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difficult to gauge. One thing, however, is certain, and that is that all State Boards will have the difficult task of satisfying producers' demands for payable returns, whilst seeing to it that consumer consumption is not affected by increased prices. Particularly in the early stages, highly competent administration is a pre-requisite for the building up of a lasting consumer and producer confidence in controlled potato marketing.

### SOME ASPECTS OF AGRICULTURAL POLICY.

WYN. F. OWEN, *Economics Research Officer.*

[The author of this essay recently left Australia for post-graduate study abroad, as the holder of a Walter and Eliza Hall Travelling Scholarship in Agriculture. Mr. Owen had contemplated preparing an article for the September issue of this Review on "Farm Incomes and Agricultural Policy," but was unable to complete the article before his departure. It has been decided, however, to publish the chapters of his preliminary draft under the title "Some Aspects of Agricultural Policy." Some re-arrangements have been made to the script but the essay is substantially as written. The views expressed are those of the author, but not necessarily those of this Division or the Department of Agriculture.]

#### INTRODUCTION.

Very little has been published in this country analysing the structure of Australian agriculture and the basic income and other economic conditions in rural industry. It is important that such analyses should be made, not only to provide indispensable factual data, but also to promote freer constructive discussion of the various ways in which Australia's greatest industry can be moulded to the best advantage.

The formulation of sound and workable agricultural policies demands some prior analysis of basic income conditions in the various branches of rural industry. Not only is it necessary to understand the general income conditions in agriculture as a whole, but also the relative income levels in particular phases of agriculture, and finally, the distribution and characteristics of the incomes of individual farmers; for primary industry in all its various aspects is essentially a complex of many small and independent units. The goal for agricultural policy—property and efficiency—ultimately depends on the property and efficiency of the individual farmer.

In this essay some of the theoretical issues involved in the formulation of agricultural policy shall be examined, with particular reference to farm incomes.

The question of farm incomes can perhaps best be treated by considering, firstly, the overall relationship between incomes earned in agriculture and those earned in other sections of the economy; secondly, the distribution of incomes within agriculture, and, thirdly, the problem of the instability of farm incomes from year to year. These three aspects will be each discussed in turn.

### **THE RELATIONSHIP BETWEEN FARM AND NON-FARM INCOMES.**

In most countries progressing towards a higher general standard of living, the tendency is for the relative earnings in agriculture to lag behind those in secondary and tertiary industries. The main reason for this is usually a failure on the part of the latter industries to offer such expanding opportunities as will relieve agriculture of excess labour resources. The result is under-employment and low incomes in agriculture in the sense that too many are seeking to obtain "a cut out of the limited agricultural cake."

With further rises in the standing of living of a country such as Australia, which already has a relatively high standard, excess labour tends to accumulate in agriculture for the following reasons:—

1. After the real incomes in a country reach a level at which the people generally are able to satisfy their basic food wants, further increases in the standard of living will be accompanied by a more rapid expansion in the demand for the diverse products and services of secondary and tertiary industries than for farm products.

2. As the standard of living in various countries has increased, the birthrate has tended to decline. In fact, in countries with the highest standards of living, such as the United States, New Zealand, Australia and Great Britain, the rate of natural increase in population has become insignificant.

3. Export markets within the range of the primary producers of countries with a high standard of living tend to be limited by reason of high production costs to other countries with a similar high standard of living and ability to buy. These markets, whilst the most profitable, are highly competitive and limited in scope.

4. In the face of limited or only slowly-increasing demands for primary products, improved technology and farm mechanisation is rapidly increasing output per worker in agriculture and the quantity of farm products available for human consumption.

5. Secondary and tertiary industries tend to develop in the towns and the higher birthrate in rural districts adds to the tendency for an accumulation of excess labour resources in agriculture.

The presence of excess labour in agriculture is, to a large extent, indicated by the relative earnings of farm and non-farm workers. In the United States of America, earnings in agriculture before the war on the average were as low as 40 per cent. of those in other industries. This indicated a fundamental disequilibrium in the working population of that country. Further proof is given by the fact that during the war, although the number of persons engaged in agriculture in the United States declined by 15 per

cent., agricultural production increased by about 25 per cent. between 1940 and 1944. There is little doubt that if the exit of rural workers from American agriculture during the war, to munitions industries and the armed services, is reversed to any great extent, it will have a detrimental rather than a beneficial effect on rural industry in that country.

In Australia before the war, the relative earnings of farm and non-farm workers compared fairly favourably. Over the 24-year period ended 1943-44 the average income per person engaged in rural industries was £345 as compared with an average of £372 in factories, and an average of £307 in all non-farm work.\* However, as will be discussed in more detail later, due to the fact that the average farm income in the pastoral industry has in the past been considerably higher than in other types of primary industry, these figures cannot be accepted on their face value. Excluding the pastoral industry, the relative earnings in rural industries in this country were also to some extent lagging behind those in secondary industry. It does appear, therefore, that before the war the problem of excess labour was also appearing in certain Australian rural industries. This was probably impeding the application of improved methods and greater efficiency in these industries.

How to maintain the expansion of secondary and tertiary industries at a sufficient and *continuous* rate, and so help prevent the accumulation of excess labour in agriculture is, of course, a problem outside the sphere of agricultural policy. But there are certain aspects of agricultural policy which have an important bearing on the desirable aim of assisting rather than hindering such a decline in the proportion of the working population engaged in farming, as may be conducive to an increasing standard of living throughout the country, and greater efficiency and prosperity in primary industry.

The first of these is the policy of subsidisation. This question will be referred to again later in the discussion. However, it is pertinent here to make the following comment. Subsidisation of the type that directly increases the income of one class of producer at the expense of the remainder of the people may be justifiable from the point of view of attaining some short-term objective. Such an objective may be the establishment of a new industry or rapidly-increased production to meet urgent demands, such as those from the United Kingdom at the present time. However, subsidisation should not be allowed to develop a long-term cumulative nature, such as would impede an otherwise natural movement of labour from an inefficient and depressed industry to one in which opportunities are greater.

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\* Figures from "The Effects of the Tariff"—L. G. Melville. (In deriving these figures female labour was considered as equivalent to 45 per cent. of male labour.)

The second aspect of agricultural policy which deserves mention under this section is that relating to measures which have the effect of encouraging more labour to enter rural industries. Migration of rural workers and closer settlement are cases in point.

In Australia during the war there was a considerable decline in the number of persons engaged in farming. A decline of 28.4 thousand or 22 per cent. in the total persons permanently engaged on rural holdings occurred between 1939 and 1943. This was largely due to the movement of farm labour to the services and to munitions and other essential industries in the early years of the war. At this stage of hostilities, owing to the acute shortage of shipping space, the export demand was small for Australian primary products, especially for those of a more bulky nature like wheat. Agricultural production received only a low priority and, in fact, it declined considerably. Following the entry of Japan into the war and the development of a large armed services demand in the Pacific, however, agriculture in Australia became a very important aspect of defence policy. At this stage increased production was called for, particularly of animal products and vegetables. The immediate results were not as great as desired, except in a few fields such as egg and fresh vegetable production. This was largely a reflection of the initial slump in the early years of the war and adverse seasons, coupled with shortages of essential materials and, to some extent, labour. But the labour problem would have been considerably reduced had sufficient materials and machinery been readily available.

This unprecedented demand for Australian primary products continued after the end of the war, owing then to the critical food position which developed in Europe. Even to-day it is difficult to forecast when world production and trade in agricultural commodities will return to normal, or what will be the extent of market opportunities for Australian producers at that time as compared with conditions pre-war.

### **Immigration.**

Due to the present extensive demands for farm products and the war-time effects on productive resources, there is an apparent shortage of labour in rural industries. It is often advocated that this shortage should be made up by encouraging wide-scale immigration of overseas labour for farm work. So far migration authorities have not placed farm work high in the list of priorities under the various migration schemes. The following points serve to explain why it is advisable that this policy be continued:—

1. On the basis of the present wage rate for rural workers, the aggregate demand for permanent rural workers is not as great as statements relating to isolated cases would seem to indicate. The demand is for experienced farm workers rather than a reflection of an acute shortage of labour, irrespective of quality.

