



JOHN BOYD ORR

Obituary Notice

LORD BOYD ORR

(23 September 1880 to 25 June 1971)

Lord Boyd Orr of Brechin Mearns, CH, FRS, Nobel Peace Laureate, Chancellor of Glasgow University, first Director-General of the United Nations Food and Agriculture Organization, first Director of the Rowett Research Institute, originator and elder statesman of the World Food Council, the first President of the Nutrition Society (1942–5) and one of the most famous Scotsmen of the century, died at his home, Newton of Stracathro, on 25 June, in his 91st year.

In October 1945 I had the privilege of succeeding Sir John Boyd Orr, as he then was, as Director of the Rowett Research Institute. It is of interest that we both received our early academic training and initiation into research methods at Glasgow University in the Institute of Physiology. At that time D. Noël Paton was the Regius Professor of Physiology and E. P. Cathcart then headed Physiological Chemistry. When I arrived, Cathcart had become Gardiner Professor of this subject following a brief period as Professor of Physiology at the London Hospital.

John Boyd Orr was born at Kilmaurs, Ayrshire, on 23 September 1880. He was the son of Robert C. Orr, a property owner and quarry master, and Annie Boyd. John was intended for the Church, two of his brothers became ministers, and first became a graduate in Arts. A relic of this early interest was his *History of the Scotch Church Crisis of 1904*. Then we find him a schoolmaster; partly because family fortunes necessitated his earning a living. But he was soon back at the University taking a BSc and then his MB, ChB. Shortly after he obtained a Barbour Scholarship and his early researches with Cathcart were on starvation, protein and water metabolism, and the energy expenditure of the infantry recruit during training.

The most interesting thing about Orr and the early history of the Rowett Research Institute is that it originated in a misunderstanding on his part as the first worker appointed. Orr describes how it came about.

Cathcart had accepted an offer to go to Aberdeen to a new post for research in animal nutrition at the invitation of the Joint Committee of the North of Scotland College of Agriculture and the University of Aberdeen for Research in Animal Nutrition which had been formed in 1913. Later he decided to go to London to a Chair of physiology. When intimating his change of mind to the Principal of Aberdeen University he recommended John Boyd Orr for the post, which he was offered, and accepted. On 1 April – All Fools' Day! – 1914 he arrived in Aberdeen, only to find there was no Nutrition Institute as he had been expecting, and a total capital expenditure of only £5000, enough for a wooden laboratory on the College's farm, and a recurrent expenditure of £1500. This situation was a shock to him and he drew up what he considered an adequate scheme and this time his Committee got a shock, but it aroused sympathy and, on the basis of that, a granite building whose walls were six feet up later greeted the Committee. There was nothing they could do about it.

Then the 1914–18 war broke out and Orr, who had been trained for an infantry commission in Glasgow University Officers' Training Corps, went off to join the Army after asking the Master of Works to get the roof on his building and stop all further work.

Orr served with the RAMC until 1917, winning the DSO and MC with Bar, and then with the Navy for an investigation into the physical requirements of servicemen.

On returning to Aberdeen in January 1919 he decided to drive on with his scheme for an Institute. His persuasiveness and capacity for fund-raising were such that before long he had the financial backing of men like Dr John Quiller Rowett, after whom the Institute is called, Dr Walter Reid who established the Reid Library and gave many other benefactions, John Duthie Webster who gave money for the Duthie Experimental Stock Farm, Donald third Baron Lord Strathcona and Mount Royal who provided funds for the Institute's residential and collegiate hall – Strathcona House. Orr was also able to have the Imperial (now Commonwealth) Bureau of Animal Nutrition established at the Institute.

Some of Orr's earliest researches at the Rowett, then established on the outskirts of Aberdeen, were continuations of the Glasgow period, for it was there that he became acquainted with the inadequacy of the diets of the labouring classes, for at that time Miss Dorothy Lindsay and Miss Margaret Ferguson had reported on these. Later Noël Paton and Annabel Tully (now Mrs Ian Murray) continued these and other dietary studies.

