks spending time and money in marketing these small lots of cheese.\*

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\* *c.p.* English Farming, Past and Present, by R. E. Prothero (President of the Board of Agriculture), p. 391.

**Diagrammatical Sketches showing how Milk could be distributed Economically.**

**I.—FARM TO DISTRICT MILK DEPOT.**

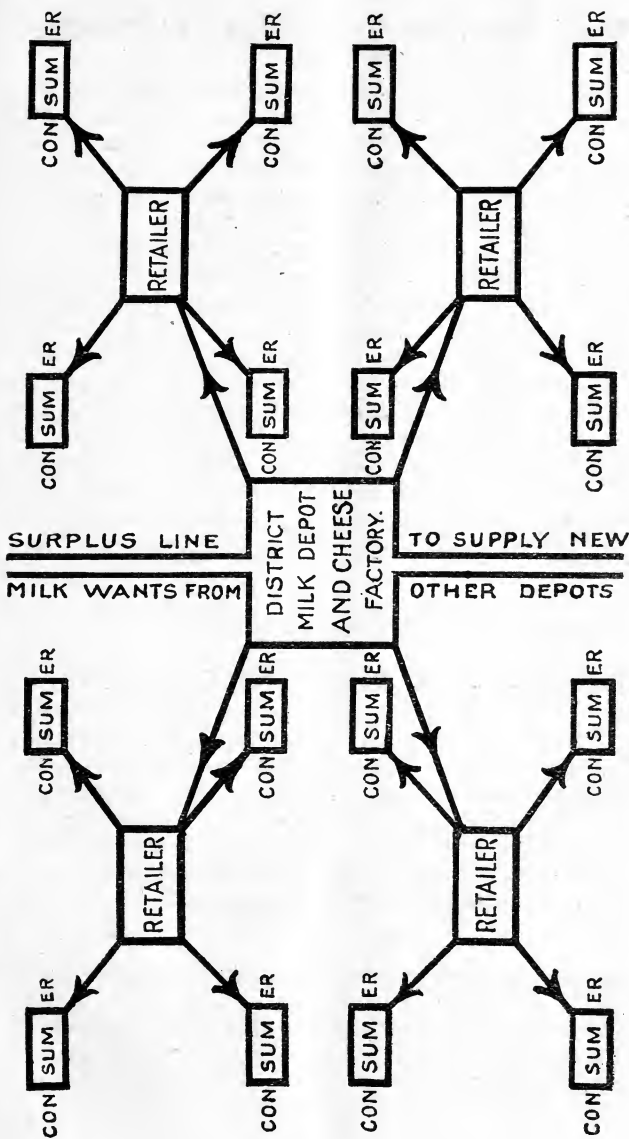


I.

II.

Any New Milk in excess of the requirements of the District should be sent to other District or Town Depots which are short. Any surplus beyond this should be dried or made into Cheese.

## II.—DISTRICT MILK DEPOT TO CONSUMER.



Similar organisations would be required for (1) Eggs and Poultry. (2) Fruit Preserving and Vegetable Drying. (3) Grain Collection and Milling. (4) Slaughter Houses and Cold Store for Cattle, Sheep, and Pigs; also Meat Preserving.

## **NATIONAL SYSTEM OF CHEESE FACTORIES.**

The advantages of the District system of cheese-making are therefore greatly in favour of the Farmer, and at the same time they are overwhelmingly in favour of the nation. Why should not cheese-making be run on National Lines, with a Cheese Factory in every District where a reasonable quantity of milk is being or could be produced? Why should not these Factories be able to purchase the surplus milk of the district on Government fixed prices, provided they supply the cheese made direct to local Retail Grocers till their actual requirements are satisfied, and after that any surplus to be sent only to other Factories in districts where they are quite unable to supply local demands. In fact it would be quite easy to have an office in the County Town to deal with the surplus cheese at the District Factories in each County. A National System of this kind would help the "Small" Farmer as well as the "Big," and what is so very important, the cheese would be reaching the consumer, with the minimum amount of time and labour being spent on its distribution.

## **NATIONAL SYSTEM OF MILK DEPOTS.**

It would be quite easy to combine Milk Depots and Cheese Factories in one, as long as it were made compulsory for all milk produced on Farms in excess of local requirements to be sent to the nearest District Centre. The demand for new milk would need to be met by the cheese factory and milk Depot supplying retail milk sellers or other factories, where there was a shortage, and only surplus milk being made into cheese.

In large towns and probably most of the smaller towns it would be necessary to have milk depots, so as to deal direct with the retail shopkeepers in that town. These milk depots would be supplied through the County organisation set up to deal with the surplus at the District Factories.