2. With demobilisation and the contraction of service requirements, it was to be expected that the war-time exit of labour from farms would, to some extent, be reversed. Already half the loss has been made up and there are indications that the number of persons permanently engaged in primary industry is still on the increase. If migrants are to be brought to Australia it is desirable that permanent opportunities be offered them. For this to be true in farm work it would be essential that the migrant be of a type who, within a short time, could hold his own against experienced Australian farm workers. If the migrant rural worker is to be forced to drift to secondary or tertiary industry after a few years on the land, it is better that he initially be selected for this type of work.

3. Much of the present shortage of labour on the land could be overcome by improved methods of farming and more extensive mechanisation. It would seem that a sounder policy to encouraging labour to move to farms at this stage would be to double efforts to make supplies of farm materials and machinery more readily available, and to assist and encourage farmers to adopt more efficient methods.

#### **Land Settlement Schemes.**

In relation to land settlement schemes it is evident that the long-term tendency for a declining proportion of the working population to be engaged in primary industry must be taken into account if such schemes are to prove successful.

The total number of persons engaged in primary industry in this country over the last four decades has been showing a gradual decline. Furthermore, it is extremely unlikely that the rural industry labour force will show a permanent increase in future years, if the Australian standard of living continues to rise. In fact, a further decline is quite possible.

With this possibility in view, it is obviously essential that for future settlement schemes to prove successful, those settled must be such as will prove to be above average in efficiency, and that the farm units themselves be of more than average capacity to conform to modern farming methods. With the great advance in farming efficiency in the United States of America during the war, both the number of persons engaged in farming and the number of farms declined, the latter falling, by 10 per cent., and a similar trend is to be expected in Australia with further improvements in farming efficiency.

#### **Drift to the Cities—Has it an Adverse Effect on Farming?**

A final question of importance which arises in connection with this section of the farm income problem and agricultural policy relates to the trend known as the "drift to the cities."\* As explained previously, this trend is not to be interpreted as detrimental to rural industries in the sense that, numerically speaking,

\* See article "Population and Agriculture"—Wyn F. Owen—Review of Marketing and Agricultural Economics, Vol. 13, No. 2, Feb., 1948.

it deprives the latter of labour. The migration of workers from rural areas to secondary and tertiary industries has, in the past, been quite in keeping with a rising standard of living in the country. The reason that the movement has been towards the cities is simply that secondary and tertiary industries have developed there. Thus to those who view with concern the continued expansion of the few cities in this country, the solution is to be found in decentralisation of industry. It is not to be found in seeking to substitute for the trend "drift to the cities," a movement which could be termed for convenience "back to the farms." Fundamentally, both the conditioning and direction of the "drift to the cities" trend lies outside the sphere of agricultural policy.

What should be of concern to agricultural authorities, however, is the type of rural workers who are caught up in the "drift to the cities," as compared with those who remain in the industry. The farm business has a complicated and variable nature and in the interests of increased efficiency in our primary industries it is essential that the maximum of talent be retained on the farms.

In the past the reverse has been true. As one writer has so aptly described the situation, "talent erosion" is taking place. The would-be leaders of primary industry, the would-be efficient farm managers, are being lost to agriculture which, by its very nature, requires the highest general degree of intelligence and initiative in its labour force. This is perhaps one of the most important problems which agricultural policy in this country must aim to solve. The status of farming must be raised to such an extent that it attracts and retains the efficient, and is not merely an occupation which offers security to the inefficient. Little does it matter that, from a numerical point of view, farmers are relatively a declining minority in the country. It is important, however, that this minority be recruited from the "cream" and not the residue of potential rural workers.

#### **The Distribution of Incomes within Primary Industry.**

In discussing this aspect of the question of farm incomes in relation to agricultural policy, it is convenient to consider first the relationship between incomes in different types of farming, and, secondly, the distribution of individual farm incomes within particular farming groups.

##### **(a) Average Incomes in Different Types of Farming.**

As mentioned earlier, although the average income in primary industry as a whole in Australia compares quite favourably with that earned in other sections of the economy, there is great inequality in average incomes earned in different types of farming. For the thirteen years ended 1940-41, the average net income per person permanently engaged in all rural industries in Australia was £345 per annum, that for the pastoral industry was £580, and that for dairying and agriculture\* was only £233 and £214 respectively.† While these figures are not strictly comparable,

\* *I.e.*, crop, fruit and vegetable production.

† Figures from W. H. Pawley's "Income Levels of Australian Farmers" —Review of Marketing and Agricultural Economics, Vol. 13, No. 6, June, 1945.

due to the fact that in deriving them no correction was made to the pastoral and agricultural statistics to take into account production and employment on mixed farms, the general picture is believed to be a realistic one.

Prior to the First World War the pastoral industry contributed approximately 50 per cent. of the total wealth produced by primary industries in this country. Between the two World Wars dairying increased in importance and, at the outbreak of World War II, the pastoral industry's contribution had declined to approximately 40 per cent. However, even though declining in importance, the high incomes in the pastoral industry still have the effect of raising the average income figure for all rural industries to such an extent as to camouflage the real position. In the dairying industry, in crop and fruit and vegetable production, a low general level of farm incomes is a serious problem.

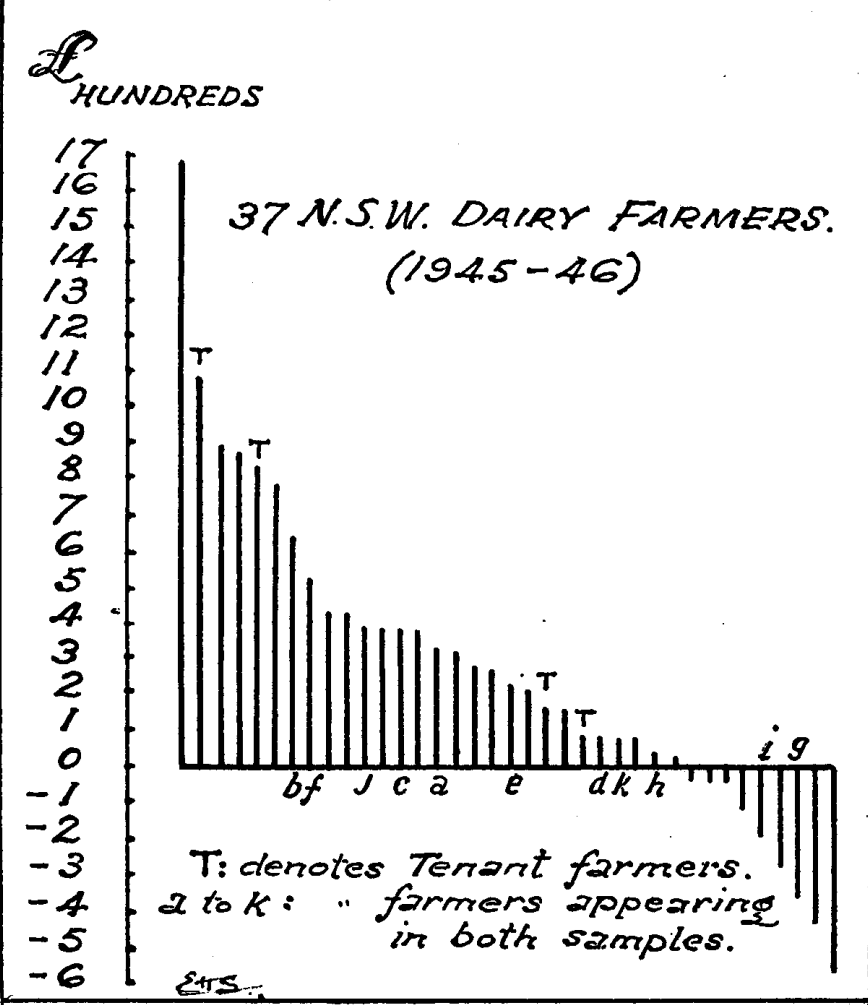
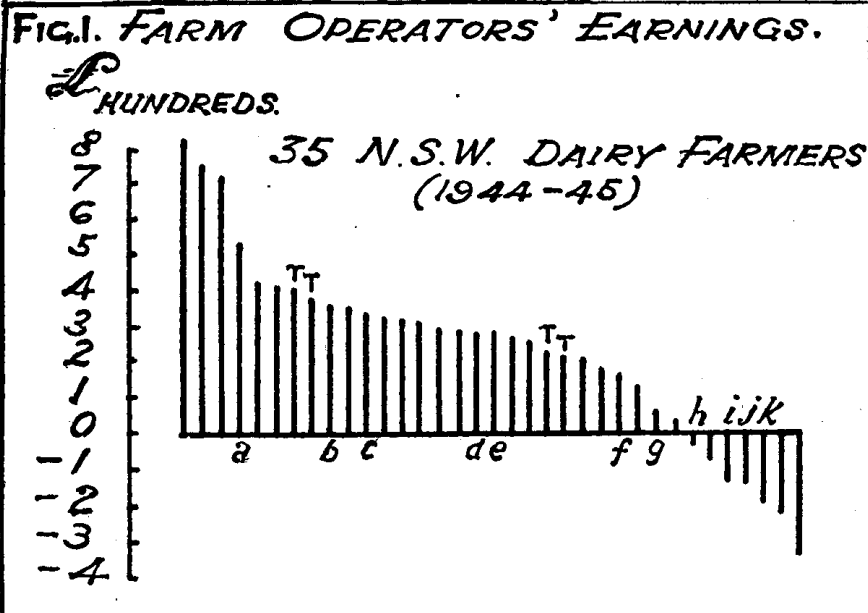
Greater attention must, therefore, be paid to these farming groups in particular. What are the fundamental causes of the depressed conditions in them, as compared with the pastoral industry? This is a question requiring further detailed examination. Perhaps, on the average, farms are of a more economical size in the pastoral industry. It may be simply that the pastoral areas naturally have a greater comparative advantage on the world's markets for the production of wool and meat, than have other areas for the products they produce. Not to be overlooked, too, is the possibility that the degree of managerial efficiency of pastoralists generally is higher than that of other types of farmers. The restricted opportunities for entering the pastoral industry due to large capital investment would tend to produce this effect. In any case, the management of a single enterprise farm of the type found mainly in the pastoral areas is considerably simpler than that of mixed farms with many enterprises, as found in the higher rainfall areas. A further factor, moreover, is the probability that the standard of efficiency amongst hired labour in the pastoral industry is also likely to be of a relatively high standard as a result of the existence of well-defined awards in this industry, years before their introduction in other rural industries.

