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UNIVERSITY OF NOTTINGHAM

Department of Agricultural Economics

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Thirteenth Heath Memorial Lecture

The Role of Government in the Development of Agriculture

W. EMRYS JONES

Chief Agricultural Adviser, Ministry of Agriculture, Fisheries and Food

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Delivered 5th March, 1970

UNIVERSITY OF NOTTINGHAM SCHOOL OF AGRICULTURE
Department of Agricultural Economics
Sutton Bonington
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Leicestershire

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THE HEATH MEMORIAL LECTURE

WILLIAM EDWARD HEATH was born in Leicestershire in 1906 of a large farming family. All the family have been associated with agriculture and some are now farming in Canada and New Zealand.

He was a student at the Midland Agricultural College and graduated with the degree of Bachelor of Science of the University of London. (The Midland Agricultural College is now the School of Agriculture of the University of Nottingham).

He started work at the Agricultural Economics Department at Sutton Bonington and then moved to the Farm Economics Branch at the Department of Agriculture for Scotland, in due course becoming Head of that Department. During this period he was responsible for an economic survey of marginal farming in Scotland.

In 1947 he was appointed Reader in Agricultural Economics at the University of Nottingham. He played an active part in the School of Agriculture and later was Vice-Dean of the Faculty of Agriculture and Horticulture. In 1951 he was selected to visit the United States of America to study research and teaching methods.

He was particularly interested in all the international aspects of agricultural economics and devoted a good deal of time to lecturing and writing articles on the subject of food and people. He was an active member of the International Conference of Agricultural Economists and of the Agricultural Economics Society.

Although handicapped from his youth by an attack of infantile paralysis, he refused to bow to this handicap and shared in full in the whole life of the University. It was a shock to many when he died suddenly in 1951 at the age of 45.

The Heath Memorial Lecture was established in his memory, largely through the initiative and generosity of past and present students (The Old Kingstonian Association) and of the farmers who appreciated his work in the East Midlands province.

THE LECTURER 1970

William Emrys Jones was born in Carmarthenshire in 1915. After leaving Llandovery Grammar School he went on to the University College of Wales at Aberystwyth, where he took a First Class Honours degree in Agriculture, with Economics as his secondary subject. He then worked as a post-graduate scholar at the Hertfordshire Institute of Agriculture and also in Scotland before moving to Gloucestershire to become Chief Cultivations and Technical Officer.

In 1946 Mr. Jones joined the N.A.A.S. as a Regional Grassland Officer, and in 1950 he was appointed County Advisory Officer in Gloucestershire where he developed new advisory techniques on farm management. Rapid promotion followed. In 1954 he became Deputy Director for the N.A.A.S. in North Wales, in 1957, Director of the N.A.A.S. for Wales, and in 1961 Director of the N.A.A.S. for the whole of England and Wales. In 1967 he took up his present appointment as Chief Agricultural Adviser to the Minister of Agriculture, Fisheries and Food.

Mr. Jones is one of the Ministry's representatives on the Agricultural Research Council, Vice Chairman of the Agricultural Advisory Council and President of the Agricultural Education Association.

THE ROLE OF GOVERNMENT IN THE DEVELOPMENT OF AGRICULTURE

It is a great honour for me to be invited to give the Heath Memorial Lecture this year and to follow so many eminent people. I notice that when Sir Eric Roll delivered his lecture in 1962 he found it necessary to point out the restraints under which he, as a public servant, would suffer in regard to the subject matter of his talk. I understand only too well the reasons for his diffidence for I am in very much the same situation myself at this time of the year, when Annual Price Review discussions are in progress. Moreover, the underlying theme of my lecture is a matter for heated discussion and even demonstrations by farmers in many parts of the country at the present time.