## **NATIONAL SYSTEM FOR MEAT COLLECTION AND DISTRIBUTION.**

A National system for dealing with meat is an obvious necessity and the system outlined for distributing cheese could easily be adopted for all kinds of meat, viz. : Beef, Mutton and Bacon. This would entail the establishment of District Slaughter-houses, to which all Farmers living in the District would be required to deliver their fat cattle, sheep and pigs. The Farmer would be paid on weight and quality of Beef, Mutton or Bacon, as the case might be, and this would encourage meat production.

A large chilling room would be essential, with each slaughter-house, so as to secure in some cases a more marketable product, store the meat, and regulate the output. The same method of distribution should be observed viz. : all meat should be sold direct to local retail meat purveyors ; any surplus to be sent to other Districts at different parts of the Country.

The collection, grading and packing of eggs could easily be added as a department with either the meat or the cheese-making centre in each district.

## **NATIONAL SYSTEM OF FRUIT PRESERVATION.**

There is probably no branch of Farming where there is liable to be more waste of food than in growing such perishable commodities as fruit and vegetables. A market glut may mean the loss of tons of valuable fruit to the nation, which could have been prevented if only there had been local facilities to deal with same in the most approved manner. In each fruit growing district of sufficient size, there should be a Preserving and Conserving Factory, where the fruit and vegetables could be dried, canned, bottled or preserved as the case may be and supplied direct to retail grocers in the same way as cheese.

## **NATIONAL SYSTEM OF GRANARIES.**

Why shouldn't the system of district collection extend to Grain which is such an essential Food crop? Many Farmers have no suitable facilities to store their wheat, barley, or oats after thrashing them out. Rats and mice play havoc with the

grain at times, while Farmers are waiting for a suitable opportunity to market it. Would it not be very much better for Farmers to take all their surplus grain to a rat-proof granary in the district immediately it was thrashed? So far as seed wheat is concerned this could be supplied direct to seed merchants, who would sell it direct to the Farmers. With regard to grain for grinding into flour, &c., it should be possible to put down plant to deal with same and thus avoid sending away milling offals, which are required by the Farmers in the districts where the grain was grown.

### **COUNTY FOOD EXCHANGES.**

Where there are two or more District Food Factories in a County, it would be necessary to have an organised system of distributing any surplus of food in the County to other Counties or possibly Countries. For this purpose each District Factory would need to keep the county Food Exchange informed of any surplus food there was available at the Factory, so that arrangements could be made for its transfer. Further these Exchanges would be able to inform the Government on very short notice as to the approximate amount of food there was available in the County.

It should be noted that *it is only the surplus foods* at the District Factories, that would be "shipped" about and this would prove an enormous saving of hitherto expended energy. The surplus Food would be sent direct from the District Factory to whatever other Factory the county Food Exchange should decide. An arrangement could easily be made between different County Exchanges for the sending of certain urgently required foods, direct to retail salesmen in another County.

### **STATE SUPPORT.**

One of the first questions which would need to be settled, is who would provide the necessary Buildings. If it is to be a National system the State would need to take the initiative or stand at the back of the Producers for the first two, three or more years. Further it is difficult to see how all the Food producers in any given District could be induced to take all their surplus produce to the nearest District storehouse or Factory unless there was either a Government order compelling them to do so, or uniform prices for the Country, which would have a similar effect.

To establish a National system, the quickest way would undoubtedly be in the meantime for the State to take over existing buildings where suitable, and build others where no convenient buildings were available. Temporary buildings could be substituted with modern buildings as fast as was practicable. The suppliers of any one District Factory as a body should be required at the end of one or two or three years to take over the responsibility of running the Factory under State Control. In the course of a few years we should have an organisation for Food Production and Distribution which would hold its own against the competition of the world.

### A CONCLUDING MOTTO.

The motto of the Royal Agricultural Society of England is "Practice with Science": the one without the other is incomplete. Reasoning on the same lines we may say that the Home Food supply of this country can only be made secure by "industrialising" agriculture, and our motto must ever be "The Farm *and* the Nation." The farm without any reference to the requirements of the nation is a poor thing, which suffers depression and poverty and squalour from time to time; on the other hand the nation that neglects its agriculture is running tremendous risks. In a successful and thrifty nation, the work of the farms must be organised for one common end and that is *the provision of a sufficient supply of essential Foods for the Nation*. In peace times there should be a margin of safety for the Home Production of Food (*e.g.* The Government may decide that this Country must produce at least 60 per cent. of the grain required for Home consumption), and this should be kept fairly high, so that the balance could easily be made up whenever we were forced to rely almost entirely on our own food resources.