One or all of these possibilities may be important in determining the higher degrees of prosperity in the pastoral industry. But whatever the reasons it is important that they be clearly defined by research into this question. The results of such research should provide some indication of the direction in which the solution to the problem of low incomes in other industries is to be found.

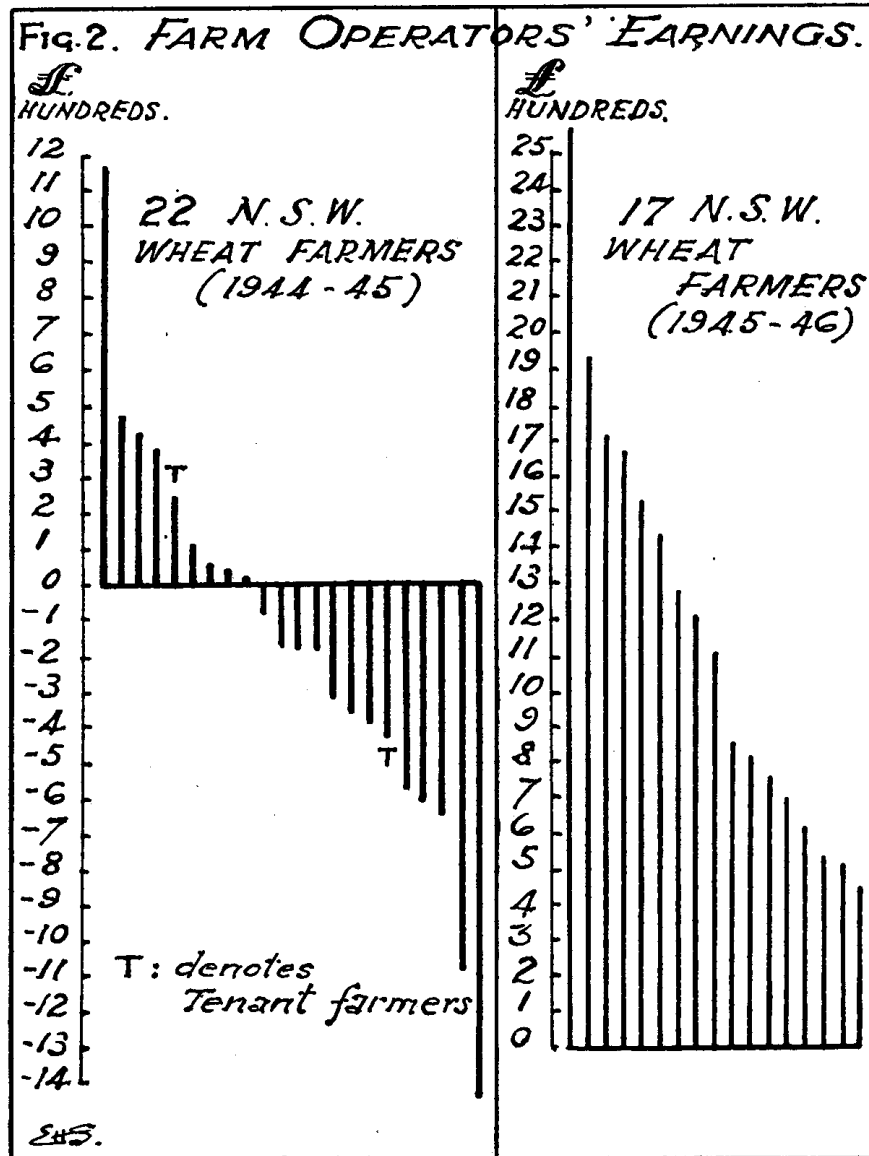
#### **(b) The Distribution of Incomes within Rural Industries.**

The very pronounced variation in individual farm incomes within each branch of rural industry is a fact brought to light in most studies of farm incomes. The final section of this article will be devoted to the problem of the instability of farmers' incomes, but while the latter is of great importance, invariably it will be found that the variation in earnings within a farming group in the same year is much greater than the fluctuations in average earnings of the group as a whole from year to year.





For instance, a sample of some 1,462 dairy farms in Minnesota, U.S.A., over the ten-year period ended 1937, showed an average range between high and low earnings for each of the ten years to be over seven times as great as the average year to year variation of average earnings for the entire group.\*



Although no study of such a comprehensive nature has been undertaken in Australia, what work has been done using a similar method indicates that American experience in this connection is quite applicable to Australian conditions. The financial position of small samples of dairy and wheat farms has been examined by the Division of Marketing and Agricultural Economics of the

\* Minnesota Bulletin 386. Agricultural Experiment Station, University of Minnesota.

New South Wales Department of Agriculture during the last five years.\* However, the primary purpose of the project was the introduction of a suitable system of farm records to farmers in this State, and no attempt was made to obtain representative samples. Furthermore, the samples varied from year to year, and no significant results as to fluctuations in incomes on individual farms were obtained. Nevertheless, an extreme variation in incomes was evident in each sample examined (*e.g.*, see Graphs 1 and 2), and this picture would probably be even more striking if figures were available for all farmers in each industry throughout the State.

The problem to be faced is that different farmers working under similar price and climatic conditions are obtaining very different incomes. Why is this the case and in what direction lies the solution to the problem of how to raise the efficiency of the lower income group of farmers?

### **The Importance of Farm Management.**

Obviously, there are many different factors making for low incomes on a large proportion of Australian farms. But there are few of these factors that cannot be included under the general heading of farm management. In secondary industry probably not more than 10 per cent. of the labour force reach managerial rank, and these mainly by reason of managerial capacity, whereas in farming all owner-operators, tenants and share-farmers, which comprise about two-thirds of the total labour engaged in Australian rural industries, are automatically farm managers. Furthermore, as the "drift to the cities" tends to take with it the more talented of the potential rural labour force, it is merely a logical conclusion that inefficient management in the majority of cases lies behind low relative farm incomes.

Yet, in Australia, both research and extension work on the question of farm management have been largely neglected. Both farmers and agricultural advisors need to realise more fully that farming has both a technical and a business aspect and, in fact, that techniques are merely a means to an end and are to be considered only in the light of their effect on the overall organisation and income-producing capacity of the farm business.† This is the necessary approach to extension work. Most farmers are experienced in the art of practical farming, particularly as this applies to their own farm and conditions. It is on the managerial side that most farmers fail. It is sometimes argued that the extension officer working in direct contact with the farmer needs a general rather than a specialised training, with emphasis

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\* Results of these studies appear in the September, 1946, April, 1947, January, 1948, and April, 1948, issues of this "Review."