Agricultural technology took a mighty step forward in the latter half of the eighteenth century and the early nineteenth century. This was the era of the enclosure movement, which replaced the open-field system with convulsive rapidity. The new structure of British agriculture facilitated the adoption of the new ideas and inventions of the pioneers of those days. Parliament was predominantly composed of members drawn from the landed gentry and the House of Commons, between 1734 and 1832 had fully three quarters of its members with a vested interest in land. The farmers were utterly oblivious of the need of any kind of political action and it was taken for granted that, with the Squire in Parliament, their political interests were safeguarded and all they had to do was to improve their methods of production. The earliest form of association were gatherings of landowners and farmers to discuss methods of husbandry, new systems of farming, new crops and livestock improvement. At this time Coke of Holkham was prominent in this kind of activity and his "Coke's Clippings" became large gatherings, attracting farmers and landowners from far and wide. The last of these events in the mid-nineteenth century attracted a vast gathering of seven thousand interested people. Coke is on record to have said at that time, "My improved practices spread at the rate of one mile per annum".

Table 1. **Estimated yields of wheat and barley (approx.)**

Year	Changes in agriculture that may be relevant	Wheat	Barley
		cwt. per acre	
1200	Open field system	4	-
1650	Enclosure and following	5	-
1750	New methods of drilling	8	-
1800		10	-
1850	Four-course rotations	14	-
1900	Fertiliser and new varieties	17	16
1935		19	16.5
1948	Selective herbicides; more fertilisers	20	19.5
1958	Varieties with stiffer straw	25	23
1962	Nitrogen fertilisers much increased	32	29

Source: G.W. Cooke, Rothamsted, Experimental Station, Harpenden, Herts.

Scotland appears to have been the pioneer in the formation of farming clubs. The first known agricultural society appears to have been "The Honourable Society of Improvers in the Knowledge of Agriculture in Scotland", founded in 1723, with headquarters in Edinburgh. This was followed by the formation of other Societies in Scotland and England and Wales. The Bath and West and Southern Counties Society, for example, was founded in 1777.

This general interest in the development of agriculture at this time found expression in a Resolution, which Sir John Sinclair, a Scottish landowner, a man of great energy and drive, submitted to the House of Commons in 1793 in the following terms:-

> "That an humble address be presented to His Majesty, entreating, that His Majesty would be graciously pleased to take into his Royal consideration the advantages which might be derived, by the public, from the establishment of a Board of Agriculture and Internal Improvement."

The Resolution was passed and the Board was instituted by Charter, which declared it "to be for ever thereafter a body politic and complete". It was given an annual Exchequer grant of £3,000 and it is remembered now, of course, for Arthur Young's County Reports, which provided an authoritative account of the state of agriculture throughout the country. However, it did establish a small experimental farm to demonstrate the virtues of converting grass to arable farming, arranged a series of lectures on agricultural chemistry by Sir Humphrey Davy and promoted the first national agricultural show at Aldridge's Repository, St. Martin's Lane. Sadly, the Exchequer grant was withdrawn in 1820 and the Board was wound up in 1822, but the first tentative excursion by the State into the field of agricultural development had been made.

The years that followed saw the establishment of The Royal Agricultural Society of England in 1838 and the Farmers' Club in 1842. These two bodies, in addition to spreading the gospel on "Improved Farming Practices", gradually promoted an awareness among farming interests of the necessity of some formal organisation to guard the welfare of agriculture in Parliament. The repeal of the Corn Laws in 1846 signalled the beginning of the decline in the political power of land interests. Mr. Kevin Fitzgerald, in his account of the history of The Farmers' Club captures the mood of the time in his description of the March 1846 meeting of the Club:-

> "When in March 1846, the Club met to discuss the best ways of turning grassland into arable no one could have believed that Sir Robert Peel, the man "With a smile like the silver plate on a coffin" was shortly ..... to betray British agriculture in a comprehensive manner never to be surpassed, not even by the repeal of the Corn Production Acts in the 1920's."

Nevertheless, British agriculture continued to expand and in fact reached its highest level of production in the 1870's.

Table 2. **Cropping and livestock in England and Wales, 1869 and 1969**

	1869	1969
	'000 acres	
Total - crops and grass	25,901	23,937
Wheat	3,553	1,963
Barley	2,022	5,107
Oats	1,765	564
Turnips and swedes	1,682	113
Mangolds	292	25
Potatoes	406	467
Tillage	12,012	10,449
Temporary grass	2,266	3,567
Permanent grass	11,624	9,919
	'000 head	
Total cows and heifers in milk or calf	1,694(1)	3,993
Total cattle	4,296	8,978
Total sheep	22,543	18,052
Total pigs	1,801	6,150

(1) Five year average

Sources: 1869 - *A Century of Agricultural Statistics, Great Britain. 1866-1966,* H.M.S.O., 1968.
1969 - June returns, Ministry of Agriculture, Fisheries and Food.