The early nutritional papers from the Rowett Institute covered a wide variety of topics, and many fields of investigation hitherto untapped were opened up. It is interesting to note that at that time – around 1922 – the three known vitamins were '1, vitamin A, or fat-soluble or anti-rachitic vitamin; 2, vitamin B, or water soluble B, or anti-neuritic vitamin; and 3, vitamin C, or antiscorbutic vitamin', but none had been isolated; they were 'hypothetical substances' and depended upon the physiological effects produced by their absence, and the amount of any of them present in the food was measured by the influence of the food in preventing the onset of symptoms associated with their absence. The experiments of Orr and his colleagues – at that time, Walter Elliot and Arthur Crichton – on 'The Importance of the Inorganic Constituents of the Food in Intestinal Disorders – Rickets in the Pig', published in 1922, followed later by studies on 'The Mineral Requirements of Dairy Cattle', were the beginning of a series of papers which led Orr to extend his interest to man, for in 1924 appeared a paper on 'The Importance of Mineral Elements in the Maintenance of Health' and 'The Importance of Mineral Elements in the Nutrition of Children'. At that time too we find him also investigating the metabolism of ruminants by indirect calorimetry assisted by the late Hugh Magee. Papers on iodine metabolism appeared also about that time.

It was in 1925 that the first of a series of papers on the mineral content of pastures appeared, this time in collaboration with Walter Elliot and T. B. Wood: others followed. This was a period of discovery. Later the favourable influence of ultraviolet light on calcium and phosphorus metabolism, on growth and in preventing and curing rickets were described; the debate with those who favoured a fat-soluble vitamin as

also curative was not yet resolved, but by 1928 the value of cod-liver oil was recognized at the Institute.

It was in 1927 that J. L. Gilks and Orr published their interesting observations on the nutritional condition of East African natives. Arising out of this a committee consisting of members of the Nutrition Committee of the Medical Research Council and medical representatives of the Colonial Office prepared a scheme of investigation on problems of nutrition among the native races of Kenya. A collaborative effort by the Rowett and the Kenya Medical Service was set up and several papers followed this collaboration.

By 1929 we note the first of a series of papers coming from the Rowett on milk consumption and growth of schoolchildren. They were by G. Leighton and M. L. Clark. Later Orr and Clark published a paper on the seasonal growth of children. The first of the larger dietary surveys appeared in 1930 and was concerned with an examination of 607 families in seven cities and towns in Scotland.

About this time Orr, J. J. R. Macleod, who was Consulting Physiologist to the Institute, and T. J. Mackie had commenced studies on nutrition in relation to immunity, and other papers followed. Differences in diet were correlated with changes in chemical composition of the blood and with certain 'immunological principles' in the serum. It was admitted that many of the data elicited by the investigation were difficult to interpret. A. H. H. Fraser and D. Robertson initiated a research on the nutritional condition of sheep and susceptibility to stomach worms. These were forerunners of more to follow.

In 1931 the first of a series of papers on copper metabolism was published. Already some papers on nutrition in relation to anaemia had appeared, but that of L. S. P. Davidson, H. W. Fullerton, J. W. Howie, J. M. Croll, J. Bow and W. Godden was the most definitive. It was published in 1933.

The Institute's experiments on 'pine' in sheep and young cattle as it occurred on the Island of Tiree pointed to crude ferric oxide as a specific curative and preventive agent. The Australian work on cobalt and copper free of the iron salts in relation to pining had not yet been resolved. J. T. Irving's experiments on nutrition in relation to tooth formation and of the late Marion Richards on imbalance of nutrients were pioneering.

Orr's professional concern was with animals of agricultural importance. He brought about great improvements in the production of meat, wool and milk, and undoubtedly brought prosperity to the livestock industry. He gave the farmer more precise knowledge in the selection of food mixtures as a substitute for growing pastures, particularly in the wintering of stock. He also gave some definition to the biochemical and immunological changes which precede and accompany general symptoms and signs of disordered metabolism through nutritional deficiency or imbalance.

He found that whereas he had no difficulty in persuading farmers on the value to their stock and pockets of his application of sound nutritional principles he could not convince more than a few that the same was true of children. At that time the nutrition of man himself was an art rather than science, empiricism rather than experimentation, general impressions rather than controlled observation. But now, the newer knowledge

of nutrition was growing, requirements could approximately be defined, and dietary and clinical surveys of which he had initiated a number, some on quite a large scale, like the Carnegie UK Dietary Survey, could expose the gap between nutrient requirements and that consumed and, by providing the protective foods that were lacking, the effect of a balanced diet could be demonstrated in terms of growth and health. This and a large-scale demonstration of the nutritive value of milk for schoolchildren, done primarily to promote the health of children but secondarily to benefit the dairy industry, by promoting the increased consumption of milk, largely led to the adoption of the milk and meals-in-school schemes.

With Government support the application of this newer knowledge of nutrition to such dietary surveys led Orr to write and publish the report on 'Food, Health and Income', which has become a classic. It was published in 1936 and had world-wide repercussions.