An "Industrialised" system of Agriculture would free a large number of men for production of food on the land, through the vast saving in distribution, and there is reason to hope that this would make life on the land more attractive with the result that the question of Rural depopulation would cease to cause serious anxiety to the nation.

## APPENDIX I.

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### **LOP-SIDED FARMING.\***

Since the commencement of the war farmers have been overwhelmed with orders and advice as to how their business should be carried on. At one time they are exhorted to increase their flocks and herds; then within a very short time the order of things is reversed, and extensive powers are given to County War Agricultural Executive Committees in order to bring every possible acre under the plough, so as to make the country, as far as possible, self-supporting during the war. Surely no person who looks far enough ahead, would disagree with the object of attempting to make this country more or less self-supporting. The chief point which one may legitimately criticise would be the means and ways suggested of carrying out this beneficent programme.

To my mind the ploughing up of many of the pastures laid down or tumbled down in recent years will be one of the greatest boons to British agriculture, inasmuch as these pastures are not, at present, carrying anything like the head of stock which this land is capable of doing; and, further, because the land can produce, for a few years at least, good cereal and other crops which are so vital to the food supply of the country during the war. The great danger which lies ahead in the carrying out of the Cultivation of Lands Order, is to force farmers to adopt a lop-sided system of farming. In fact many farmers are already suffering from the effects of bringing cereal crops too closely together in the rotation with the result that the land is becoming more or less exhausted and much more foul than was the case before the war.

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\* This article appeared in the Farmer and Stockbreeder of Oct. 1st, 1917.



## STOCK AND CROPPING COMPLEMENTARY.

Practical farmers are apt to shudder at the idea of seriously reducing their live stock, so as to be able to increase their production of crops, because, generally speaking, it is the farmers who keep the largest head of stock that produce the largest crops. The one is complementary to the other, and the balance and interdependence between stock and crops needs to be constantly kept in mind, if the maximum amount of food is to be produced in the country. The great difficulty lies, not with the farmers who carry a large head of stock on their farms, but with farmers who keep a small head of stock, and, generally speaking, produce small crops. Herein lies the crux of the whole problem. They may possibly be short of capital, energy, education, or terribly afraid if they improve their farm and grow bigger crops, that they will very soon have to face the alternative between an increase of rent or a notice to quit. Be that as it may, from the point of view of maximum production, I am sure we shall be well advised to move slowly before adopting any lopsided systems or so-called emergency systems of farming. Generally speaking, the only safe way in the long run—and the end of the war is not yet in sight—is to go steadily on with a proper rotation of cropping, which alternates, except in special cases, cereal crops with such crops as roots, pulse crops, clover or temporary pasture.

With the increasing difficulty in securing artificial manure, and the prospective shortage of farmyard manure, due to the controlled prices for fat cattle, it is abundantly clear that full use will need to be made of the natural ways of increasing the fertility of the soil. One of the most familiar ways of doing this is to grow at least one leguminous crop during the rotation, such as clover, peas and beans. A second method on easier working soils is to fold forage crops off with sheep, and thus greatly enrich the soil for the next cereal crop.

Another very valuable method, which in principle combines the growing of leguminous crops and the folding of stock in one, is to seed the land down to two or, better, three years' temporary pasture instead of the one year lay, so as to give the land a short rest and enable the sward to accumu-

late fertility. In this way one is able to get bumper crops with a minimum expenditure on artificial manures, and if good temporary pastures are secured with the aid of suitable mixtures containing, say, HALF-POUND GENUINE WILD WHITE CLOVER PER ACRE, the farm will carry a big stock, and do them well with a comparatively small amount of cake. Hence the great value of this system of lengthening the rotation by leaving the land down to good temporary pasture for two or three years, lies in the fact that the land produces much bigger crops, and carries a much larger head of live stock, with a minimum of expenditure on artificials and cake. The system, therefore, fits in exactly with present war conditions, inasmuch as the food is being produced on the most economical lines.

### **INCREASING YIELD OF CEREALS.**

An important thing to keep in mind, where this method is adopted and allowed by the County War Agricultural Executive Committee, is that all the pasture land which can reasonably be ploughed should be brought into tillage, so that the area under cereal crops each year is at least maintained. The increased production of cereals will, therefore, be obtained by making each acre produce bigger crops than would be possible under the system of "too close cropping," which has been so widely practised in recent years. Further, from the landlord's point of view, their farms will be in a much less exhausted state at the end of the war, and there appears to be no evidence to show that more food will be produced under present circumstances. In fact, the danger lies in the other direction.