In the early 1860's there was a severe outbreak of cattle plague known as rinderpest and the mortality due to this plague was reported to the Royal Agricultural Society as being "420,000 out of a population of six million". This led to the setting up of a veterinary service to control the plague and a "Livestock Census" to assess the extent of the damage. A sum of £10,000 was given to the Board of Trade to organise the collection of agricultural returns. The task of collecting these statistics was given to the Inland Revenue Department and it was the Excise Officers who eventually collected the statistics, largely through the Post Office.

This was probably the British farmer's first taste of form-filling in a big way, and he did not take to it very kindly. The Inland Revenue Report of 1866 states: "The reluctance, and even refusal, in many instances, of landowners in England to afford the information respecting acreage of crops which the Government desired to have, occasioned much trouble, but we are not aware of the reason by which they were actuated." Again in the 1869 Report, "The duty of collecting these statistics is very harassing to the officers and exposes them to much insult and annoyance. The time of year, too, ... appears to add to their difficulties, the farmers being then for the most part engaged on their hay harvest and very irritable when called upon by a Government officer to leave their occupation for the purpose of detailing to him all the particulars of their holding." I do not doubt it!

The Inland Revenue were obviously unhappy about the quality of some of the returns and in the report of 1874 described the return of one farmer, who occupied a farm of about 50 acres, but made a return of upwards of 300 acres,

including ten acres of hops and 1,000 pigs, "A statement evidently as untrue as the other portion of the return". Another return was described as being "so full of disgusting epithets that he (the Inland Revenue Officer) destroyed it as unfit to be seen". As the returns became more sophisticated so did the questions become more searching and in answer to the livestock question accompanied by the instruction, "If not pure-bred, state type or general character", one frustrated farmer replied, "The cattle are cross-bred. Some take after the bull, some after the cow, and the bull sometimes takes after the cowman". Probably, the return which caused the greatest perplexity in Whitehall was from the lady who insisted that she had "one and a half cows in calf". It is clear that the attitude of farmers and landowners to Government Officials at this time was not altogether cordial.

After the end of the 1870's British agriculture declined rapidly due to competition from overseas, especially from the mass importation of cheap grain from America and the arrival of refrigerated meat and dairy products from Argentina, Australia and New Zealand. Denmark also successfully invaded the British bacon market. During the same period the political influence of agriculture declined sharply and by 1900 the Members of the House of Commons with "land interests" had been reduced to 23 per cent as compared with 44 per cent in 1868. In any case the economic growth and development of the nation were running against agriculture. By 1894 the price of wheat had fallen to 5s.4d. per cwt. and, in the event it was to stay at roughly this level for the next 20 years.

Table 3. Some average prices of cereals. England and Wales, 1771 to 1969

Year	Wheat		Barley		Oats	
	s.	d.	s.	d.	s.	d.
1771	11	4	7	5	6	2
1801	27	11	19	2	13	3
1851	9	0	6	11	6	10
1901	6	3	7	1	6	7
1921	16	8	14	7	12	3
1931	5	9	7	11	6	3
1941	14	8	24	0	14	8
1951	28	8	38	10	26	2
1961	20	7	19	10	19	5
1969	23	0	21	9	19	6

Source: *A Century of Agricultural Statistics, Great Britain 1866-1966,* H.M.S.O., 1968.

This was a very difficult time for British agriculture and the Government was under constant pressure to bring together all the functions relating to the industry into one Department of State. In 1889 the Board of Agriculture was created, but the Board's Secretary a few years later was to say to Daniel Hall, then Director of Rothamsted, "Agriculture in England is dead and the Board's business is to bury it decently."