† Not overlooked is the qualification to this statement that the social cost in farming must be considered. That is, it is necessary to adopt certain techniques such as soil erosion control which, although perhaps reducing immediate profits, help to retain the productive capacity of a farm. Efficient farm management aims for the highest possible permanent income from the farm business.

on the principles governing efficient farm management. Technical specialists should advise and be at the call of the extension officer, rather than the farmer himself. In this way, so it is said, much unnecessary overlapping could be saved, the important point being that the extension officer should be a "general practitioner."

The obvious counter-argument is that it would be impossible to train extension officers with such a broad knowledge as to be able to advise farmers on all aspects of farming, including crop production, plant diseases, soil management, animal production, animal diseases and feeding and general farm management. The fact is, however, that the farmer himself, by necessity, must have and is being encouraged to develop such a wide knowledge. The essentials of a good extension officer must, therefore, largely correspond with those of an efficient practical farmer.

But there is an urgent need for research into managerial problems of Australian farming in order to provide a necessary background of information for the extension worker. Such management factors as the size of farms, the selection and combination of enterprises, the selection and use of farm power and equipment, the productivity of animals and crops, and the use of farm labour, require specific investigation in order to determine more accurately the most profitable farming methods for particular locations and conditions.

Of major importance is the need to encourage and assist individual farmers in the keeping and interpretation of good systems of farm records. These provide the farmer with the only sound basis on which to plan his farm business. The development of co-operative farm management services for farmers operating under similar conditions would be a very progressive step. Such an organisation staffed by persons familiar with the practical aspects of farming and trained in the analysis and interpretation of farm records could do much in the way of assisting co-operating farmers to determine ways in which their efficiency might be improved.

#### **E. More Efficient Land Use.**

The wide range of incomes in most types of farming, of course, also raises an important question regarding the actual capacity of existing farms to produce reasonable incomes under modern conditions. Many farms in this country came into existence more by chance than as a result of careful planning for efficient farm units. This, together with changing methods, has meant that frequently the size, potentialities and lay-out of farms are anything but conducive to a satisfactory income to the farmer, irrespective of his managerial capacity. A detailed land use and land potentiality survey, particularly on the coastal areas, would provide some very useful data in relation to this problem.

The problem of the most satisfactory size of farm units is of very great importance in relation to efficiency. The two main determinants of the most efficient size of farms would appear to be management and the economic use of machinery. Mention has already been made of the very high proportion of the rural labour

force which have managerial status. Although some increase in efficiency should result from the education of farmers in the principles of farm management, there is reason to believe that the reorganisation of our whole farming system into larger units in order to take advantage of the economies of the division of labour is the eventual solution. Already this trend is taking place. The number of farms, both in this country and in the United States of America, is declining. In discussing the aspect of farm size it is interesting to note that the Rural Reconstruction Commission reported that "while a most desirable state of affairs was frequently reached in which a farm of sufficient size is operated successfully by a family, it did not agree that it was wise or reasonable to make an agricultural structure dependent primarily on the family farm."\* Complex sociological factors, however, are involved in this problem.

In relation to the economic use of machinery, the Rural Reconstruction Commission reached the conclusion that "the alternative to a policy of mechanisation is the encouragement of small-scale farming at or near the present level. Neither our climates nor our soils are constituted to present farming."† It is a fact that many farms in this country are too small, particularly in the higher rainfall areas, for the economic use of certain types of modern machinery. There are, of course, opportunities to at least partially overcome this problem by greater endeavours to fit the machinery to the farm, and in the expansion of the co-operative use of farm machinery. However, if maximum efficiency is to be obtained, it does seem inevitable that long-range planning must allow for larger farm units, however much this reduces the number of independent proprietors.

#### **State Assistance to Farmers.**

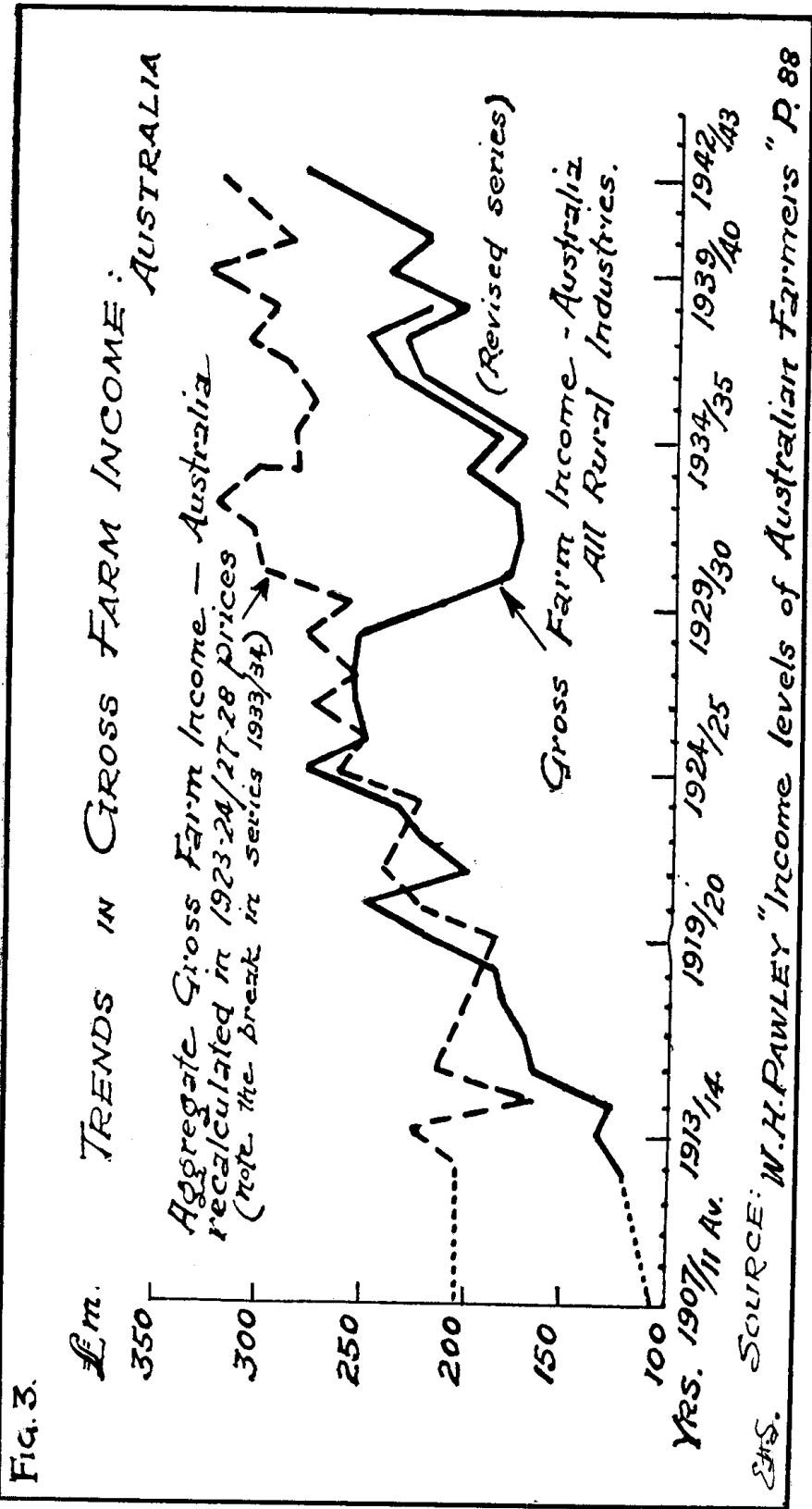
It is necessary, at this stage, to consider the effects of State assistance to primary industries on the inequality of farm incomes. In the past many subsidisation schemes have merely had the effect of extending the range of incomes within an industry. In fact, any assistance to farmers which has the effect of increasing the price per unit of the commodity produced is open to strong criticism on this point. The whole basis for direct subsidisation is output, and hence the producer whose output for one reason or another is small receives the least help, whereas in many cases he needs the most. The large producer has his income increased out of all proportion to the small producer, irrespective of the initial income or efficiency of either.

This is not a criticism of the principle of subsidisation but of method. Money spent on increasing overall efficiency, together with increased production, is money well spent. But there is little justification for continued subsidisation of any industry when it has the effect of increasing production at the expense of long-term efficiency.