In this way one has a steady, reliable method of food production on farms, on the most economical lines, and what is so important is that the farmer has two strings to his bow. The guaranteed prices for cereals, grains, &c., may or may not come to an end in a very few years, and if the former should be the case, the farmer would be able to decide whether or not to leave his land down to pasture for a more extended period. If he used a suitable three years' mixture containing genuine wild white clover, he would be able to leave the pasture down permanently, whenever this was

considered advisable. He can also take a crop the first year, which is as much as can be done where a one year's mixture is used.

## GRASS AND CHEAP FEEDING.

The policy of the Government appears to be that feeders of stock will, in future, be very much restricted in the amount of cake available for feeding purposes. The present price of cake, even if it were available, is almost prohibitive for feeding purposes, consequently farmers will need to rely more and more on their pastures if meat production is to continue. This is interesting from more than one point of view. From some very moderate calculations I have worked out, where all food is taken at consuming value, the figures show that bullocks bought in autumn and fed in yards or stalls during the winter months, cannot be expected to pay their way at present prices, unless they are bought as stores at least 10s. 6d. per live cwt. less than the price which can be realised when they are fat.

When, however, bullocks are fed during the summer and autumn months on grass with an allowance of cake (say, average of 3 to 4lb. per head per day) the store cattle could be bought in at about 2s. 6d. less per live cwt. than they would realise when sold fat. On pastures which are able to fatten cattle during the grazing period without any cake, the stores could be bought in at approximately 4s. 6d. per live cwt. more than they will realise when fat.

These figures are certainly arresting, and will bear investigation. They serve to show very markedly the value of good pasture in cattle feeding. In fact, under the present prices, it would appear difficult to feed cattle at a profit, unless grass constitutes a substantial proportion of the ration.

J. P.

## APPENDIX II.

### REFORM IN THE BRITISH SYSTEM OF WEIGHTS AND MEASURES.

The following is a summary of a Paper read at the British Association Meetings at Portsmouth in 1911 :—

The British system is a very illogical and cumbersome system. Elaborate calculations have often to be made which would be much more easily and accurately done with a decimal system. The metric system is a decimal system, but the British people do not take kindly to it, largely because it would involve the use of entirely different units of weights and measures. Further, it would mean scrapping existing weights and measures.

The British lb. as a unit of weight has much to recommend it and should be retained, especially when it is also the unit of weight for the British Empire as well as the United States. A change in the unit here would mean the scrapping of many weights.

The *gallon* is also a very useful measure which under normal temperature and atmospheric pressure (62° F. and 30 mms. Barometric pressure) weighs 10 lbs., hence we have already a decimal connection between weight and volume.

The reformed system may then be as follows :—

WEIGHTS	MEASURES
POUND = 1 lb.	NEW PINT Equal in Volume to 1lb of Water.
*NEW STONE = 10 lbs.	GALLON Equal in Volume to 10 lbs. water, as at present.
CENTAL OR NEW CWT. = 100 lbs.	NEW BARREL = 100 pints or 10 galls.
NEW TON = 1,000 lbs.	NEW PIPE OR PUNCHEON = 1,000 pints or 100 galls.

\* The 10lb. weight is already in use at some English Warehouses.

With the new weights, one would be able to say accurately and without any special effort that 17,653 lbs. was equal to 17 new tons, 6 centals, 5 new stones and 3 lbs., whereas with our present system it would take some little time to work it out.

## RELATION TO COINAGE.

Fortunately we have a decimal connection between gold and shillings, seeing that 10/- are equal to half a sovereign. The half-sovereign should then be taken as the unit for gold and called, say a "George." The shilling would remain the same, and the new penny made equal to one-tenth of a shilling. The penny may be sub-divided into 10 parts, hence the proposed system of coinage would be:—

1 George = 10 Shillings = 100 New Pennies = 1,000 (Farthings?)

A £5 note would then be equal to 10 Georges which gives another decimal connection with existing bank notes.

## APPLICATION OF REFORMED SYSTEM.

It will now be interesting to compare our present system with the suggested Reformed system. Take for example English wheat which may be sold at about 73/6 per 504 lbs. (Jan. 1918). The prices per lb., stone, cwt. and ton would then be as follows:—

PRESENT SYSTEM OF WEIGHTS AND COINAGE.				REFORMED SYSTEM OF WEIGHTS AND COINAGE.				
		£	s.	d.		George.	s.	New Penny.
POUND	(1lb.)	0	0	1 $\frac{1}{4}$	POUND	(1lb.)	0	1.46
STONE	(14lbs.)	0	2	0 $\frac{1}{2}$	NEW STONE	(10lbs.)	0	1 4.6
CWT.	(112lbs.)	0	16	4	CENTAL	(100lbs.)	0	14 6
TON	(2,240lbs.)	16	6	8	NEW TON	(1000lbs.)	14	6 0

The advantage of the decimal system is obvious, seeing the prices per ton, cental, &c., can be seen at a glance as soon as we know the price per lb. and *vice versa*.