The first world war (1914-18) saw a revival in the prosperity of British agriculture – the price of wheat rose from 8s.2d. per cwt. in 1914 to 18s.10d. per cwt. in 1920 and fat cattle from 38s.8d. per live cwt. in 1914 to 95s.11d. per live cwt. in 1920. The Board of Agriculture was transformed into a Ministry in 1919, with full Parliamentary status. What was this new Ministry to be asked to do? H. B. Dale writing about this issue states, "It was certain that its functions would not again be confined within the narrow limits of 1913, however loudly landowners and farmers might demand the complete restoration of their freedom: the war made it impossible that the State should disinterest itself from agriculture to the same degree as before that experience of the war. The Corn Production Act was on the Statute Book, but it was professedly war legislation. What the State should do for agriculture as a permanent policy, and what correlative powers of supervision and control it should assume over the industry, were still crucial questions that remained to be settled, and settled in an atmosphere not conducive to calm deliberation on their merits."

Table 4. **Some average prices of fat cattle 1901-1969**

Year	Price per live cwt.	
	s.	d.
1901	33	9
1921	88	0
1931	47	6
1941	62	7
1951	114	0
1961	125	4
1969	187	6

Source: *A Century of Agricultural Statistics, Great Britain 1866-1966,* H.M.S.O., 1968.

The boom in agriculture at the end of the first world war was short-lived. The Agriculture Act of 1920, which continued guaranteed prices for wheat and oats, was judged by the Government to impose too heavy a burden on the oppressed tax-payer and was abruptly repealed. However, the National Farmers' Union stipulated that a sum of £1,000,000 should be provided by the Exchequer for the benefit of agricultural education and research. As a result there was a substantial expansion in the education, advisory and research services. In 1914 nearly half the counties in England and Wales had no agricultural organiser, but by 1927 almost every county of any agricultural importance had appointed such an officer and the subordinate staff had increased correspondingly; indeed I was one of them. Before the war there were only four farm institutes in the whole of England and Wales, but by 1927 there were sixteen; this progress is remarkable when one remembers it occurred at a time of the gravest financial stringency.

One new agricultural college was established, namely Seale Hayne at Newton Abbot and this filled an obvious gap in the South West of England. The agricultural departments of universities and the agricultural colleges

were not only teaching institutions but acted as the provincial centres for the provision of specialist advice to local education authorities and farmers. The Ministry undertook the whole financial responsibility for this service and between 1919 and 1927 the cost quadrupled.

During this period also the research service was considerably strengthened. The Welsh Plant Breeding Station was established at Aberystwyth, the Agricultural Engineering Institute at Oxford, the Fruit Research Station at East Malling and a station at Waltham Cross in the Lea Valley for the study of glass-house crops. Indeed this was a period of remarkable progress in the field of agricultural research, extension and education. The achievements of men such as T.B. Wood and Biffen at Cambridge, supported by staffs which included Engledow, Marshall, Hunter and Hammond attracted world-wide respect. There were also Russell at Rothamsted, Stapledon and Ashby at Aberystwyth, Wyllie at Wye and many more. These developments were to prove of the utmost importance to the nation as a whole in the succeeding decades.

Whilst all this activity was taking place in the research and education sphere, British agriculture languished. By 1932 wheat prices had fallen to less than 6s.0d. per cwt. and fat cattle prices were down to less than 45s.0d. per live cwt. As a result low cost/low output extensive systems of farming were adopted throughout the country. Throughout the 1920's successive Governments rejected all proposals to relieve the acute distress of the industry, except for the Sugar Beet Subsidy of 1925. Prior to this Lord Ernle had written – "Nothing seems to me more certain in politics than that British agriculture will be neither subsidised nor protected". At this point, the industry was in a desperate plight, but even so it did not reach its lowest ebb until the early 1930's. In 1934 the price of wheat fell to 4s.10d. per cwt. and fat cattle to under £2 per live cwt. I have a vivid personal recollection of receiving a cheque of £69 for 550 lambs in 1932, in mid-Wales.