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\* Rural Reconstruction Commission's Sixth Report, "Farming Efficiency and Costs," page 3.

† Rural Reconstruction Commission's Sixth Report, "Farming Efficiency and Costs," page 24.



“Indirect” methods of subsidisation would produce similar, if not greater, improvements in farmers’ incomes without many of the undesirable effects of “direct” methods. On this basis they are to be advocated in preference to “direct” methods where there is a strong case for outside assistance to the farmer. By “indirect” subsidisation is meant mainly incentive payments to farmers who adopt better farm practices such as soil, water and fodder conservation, the improvement of stock and the purchase of suitable types of machinery, fertilisers, feed and seed. Also might be included rural development projects and extension programmes. “Indirect” subsidisation as defined is based on efficiency, but in addition the increased income of farmers who respond to the assistance would, no doubt, far exceed that which would result from the same money spent in establishing an artificial price or return for the products produced at above the real market value.

#### **Year to Year Fluctuations in Farm Incomes.**

This aspect of the farm income problem is of great significance to each individual farmer, to primary industry as a whole, and to the economy in general.

Trends in the gross farm income for all rural industries in Australia are illustrated in Graph 3. The aggregate income of rural industries in the past has shown great instability. But it is important to note that such aggregate figures intend to camouflage an even greater degree of instability in the incomes of individual farmers, particularly that arising from varying climatic conditions. This is important because a sound and efficient agriculture does not rest on there being merely stability of total farm income, but rather on stability of the incomes of all farmers considered independently.

#### **Causes of Instability of Farm Incomes.**

The instability of total farm income can be traced to two main causes:—

1. Year to year variations in farm output as a result of changing climatic conditions.
2. Variations in the market price for farm products as a result of fluctuations in demand.

Changing price levels, resulting from both internal and external fluctuations in business activity and employment, are the major cause of the instability of farm incomes as a whole. This is evident when gross farm income is corrected for the influence of changing prices as illustrated in Graph 3. When this correction is applied, the main fluctuations in gross farm income, particularly the high levels of the 1920’s and the depression of the early thirties, largely disappear.

Graphs 4 and 5 illustrate the further point that changes in the general level of economic activity, and hence of aggregate demand, result in much wider fluctuations in farm incomes than in incomes earned in other sections of the country. With business booms, prices of farm products and farm incomes increase out of all proportion to non-farm incomes. But similarly, when

business activity declines, farm incomes are considerably further depressed than non-farm incomes. The cost of a depression, relatively speaking, falls most heavily on the farming sections of the community.

However, as mentioned earlier, figures for aggregate farm incomes, whatever pattern they may follow, to a large extent hide a greater instability of incomes according to regions and, most important, as relating to particular farms.

In the first instance, although, during a period of depression, all prices tend to fall, the prices of different farm products do not necessarily change at the same time or to the same extent. For example, in the case of an "imported" depression in a country like Australia, a fall in prices would probably occur first and be most pronounced in industries with large export surpluses. For this reason alone some types of farmers are susceptible to greater fluctuations in income than others. However, changes in the level of farm prices tend to affect whole industries fairly uniformly.

The second influence, that is, the effect of changing weather conditions on output, is of special significance to the individual farmer, and particularly the crop producer. This aspect is easily overlooked, for high and low levels of output in different industries, in different regions and on different farms, tend to compensate each other in the national scene. A year of high prices and high total production in a country so variable as Australia does not necessarily mean a year of high incomes for all farmers. Even if the elasticity of demand for a particular product approaches unity this would not mean income stability for the individual farmer. For when prices were low due to expanded output in some areas, other farmers, whose production was cut by adverse climatic conditions, would find their incomes greatly reduced. The same farmers in the following year might easily be on the receiving end of the converse case.

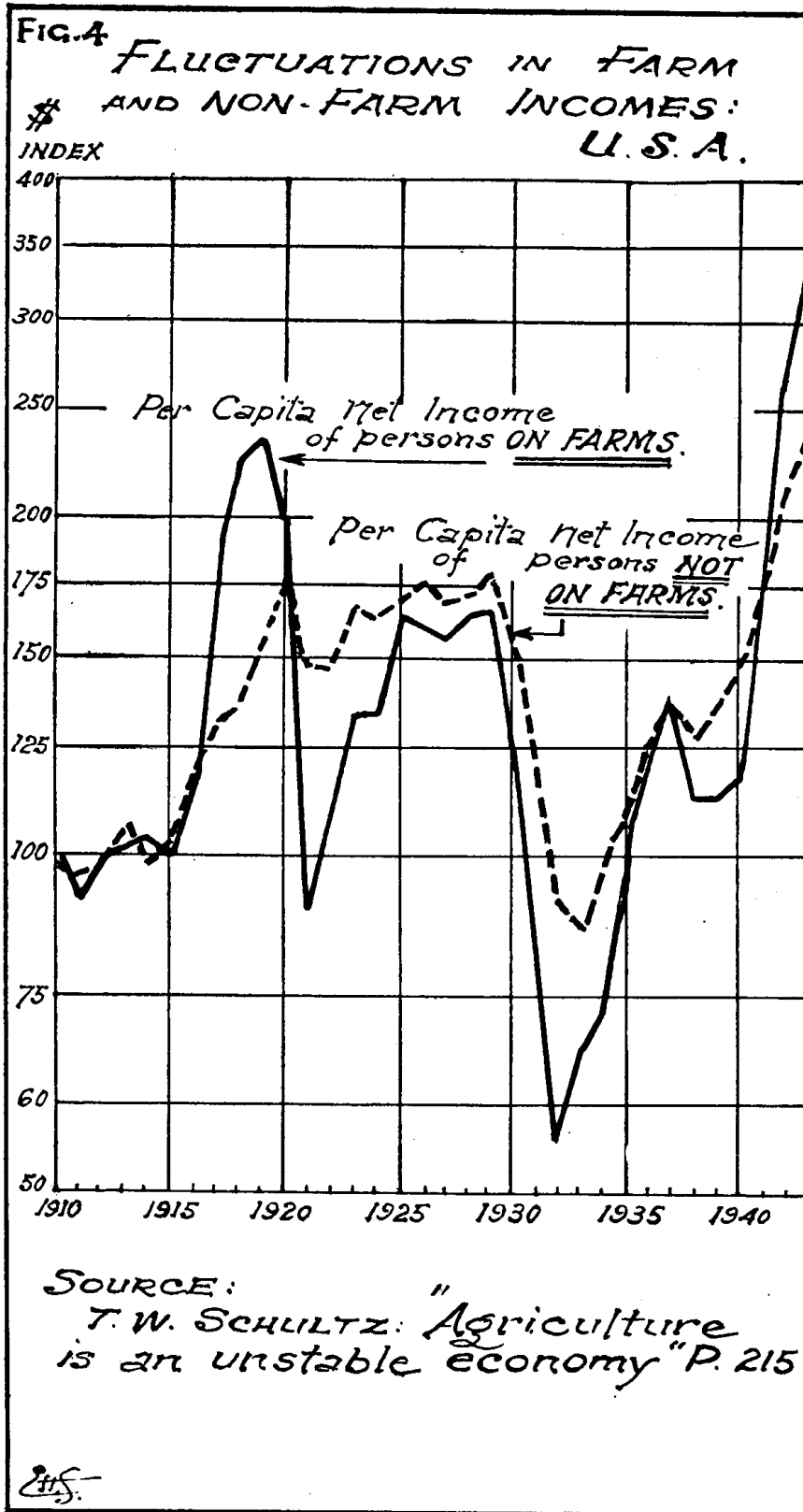
The problem of farm incomes when studied from the angle of the individual farm is characteristically one of unexpected profits and unexpected losses.

