



John Hammond

SIR JOHN HAMMOND, CBE, FRS

(Photograph by courtesy of the *Farmers Weekly*)

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SIR JOHN HAMMOND, CBE, FRS

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Progress in scientific research now requires such depth of knowledge and such sophisticated equipment that young people for research, even applied research, are sought from among those who have specialized in one of the scientific disciplines. Thus, for agricultural research, the scales are heavily weighted in favour of graduates with high-class degrees in pure science: whether or not they have any acquaintance with farming is held of little account. But there are some with lowly first degrees who have not found it difficult to acquire the scientific skills necessary for research in depth, and if their early interest was in farming they have the added advantage of knowing what is important for the advancement of agriculture and the ability to get their findings and their ideas across to practical men. Best of all is an understanding and love of farming together with high scientific qualification. This was true of Sir John Hammond who died at Cambridge on 25 August 1964 in his 76th year. Son of a Norfolk farmer and grandson and great-grandson of veterinary surgeons, farming was in his blood and remained a prime interest all through his life. At Cambridge he took the Natural Sciences Tripos followed by the Diploma at the School of Agriculture, where he remained till retirement, apart from Army Service from 1914 to 1919. Retirement is perhaps the wrong word since thereafter he was very fully occupied in this and other countries until a few weeks before his death.

Hammond started his research career under Dr F. H. A. Marshall and his interest in all aspects of animal reproduction was lifelong. Before the First World War he published papers on the effect of pituitary extract on milk secretion and on the effects of castration and ovariectomy: he remained in the forefront of those unravelling the mechanisms controlling fertility and milk secretion. In the 1920's he stimulated and sustained the work of Asdell and Walton on the viability of spermatozoa, recognizing very early on the practical possibilities of artificial insemination. This had, of course, been performed successfully many years earlier and progress in its practical application was being made in other countries. But it was Hammond who provided the driving force in Britain. He was tireless in expounding the opportunities that AI offered for genetic advance and the economic gains that would accrue to the farmer. That the AI Service was started in the later years of the Second World War was very largely due to him, and it was one of his graduate students who carried it on so triumphantly; great credit is due to Edwards, but he himself has been the first to proclaim his debt to the inspiration and unfailing backing he has always had from his kindly mentor.

In his later years Hammond urged the parallel advances possible on the female side by the transfer of fertilized ova. He had done this successfully much earlier in the experimental rabbits which provided the basis for much of his work. He had set up

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a colony of rabbits when he returned to Cambridge from Army service, and these he tended personally with unfailing regularity. In 1925 he published a major work on reproduction in the rabbit which remains the standard book on the subject. Many ideas and much understanding arose from this work on the rabbit, but application to other species was always meticulously verified and, as research developed, modified. In 1927 his book on reproduction in the cow appeared, and his researches covered sheep, pigs and horses. In regard to the last he had a small stud of ponies whose breeding he studied unremittingly over many months. It was indeed a privilege to assist, in however minor a way, in such work. He started with no preconceived ideas except his wide general knowledge of reproduction and gradually he filled in the canvas until the picture was complete.

Foetal atrophy, common in rabbits and pigs, interested him very early on. He had two inbred lines of rabbits with low fertility, one because it shed few eggs and the other because of high foetal atrophy. When the lines were crossed fertility rose to normal or even above: at the time this was important scientific news. But his interest was not primarily in the genetic side; it was in the physiological mechanism determining atrophy. This led on to wider consideration of maternal influence on the foetus and the newborn young, the practical importance of which in the breeding of farm animals was immediately apparent to him. He did not strive for the spectacular, but the results of his reciprocal crosses between the Shire horse and the Shetland pony, and between South Devon and Dexter cattle, were dramatic. When Charolais bulls were imported into this country he forecast quite unequivocally that there might well be calving difficulties with Friesian cows inseminated with Charolais semen, but there would be no particular trouble with Jersey cows; the data now accumulating are showing how right he was.

From reproduction to growth is a very short step. In the period 1920 to 1922 Hammond published papers on the relative growth and development of various breeds of cattle, sheep and pigs. The changes in conformation effected by purposive breeding were set in focus by going all the way back to wild prototypes; photographs of unimproved and improved livestock against a squared background, with height at shoulder constant, illuminated the progress that has been made. He discerned waves of growth that flowed over the animal with age and showed the importance of them in regard to efficiency of food conversion and development of the more valuable parts of the body. Carcass quality still defies adequate appraisal but such appreciation as we have arises from the early work that he did. Long days were spent measuring carcasses at Shows and it is evidence of the esteem which he evoked that the task of writing down his figures was eagerly sought even when it meant chilly hours in the carcass rooms at Smithfield. He initiated work on varying planes of nutrition in relation to stage of growth, work developed with such success by McMeekan (pigs) and Brookes (cattle).