It was at this time that there was a fundamental change in Government agricultural policy. The Wheat Act of 1932 and The Marketing Acts of 1931 and 1933 together with the introduction of tariffs on all food (other than from the Commonwealth) marked the end of the free trade era. It was at this point, forty years ago, that State intervention in agricultural development, leading to financial assistance and control really began. Some of these measures, especially those relating to marketing have had a profound effect on both the techniques of production and on the methods of agricultural support, which have lasted to this day.

This is not the occasion for telling the story of what happened to British agriculture during the second world war. What is more appropriate is for me to describe the evolution of Government policy after the end of hostilities. The record of the food production campaign is comprehensively dealt with in Sir Keith Murray's volume on Agriculture in the official history of the Second World War Series. The relationship between Government and the farming industry had become very close and involved during the war years. This relationship was enshrined, and perpetuated in the 1947 Act, which placed on the Government the responsibility of ensuring that the industry was not only stable and efficient but also producing what was required in the national interest and producing it – "at minimum prices consistent with proper remuneration and living conditions for farmers and workers in agriculture and an adequate

return on capital invested in the industry." These responsibilities are met each year through the Annual Review of the economic conditions and prospects of the industry, which is conducted by the Agricultural Departments.

In recent years the growth in productivity in British agriculture has been stimulated partly by Government policy and partly by natural evolution in response to outside pressures. It has been achieved through better management, better husbandry and the adoption of new technical advances. In the early 1950's the whole of the farming industry of the United Kingdom was geared to increasing production as an end in itself. This was a period of food scarcity and expansion of output was the prime objective of both Government and farmers. Indeed the margin between costs and income was such that the expansion of output on the individual farm automatically provided higher profits for the farmer in most farming situations.

During the early 1950's the farming industry was relieved of war-time restrictions. Animal feedingstuffs, fertilisers and machinery became more plentiful once more and there followed an unprecedented upsurge of production, which has continued to this day. This trend, coupled with revolutionary changes beyond the farm gate (in the food industries and in marketing), created an entirely new situation for the farmer. The steady and continuous improvement in the efficiency of farm production in the United Kingdom from 1950 to 1967 was the product of the application of the results of scientific research and technology, through increased Government investment in agricultural research, strengthened extension services and grant-aid schemes related to farm planning and productivity. These measures encouraged the development of industrialised-type farming and increased the difficulties of the small family farmers.

In 1958 the Government introduced the Small Farmer Scheme, under which eligible small farmers would receive grant-aid in return for operating a farm plan, approved by the advisers of the National Agricultural Advisory Service. This was a significant and important departure from the conventional attitude of the N.A.A.S. to its work, in that the State saw fit to direct N.A.A.S. effort towards one particular, and clearly defined sector of the agricultural community. In 1960 a survey was carried out to assess the effectiveness of the Small Farmer Scheme in improving the livelihood of small farmers. The results of this survey showed that the objective of most of the farm plans was to improve farm income by increasing the number of cows and to aim for a higher output and better productivity of grassland. Inadequate buildings for the proposed increase in livestock numbers was a common limiting factor, restricting further development. Many of the less successful farmers had the three-fold disadvantage of inadequate buildings, unsatisfactory field drainage and poor land.

As a result of the adoption of farm plans, devised by the N.A.A.S., the average size of the farm business, measured in physical terms, increased by one third. In financial terms an increase of 32 per cent in the output, and livestock and livestock products accounted for the bulk of this increase. There was also an increase of 24 per cent in the total costs of the business, leaving an increase in the net farm income of 58 per cent. This substantial change (an increase of £246 plus £179 in grants) was significant for the fortunes of the farm families concerned. The average net farm income of comparable

farms outside the Scheme rose by only £83 (12 per cent) during the same period.

After two or three years of assistance under the Scheme it was discovered that the average level of income concealed a wide range of results. At one end of the scale 20 per cent of the small farmers had a net farm income of more than £1,000, whilst at the other end of the scale five per cent were actually losing money. Similarly there was a wide variation in the performance of different farmers. The incomes of almost one quarter had declined, for a variety of reasons. At the other extreme, a fifth of the farmers achieved increases in net farm income of more than £500, the larger farms being at a decided advantage for achieving this substantial increase in income. It was also very obvious that the younger farmers were more successful in increasing their net incomes, by applying new techniques more rapidly. There were many reasons for the variations in the success of the improvement plans, the main factors involved were the health of the farmer, disease incidence in his livestock, the degree of technical skill, level of education and inherent managerial skill.