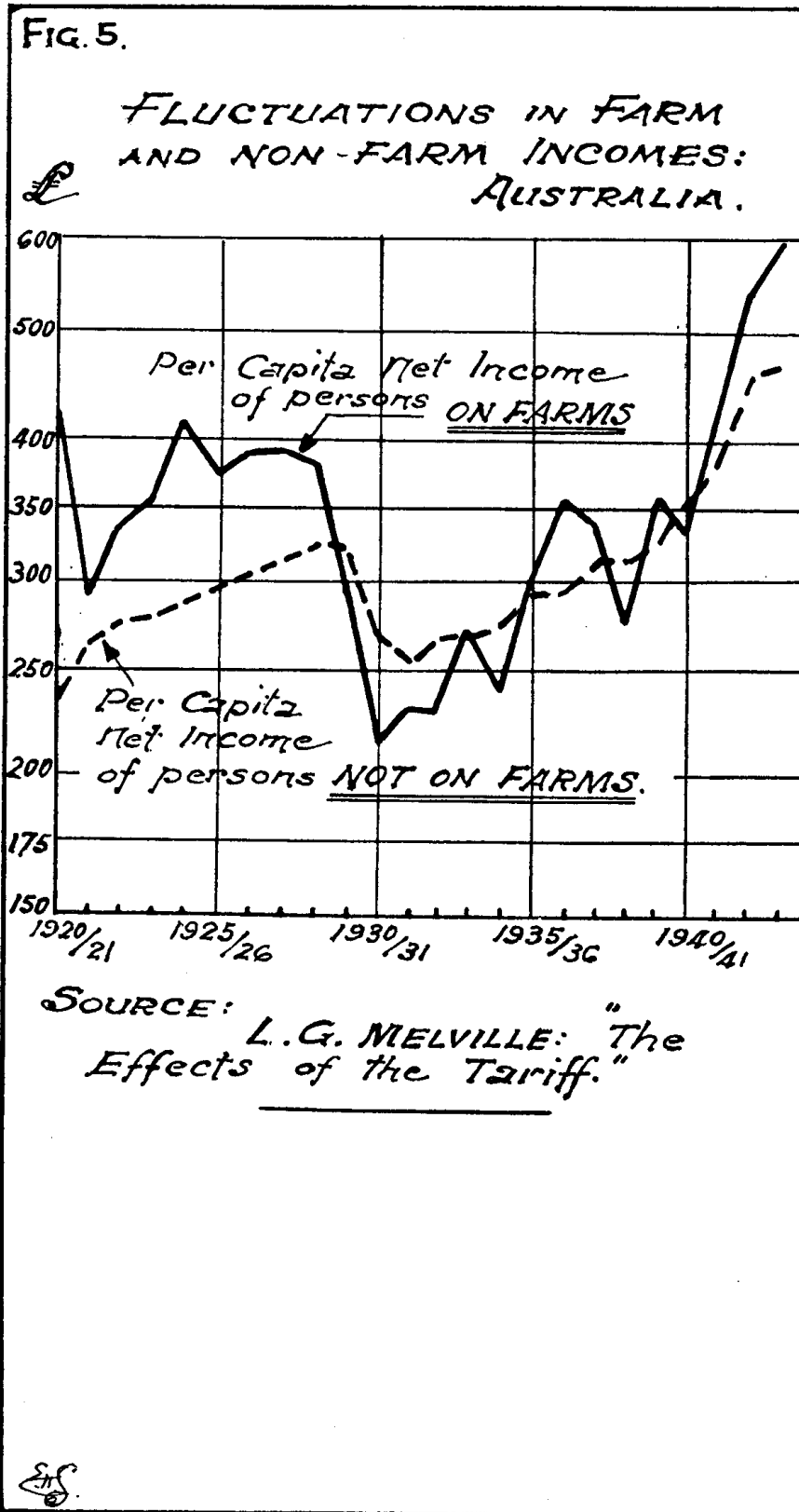
Finally, when a concept of total farm income is considered as in Graphs 1 and 2, a further factor making for regional and individual farm instability is apt to be overlooked. This is the characteristic cost conditions in primary industry which has three aspects:—

1. *In primary industry, irrespective of whether production or prices are high or low, costs remain fairly constant.* This means that fluctuations in gross incomes are almost entirely transmitted to net income (see Graph 6). But, in addition, as the proportion of costs in depression and drought years tends to be higher than in good years, net farm income tends to be more unstable than gross farm income.

This "stickiness" of costs in primary industry, together with the inability of the farmer to vary the market price or to control output with any degree of accuracy, largely distinguishes the farm business from secondary industry businesses.







2. *The proportion that costs bear to gross farm income varies markedly between different sections of primary industry. This is illustrated by the following figures:—*

*Net Income and Costs as Per cent. of gross Income of Australian Rural Industries, 1940-41.*

Industry.	Per cent. Net Income.	Per cent. Costs.
All Industries ... ..	72·1	27·9
Pastoral ... ..	85·5	14·5
Dairying ... ..	77·5	22·5
Agriculture ... ..	53·5	46·5
Poultry ... ..	49·0	51·0

The conclusion to be drawn from these figures is that net farm income in, say, the poultry industry is much more susceptible to changes in the price of eggs than is net farm income in the pastoral industry to changes in the price of wool. Small changes in costs or in the price of eggs have very serious repercussions on the egg producer's income.

3. *The concept of net farm income itself disregards a further factor making for varying degrees of instability in individual farm incomes.*

Net farm income is derived by subtracting from gross farm income the cost of resources actually consumed during the production process. That is, in this concept the industry is considered from the point of view of the economy as a whole and, as such, rent, interest and wages are omitted from costs. Obviously, however, when actual income of the individual farmer is considered, and this is what is to be emphasised when considering agricultural policy, these items must be taken into account. The larger the individual farmer's fixed commitments in the way of rent, interest on loans and the higher his wages bill, the more susceptible will his actual earnings be to changes in the market price and to changes in output as a result of changing weather conditions.

Taking the best and worst years of the thirteen-year period ended 1942-43, it has been estimated\* that, on the average, the difference in gross farm income was magnified four times in actual operator's earnings (that is, in the return to the operator after allowing for all other labour employed and 5 per cent. return on capital invested). However, this being the average position, there were many individual farms for which a much wider variation occurred.

The problem of the instability of farmers' earnings is such as to have a serious effect on the general efficiency of primary industry and, in fact, on the general welfare of the whole economy. However, the fundamental nature of the problem with all its various aspects makes it clear that its solution, whether from the viewpoint of the individual farmer, the industry as a whole, or national policy, is to be found in measures which will result in

\*W. H. Pawley—Income Levels of Australian Farmers—"Review of Marketing and Agricultural Economics," Vol. 13, No. 7, p. 172.

a more stable price for farm products at the point of production, coupled with measures which will mitigate against the influence of varying levels of output on the farmer's income.