## NECESSARY CHANGES AMAZINGLY SMALL.

One would scarcely believe that the chief modifications necessary to convert the British system of weights and measures, as well as coinage into a decimal system, with all the advantages of the Metric system and none of the disadvantages which its introduction would inevitable cause, are *that the penny should be made a little bigger* ( $\frac{1}{10}$ th shilling) *and the pint a little smaller* ( $\frac{1}{10}$ th gallon).

This is certainly a small price to pay for such a great advantage. We all realise the difficulties of the old system. We all hope for a better system, and as the desire for reform is being constantly expressed, the dawn of legislation on the subject may not be far distant.

J. P.



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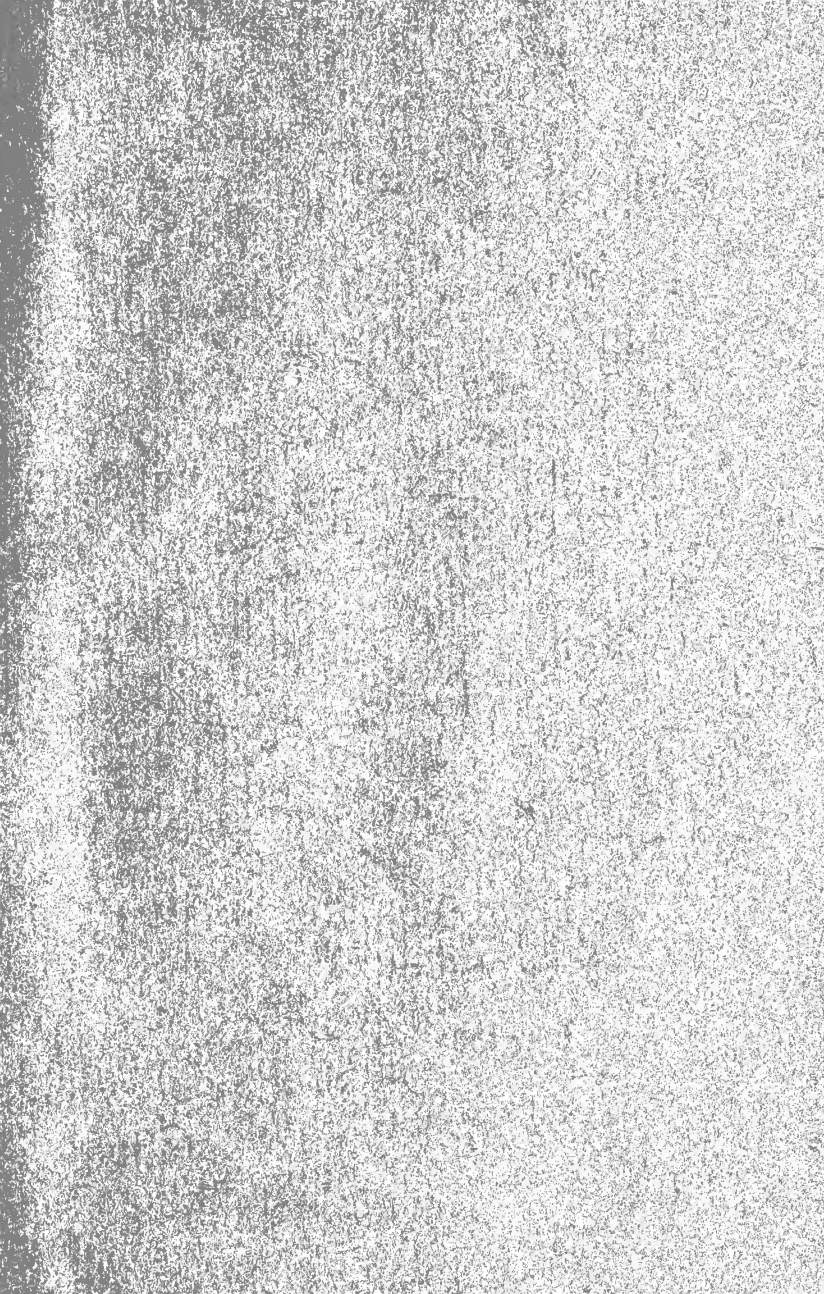
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