It was obvious from the results of the survey that there was considerable scope for improving the income of the small farmer by using resources more effectively, especially by involving grassland management systems that would increase the stock-carrying capacity of the farm. Such improvements would admittedly involve extra capital expenditure, but this is an inevitable first step in the development of almost any form of business expansion. Why, then, were so many farmers reluctant to commit themselves to this first step?

Few of the farmers in the survey used credit, and 60 per cent of them had not made use of it in recent purchases of stock, machinery or buildings. There was an obvious social stigma attached to debt, and credit, however formalised, was something to be avoided. When credit was used, the debt had to be repaid as soon as possible even at the expense of expansion of the business, or the purchase of drudgery-saving equipment or the improvement of the standard of living.

It became clear from the results of the survey that many small farmers would not be able to keep pace with modern technological developments and that the best solution for them would be to seek part-time occupation or leave the farming industry altogether. It was equally clear, however, that there was considerable scope for the small farmer to improve the standard of living of his family by using existing resources more efficiently, and exploiting any advantages he had over those farmers whose businesses were large and growing. The majority of small farmers depended on livestock enterprises, particularly dairy farming as their sheet anchor. The majority took decisions by instinct and intuition and not on the basis of records and financial yardsticks. This approach and attitude of mind failed to breed the confidence necessary to intensify production and to expand the farm business. This would involve new capital investment, the adoption of new techniques and careful budgetary control of a new farm plan. Clearly the first step was to encourage and assist small farmers to adopt simple and conventional farm recording procedures and the Government introduced, in 1966, The Farm Business Recording Scheme, which provided grant-aid to farmers who employed approved farm secretarial services. As this Scheme is operated through the N.A.A.S. it has brought qualified advisers into closer contact with the small farmer.

Another method of raising the standard of living of small farmer communities is to encourage the development of joint farming projects and co-operatives. This is the only way to obtain the advantages of large-scale production by the use of modern methods and equipment, but more important still, co-operative activity is a most effective educational process in itself. It provides a communication medium through which technical knowledge can be injected and business methods and rational decision-making cultivated. It breeds confidence and brings a sense of purpose into the whole process of farming. In suitable circumstances it is possible for a group of farmers to pool their resources and farm their land as one large-scale unit. The difficulties inherent in such projects are obvious but where there is sufficient respect and confidence amongst the individual farm families concerned the financial rewards can be quite substantial. In 1967 the Government recognised these possibilities and introduced the Co-operation Grant-Aid Scheme to undertake the promotion of co-operative bodies in production and marketing. The scheme is operated by an independent Central Council which also has the function of "taking a purposeful part in devising, discovering, promoting and popularising all kinds of co-operative activities among farmers."

Looking back over the twentieth century more technological changes occurred during the period 1955 to 1965 than during the previous half-century. In milk production the development of self-feed silage, the forage harvester and loose-housing combined to produce the swift changes in the structure and productivity of dairy farming during this period. Selective herbicides, new methods of harvesting and storage and the variety Proctor resulted in the phenomenal increase in the barley acreage, which more than doubled during this period. Indeed it has been estimated that the value of the extra yield of the variety Proctor during this decade was probably more than £100 million. Technological progress in the production of broiler chicken, eggs and bacon pigs was such that the small farmer was forced to opt out of these enterprizes.

In some ways this rate of technological progress was such that the agricultural industry as a whole could not cope with it. It has clearly indicated the need for economic and social adjustments for which many farmers in this country were not prepared. Indeed, there is now a growing gap between the technological possibilities of the farming industry as a whole and the corresponding social and structural adjustments needed at the individual farm level.

We can confidently expect a continuous flow of new scientific discoveries from research centres during the rest of this century, which will be injected into the industry regardless of the economic consequences for the individual farmer. The institutional and commercial advisory and research services of this country are geared to do just that and the inevitable consequence will be that the problems of British agriculture will increasingly become less technological and more economic and social in nature.

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