**Ways of Reducing the Instability of Farm Incomes arising from fluctuations in Farm Output.**

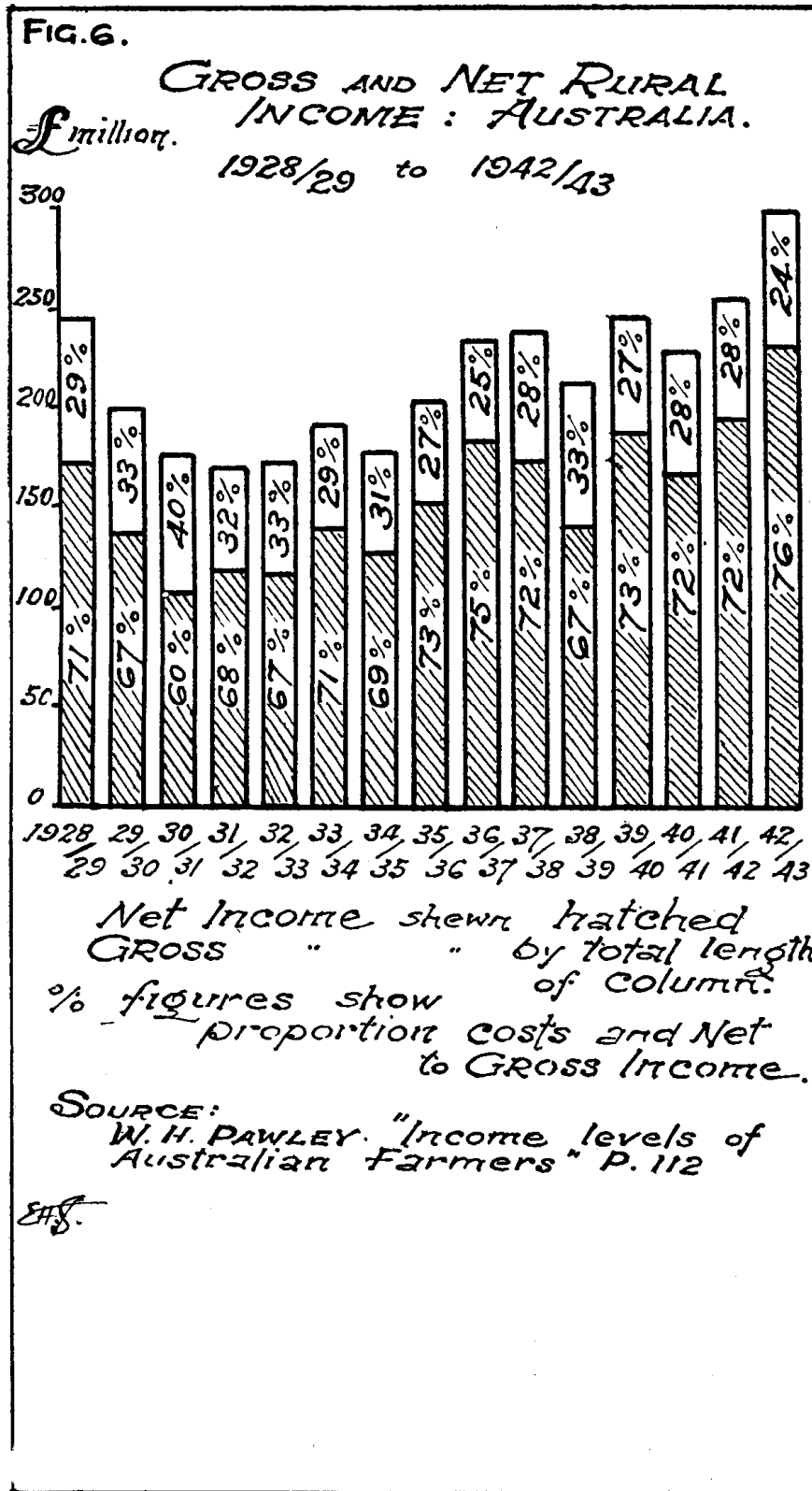
*(a) Improved Farm Management.*

This aspect received mention when the question of the range of farm incomes was being discussed. Efficient farm management involves operating a farm in such a way that it will return the maximum average income over a long period. In the face of frost, drought, floods, wind, hail and disease the farmer cannot expect to control his output with certainty. However, the efficient farm manager can achieve much in this direction, for example, by making use of disease-resistant crops and animals, by spraying and inoculation, and by the conducting of operations at the "safest" period of the year. Greater efforts to encourage, educate and assist the farmer along the road to better management, offers great scope for improving the stability of farm incomes by off-setting to some extent the climatic and disease risks in farming.

*(b) Crop Insurance.*

However, even the best farm manager will find it impossible completely to master the risk in farming arising from the climatic and disease variables. The problem, of course, varies greatly with the type of farming and the farming region. Generally speaking, where an animal enterprise predominates in the farm organisation, the farmer can do a great deal towards attaining stability of output by judicious fodder conservation and the purchase of feed during bad seasons. Where a crop enterprise predominates and the farmer relies on natural rainfall, the problem is more difficult. Furthermore, throughout the country the risk of adverse seasons varies considerably.

The ultimate solution to the problem appears to lie in some form of crop insurance, in order that reserves may be accumulated in periods of high yields to tide the farmer over periods of low yields. It is important to remember that a stabilised price is not the "be all" and "end all" in attaining for the farmer a stable income. In actual fact, in the absence of measures to offset varying yields, the farmer's income will very often fluctuate more violently with a stable price than without it. The point here is that when the market dictates price, a season of general low yields will often be at least partially offset, as far as the farmer's income is concerned, by a higher price. Particularly in areas of high risk farming a crop insurance programme is a necessary adjunct, if not a necessary preliminary, to a scheme for the stabilisation of prices.



It is admitted that the history of crop insurance programmes has not been one characterised by marked success. There are many practical difficulties. A few of the important ones are as follows:—

1. There is the difficulty of determining accurately what losses are due to factors outside the farmer's control in the way of adverse climate and disease attack, and what are due merely to bad management.

2. Losses in any case need to be assessed on the spot and immediately they occur. This involves the setting up of a fairly large and efficient field staff.

3. To be successful the scheme must be participated in widely to cover a large variety of climatic conditions, so as to spread losses and prevent the scheme breaking down due to exhaustion of the insurance reserve. Experience has shown one of the greatest difficulties rests in getting farmers to participate in good seasons. Many schemes have broken down for this reason, coupled with the fact that good and bad seasons often run in sequence. Any scheme established just prior to a run of bad seasons has little hope of success. It is difficult to foresee any comprehensive crop insurance scheme being successful without it being compulsory and, at least initially, having the backing of the State.

4. The premium rate in any crop insurance programme must be closely related to the actual risk on each farm. This requires in the first instance detailed climatic and crop yield data for each participating area.

However, in spite of these difficulties, the fact remains that insurance offers a very important method of tackling the problem of the instability of farm incomes. It has application in high risk areas also, from the point of view that many farmers have gone bankrupt, or nearly so, as a result of a succession of bad seasons on farms which, considered over a longer period, are quite sound business propositions.

A further point deserving mention is the fact that crop insurance, in addition to making for greater stability of farmers' earnings, would very likely have the desirable secondary effect of causing the climatic risk to be more accurately incorporated in the value of the land.

Two points deserve special emphasis in relation to any future insurance projects that might be contemplated in Australia.

The first of these is that the choice is not merely between a perfect scheme giving farmers full coverage or none at all. Partial coverage against all climatic risks would be a big step forward.

The second is that at least at the outset of a crop insurance scheme it should not be considered essential for it to be self-supporting. It would probably cost the country far less if, in future, it were to assist sound crop insurance policies not entirely self-supporting, than it has spent in the past on drought relief and resulting debt adjustment programmes.

The success or otherwise of the all-risk insurance policy for cotton and wheat operating under Act of Congress in the United States of America deserves careful study. In New South Wales, crop insurance has so far been restricted mainly to private companies and with them mainly to hail damage of cereals. Uniform rates apply to large areas\* irrespective of variations in risk, and as participation is voluntary and largely limited to high risk areas, these rates tend to be high. Owing to the heavy losses experienced by insurance companies last year with hail insurance, it is unlikely that in future they will continue with this policy at the existing general rates.

The only compulsory crop insurance schemes operating in Australia are those covering hail damage of certain cereals and fruit in the Stanthorpe area of Queensland. These schemes are operated by boards established under the Queensland Primary Producers' Organisation and Marketing Acts. The scheme covering wheat has been operating since 1926, and that covering fruit since 1933. Although these schemes are only of a limited nature, both in the risk and area covered, the experience gained with them should prove very useful when further developments in crop insurance take place in this country.

(c) *Fodder Conservation.*

Fodder conservation on farms concerned with animal enterprises can be thought of as a counterpart to crop insurance in agriculture. Weather conditions influence livestock production through the crop, and it is only by conserving fodder as an insurance against drought periods that stability at maximum output in the dairying, pastoral, pig and poultry industries can be guaranteed. This is obvious to the efficient farm manager, but the fact is that the conservation of fodder against drought is not a widespread practice on Australian farms.

As an incentive to farmers in New South Wales, loans are now available to farmers and farmer co-operatives at very liberal terms, through the Rural Bank, for the purchase of fodder as a drought reserve and for the construction of storage facilities for such fodder. Similar loans are available to farmers for the production of fodder crops. In addition, a freight concession of 50 per cent. applies outside a radius of 100 miles direct from Sydney and Newcastle for fodder purchased by farmers as a drought reserve.

The response to these incentives has so far been very disappointing owing to an initial lack of interest and appreciation of the need for fodder conservation on the part of farmers. The principle behind the scheme in New South Wales has much to

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\* The State is divided into two zones: A Northern area comprising approximately four-fifths of the State in which rates are 83/3d. per cent. and the remaining area in the South where rates are 55/6d. per cent. Crops included are wheat, barley, oats, rye, maize and linseed. Those premium rates are subject to alteration.

commend it, but it does seem that to prove successful such a scheme must be accompanied by a very intensive publicity campaign.”\*

But while conservation by farmers themselves is to be encouraged, it is doubtful whether this alone will go far enough. It has yet to be proved whether this is the most economical approach, particularly on small farms. It is also doubtful whether the great majority of farmers will ever adopt adequate conservation practices on their own account. Conservation on the part of farmer co-operatives may be an answer, but it may be that bulk storage of feed, particularly feed grain, on public account will prove the only practicable answer to a problem of the magnitude of the 1944-45 drought, when the numbers of sheep in New South Wales fell by approximately 10 million (or 18 per cent.).