When World War II broke out in 1939, the Institute became completely devoted to the war effort. All research not directly concerned with increasing food production, which was essential to victory, was slowed down. The Institute workers of military age who, in a reserved occupation, were not called to join the fighting services, nor liable to conscription when that came in, consulted their Director about enlistment. He encouraged them to do so, and every one went.

Lord Woolton, the Minister of Food at that time, asked Orr for the latest dietary surveys showing consumption at different income levels and the extent to which diets of the working class were deficient. He organized a national food policy based on nutritional needs, with priority for the more expensive foods needed for health of women and children, and these were brought within the purchasing power of the poorest families. The result was that we emerged as a nation from the war in better nutritional state than we entered it. The poor had more and better balanced food; the wealthy had no surfeit and were in consequence in better health. At the time of the Quebec Conference he was in the House of Commons as an independent MP for the Scottish Universities and had not been included in the UK delegation. However, he went at the last minute as a technical adviser. He made only one speech and then left, but his observations and the knowledge of how to apply the resources of modern science to the elimination of poverty, hunger and preventable disease so impressed the United Nations that Sir John Boyd Orr as he then was – having been knighted in 1935 – was recalled and appointed the first Director-General of the Food and Agriculture Organization. This coincided with his retirement from the Rowett Institute in the autumn of 1945, and a post he held until 1948.

In 1946 he launched a new world food-agency at the Copenhagen Conference for FAO. A month later he was elected Chancellor of Glasgow University. He had previously been its Rector.

In 1947 Orr had the satisfaction of addressing his World Food Council in full, being at its first meeting in Washington, and characteristically he seized the opportunity to warn the world of a possible 'complete breakdown of the structure of human society' unless the social, economic and political tensions of the world were relieved by the concerted drive to free its peoples from hunger.

A year later, at the age of 69, he resigned his position as Director-General of FAO and was made a baron – the culminative honour of a lifetime of service.

He saw the impact of the ‘explosion’ of world population on lagging, if not shrinking, world food resources as Malthus had done about 150 years previously. Lord Boyd Orr saw and publicized this issue as a clear-cut and inescapable alternative: either immediate and increasing global action to bring the world’s food output into balance with its expanding population – or global disaster with famine as the precipitant of war to extinction.

To this vast problem he brought great single-mindedness of purpose. Some thought this at times rather ingenuous, for in his attack on the more intractable realities of the situation he was sometimes to be found in political alignments which certain of his more judicious colleagues were not so prepared to support, either for themselves or for him.

But nothing changed the course which his sincerity and indeed whole instinct made clear to him. He had the gift of both prophecy and action.

In the course of his life he received many academic honours and other distinctions including Cmmdr. Legion d’Honneur. He was awarded the Nobel Peace Prize in 1949, and in the same year gained a medal of honour from the International Federation of Agricultural Food Producers. In 1951 the National Farmers’ Union of America made him an award in special tribute to his conception of a world food agency. He was also a Fellow of the Royal Society.

In 1953 he published *The White Man’s Dilemma* and in 1966 *As I Recall: the 1880s to the 1960s*.

In the 1968 New Year Honours list he was made a Companion of Honour.

It was on the platform and at the conference table that Boyd Orr made the greatest impact. He was lean, with craggy eyebrows, long jawed, and although he had no tricks of oratory the single-mindedness of his argument and his restraint in putting forward only one thing at a time, coupled with his prophetic sincerity, generally won the day. Probably just because his ‘hunches’ were very sound he was sometimes impatient of the slowness of his staff in corroborating what he felt in his bones to be valid and vital. He had tremendous powers to enthuse and drive his staff.

Boyd Orr inherited much of his strength of character from his mother. In 1915 he married Miss Elizabeth Person Callum of West Kilbride. They were seldom separated and travelled the world together. After he retired she was his two-finger secretary/typist. She was a wonderful ambassadress. They always thought they would leave their bones ‘East of Suez’.

He is survived by his wife and two married daughters, one of whom is married to David Lubbock who organized and supported the Carnegie UK Dietary Survey for him. The Boyd Orrs’ only son was killed on a Coastal Command mission during the war.

For a lover of peace, Boyd Orr was a wonderful fighter for just causes. Until near the end he maintained his clarity of mind, memory, diction: only his body became frail. Until he was 90 he was still able to wear his Chancellor’s robe of his own ancient and illustrious University, for whom he had the warmest affection reciprocated by generations of graduates.

D. P. CUTHBERTSON

Printed in Great Britain