Much attention was paid to environmental effects and the limitations they imposed on the expression of genetic potential. The illustration taken in his Presidential Address to Section M of the British Association (Liverpool, 1953) was of the limit set by intake of green foods on colour in milk, and the argument was applied very

widely. If animals are to be rightly selected for high genetic potential then they must be given every chance to express their capabilities; extravagance in feeding and management may well be justified to pick out those with the highest capacity because their offspring will shine even in an environment much less favourable.

Hammond was a voracious reader of scientific literature and his study was lined with bound volumes of reprints. He seemed to know all that was going on in animal research and could produce a needed reference very quickly, generally being able to supply a reprint of the publication as well. Some apparently minor point made in a relatively unimportant paper would provide the spark to set off a train of thought ending in a conclusion of practical value; for he knew the problems arising in the breeding and management of farm livestock and the part that the livestock played in the varying farm systems of this and other countries. In the past Animal Husbandry consisted of the wisdom gained from centuries of experience, arranged in some sort of order but with no real basis of knowledge. Hammond's life was devoted to providing the scientific basis; his grasp of practicalities enabled him to build up the more scholarly subject of Animal Production, of which he was the creator. This was an achievement which very few have rivalled; there is, indeed, still far to go, but he lived to see Animal Production accepted as a proper academic discipline. He was quite naturally the first President of the British Society of Animal Production, one issue of whose journal (*Animal Production*, Volume 4, Part 1, February 1962) was published in his honour; this contained a bibliography of more than seventy of his publications.

Problems of nutrition were of course of absorbing interest to Hammond, and he gave much of his time and energy to The Nutrition Society from its inception, fittingly becoming President for the years 1947–50.

Travel was a great joy to Hammond and there were many occasions when he could indulge in it to the widening of his own horizon and to the great benefit of those he visited. Countries new and old sought his aid in solving their problems, and they always got advice scientifically founded and properly attuned to their conditions. A claim to have worked with him was a passport to agricultural scientists almost the world over, for his reputation was probably even higher abroad than it was at home. But here he was untiring in giving his services either in counselling methods of livestock improvement or in talking to farmers' meetings, for which he always had something new to say or some fresh slant on an old problem. He was equally at home in the laboratory, at a scientific symposium or at any gathering of farmers.

In every generation there is a very select band of people to whom the word 'great' can properly be applied. Hammond was certainly one of these. His contributions to progress were quite outstanding but his real greatness lay in the inspiration that emanated from him. A long succession of young graduates from this and other countries had the good fortune to embark on research careers with his benign guidance, some working with ('under' would be the wrong word) him for a few months, others—more lucky—for several years. The method of introduction was simple and very successful. Hammond usually suggested the problem, for he always had many ideas awaiting development, outlined the direction which the research might take and then left the recruit to get on with it. Always available, day or night, he had the knack

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of enthusing; the work involved might seem humdrum and even trivial, but it fitted into a broad canvas and with his mind working well ahead it suddenly appeared of paramount importance. Research can often be a hard grind but with such stimulation it becomes exciting. He was gifted with originality and, whilst some of his ideas may not have worked out as he expected, others were real winners. It was a privilege to publish a first paper under joint authorship but thereafter he claimed no credit whatever.

Many richly deserved honours came to Hammond: Honorary Doctorates of two British and four foreign universities, Fellowship (Bursar during war) of Downing College, FRS 1933, CBE 1949 and Knighthood 1960. But to those who worked with him the enduring memories are of his personal qualities. Entirely devoid of any sort of pomposity, he had no vestige of intellectual arrogance. His bicycling figure, shrouded in a macintosh of early vintage, was frequently encountered in Cambridge, and he talked to farmers large and small, as he did to his youngest assistant, in terms of complete equality. The infinite patience exhibited in his own researches was extended to his pupils' ineptitudes and no trouble, nor any amount of repetition, appeared tiresome. Apart from agriculture and science, he would argue forcibly on subjects from rowing to the gold standard, but always with a dash of humour; he made friends very easily. Mrs Hammond, whose loss he mourned in 1955, shared with him the quality of kindness, and their hospitality was unlimited. Those whose faltering steps he guided remember Hammond with much gratitude and even more affection.

HAROLD G. SANDERS