A further approach to the problem of ensuring supplies of feed to livestock is that of encouraging greater diversification of farming, *i.e.*, a more widespread production of crops and animals on the same farm. Specialisation in farming has certain advantages. It enables the farmer to concentrate on the most profitable enterprise for his farm. It may reduce capital investment. It enables the farmer to develop special skills. Perhaps most important, it reduces the managerial problems of a farm business to a minimum. But what of diversification or, in other words, mixed farming? Mixed farming enables the farmer to adopt suitable rotations which will assist in maintaining the fertility of his soil; it helps to stabilise his income by reason of the fact that he no longer has “all the eggs in one basket” and, in the hands of an efficient farm manager, by reason of the seasonal nature of farm enterprises, a mixed farm will usually return a higher net income than if it were conducted on a specialised basis.

There has been a tendency in the past few years for the pig and poultry industries to shift out to the wheat farms.† If these industries continue to become more and more a mixed farming proposition, the problem of ensuring a continued commercial supply of feed grain for them will become less important.

#### **4. Water Conservation and Irrigation.**

The most perfect solution to the problem of varying rural industry output, where this is caused by uncertainty of annual rainfall, obviously is to be found in water conservation both for stock drinking purposes and for irrigation. Potential water supplies for these purposes in the Western areas of this State are exceedingly scarce and only comparatively limited extensions can be expected in inland irrigation even if all available sources of water are conserved. *This must be done.* However, in this article,

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\* A sum of £1,000 was allocated for publicity of the New South Wales scheme during 1947-48. The full force of the resulting campaign has not yet been felt.

† In the egg industry the problem of obtaining a sufficient proportion of export quality eggs from country districts is a limiting technical factor on this movement. At least until this difficulty is overcome the specialist Metropolitan egg producer will remain important in this industry.



attention is being paid to means of stabilising existing types of farming rather than of developing new types in areas where, beforehand, little or nothing was produced.

From the point of view of stabilising existing forms of farming, two aspects warrant mention here.

(i) *The Improvement of Stock Water Facilities in Drier Areas.*—Artesian water forms the cheapest supply of stock water in pastoral areas. Generally speaking, surplus water is too valuable for irrigation and human use to warrant being allocated to stock-drinking on a large scale. The only major scheme so far developed for this purpose is the Keepit Dam Project on the Namoi River. But before further schemes are contemplated for the supply of stock water it would seem essential that full use be made of the cheaper artesian supplies. The position at the present time is that the supply of artesian water in New South Wales is gradually diminishing and it is necessary that this be checked. But while the supply is obviously limited, there is a very great wastage from the present bores. It is estimated that, at the present time, not more than 10 per cent. of the bore flow is actually used by stock.\* That is, almost 90 per cent. of this valuable source of water is being lost through seepage and evaporation. It is very essential that in future a definite control be exercised over the number of new bores put down, that casing of all bores and the control of flow by the use of an appropriate head be made compulsory, and that steps be taken to replace the present open-channel methods of distribution by piping system or, at least, by channels lined by some form of impervious material.

(ii) *Water Conservation and Irrigation in Coastal Areas.*—Coastal irrigation or, in more general terms, sub-humid irrigation, on a national scale is a comparatively new venture in this country. However, it is becoming more and more evident that water for irrigation and stock drinking purposes is needed on many coastal farms in order that a system of farming might be adopted which will, to a large extent, counteract the uncertainty of rainfall, particularly during the peak-producing months of the year. In New South Wales, for instance, it is quite fallacious to regard the coastal area as a "safe" area as far as rainfall is concerned. Periodic droughts are the rule and not the exception. The unreliability of rainfall in the past has had a very marked effect on production, particularly in dairy farming, the main type of activity on the coast.

In an investigation† carried out recently on the Lower North Coast it was estimated that in not more than three years out of every ten could it be expected that the rainfall received in any of the main producing months, November to March, would maintain pasture and crop growth at a rate sufficient to keep dairy herds in full production. But a small area of, say, five acres of irrigated pasture or fodder crops probably would be sufficient to enable farmers to tide their herds over these periodic droughts.

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\* Rural Reconstruction Commission's Eighth Report, "Irrigation, Water Conservation and Land Drainage," page 73.

† See "Farming in Sub-Humid Areas"—Review of Marketing and Agricultural Economics, Vol. 15, Nos. 2 and 3.

While it is not difficult to find sources of water for coastal irrigation and stock water supplies, very often it is not possible for the individual farmer to obtain a suitable supply on his own account. There is need for more State-sponsored schemes.

There are numerous difficulties involved in the development of irrigation and stock water supply schemes in coastal areas. The first of these is a lack of factual information as to the probable effects of irrigation on farming in these areas. The original schemes must be essentially experimental in nature and it is very important that the experience gained with these be carefully recorded. It is quite clear that the net increase in production to be expected is considerably less than that which would be obtained from irrigation in arid areas. In some years the amount of irrigation needed on the coast to supplement natural rainfall would be only small. The cost of schemes would be relatively high, particularly as pipe reticulation would be necessary in most cases. For these reasons the gross return from increased production as a result of irrigation schemes on the coast would be small in comparison with irrigation schemes so far developed in this State.

It is, in fact, very doubtful whether any irrigation scheme on the coast would prove to be an economic proposition from the point of view of being immediately self-supporting. It is essential that a long-term view be taken and that the probable indirect benefits to the surrounding areas and the benefits to the State as a whole through increased production be included in preliminary calculations. Some experience and careful investigation will be necessary before a fair average charge to the farmer can be determined accurately.\*

It is not envisaged that the individual farmer would, or should, make considerably increased profits as a result of any such scheme. The emphasis is to be put rather on the fact that the income of a farmer could be stabilised which, in itself, is a very great advantage to him. It would be expected that any increase in farm income would be largely offset by the extra costs involved in the way of additional plant and water charges. It would be essential that some control of land values be exercised in order that net benefits, which rightly should go towards meeting the capital costs of the scheme, be not capitalised in the form of land values. It is not to be overlooked, however, that in any area which may be selected there will be a great variation in the efficiency and interest of individual farmers and, unless some portion of the benefits accrue to the farmer, there will not be sufficient incentive for the original owners willingly to undertake irrigation, or for prospective irrigators to purchase the land.

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\* It is important, too, that in any coastal irrigation scheme all opportunities for the development of hydro-electric power and for the supply of water to neighbouring towns under the same scheme be fully exploited in order to spread the cost and increase both the direct and indirect benefits.

**The Problem of Reducing the Instability of Farm Incomes Resulting from Fluctuations in Demand and hence in the Price of Farm Products.**

Fluctuations in business activity affect not only farm incomes but incomes in all sections of the economy. However, as was pointed out previously, fluctuations in farm incomes are much wider than those in non-farm incomes. The result has been that the farming section of the community has been called to bear a disproportionately large share of the cost of depressions, particularly if it is admitted that the latter originate outside agriculture. Of course as the danger to Australia is from an overseas depression acting on this economy largely through our exports of primary products, stability of business activity and of effective demand must be achieved not only in Australia but also in our main overseas markets. The ultimate solution to the problem of fluctuating demand for farm products lies mainly in the stabilisation of secondary industry output.

The ultimate solution to both fluctuations in total employment and in farm incomes must be achieved through such national and international policies as will stabilise business activity as a whole. However, it is necessary in the meantime in agricultural policy to aim for greater stability of farm incomes, achieved in such a way that—

- (i) agriculture be called to bear not more than an equitable share of the cost of any depression which might take place in the future;
- (ii) agriculture should contribute as much as possible to offset any depression and to stimulate recovery.

This aspect of agricultural policy introduces many complex but interesting problems, which it is not possible to discuss in sufficient detail in this article. Such questions as price-support programmes for farm products, production controls, the "ever-normal granary," and the practicability of counter-cyclical payments to farmers, such as would offset to some extent the effect of fluctuations in business activity on the farmer's income, come to mind. In this discussion it has been intended to provide merely a general background on which such policy should be based. Suffice it to say, in conclusion, that the objective should be an industry which, by reason of its own efficiency, can continuously return to farmers in general a stable income at a level comparable with that earned in other sections of the economy. The presence of a long-term policy of maintaining farm incomes by progressive increases in subsidies at the expense of the consumer should, perhaps, be considered merely as an indication of a failure on the part of agriculture to fully adapt itself to ever-changing conditions.