

## John Conrad Waterlow, CMG, FRS, FRCP, DSc

### Ambassador extraordinaire



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John Conrad Waterlow died on October 19, 2010. His passing put a period to a life characterized by service to people, some of whom he would meet and care for and millions he would never see, but who would benefit from what he did, who he was and what he left behind. There was service to the hard mistress of science, service to the Caribbean and service to the University of the West Indies to which he was passionately committed and which he would call his home for much of his scientific life. There was service in nurturing those fortunate men and women who became his scientific children and whose contributions to science and society he often regarded as his greatest service of all.

It is not strange that service should be the axle of the wheel of his life. He came from a line of servants and was schooled into a tradition of service. His father was ambassador to Siam, Abyssinia, Bulgaria and Greece; his grandfather was Mayor of London. Ambassadors are usually ministers of the highest rank and are critical functionaries in modern politics. Before the advent of modern communications and the age of instant interconnectedness, they were even more important, but in spite of the trappings of office we should recall that the word ambassador is derived from the Latin “ambactus” which means servant and service is indeed their pristine role.

John Waterlow was one of the finest ambassadors to the Caribbean from Britain in the truest sense of the word.

His milieu was the laboratory bench and not the formal diplomatic salons, his garb the laboratory coat and not the pinstripe grey and the credentials he presented were to the harsh court of scientific peers and not to any head of state. His legacy was not one of wars avoided or trade negotiations concluded, but the tremendous scientific production of one of the world’s preeminent nutritional scientists and a line of disciples many of whom have also devoted their lives to service of one kind or another. There are many facets to the life of John Waterlow, but here we chronicle what this ambassador, this scientific father of many, this mighty “fisher” of men and women meant to the Caribbean and to the University of the West Indies.

John had a brilliant academic career and showed qualities of leadership from an early age. He was schooled at Eton, where he was taught Latin, Greek and Divinity and became captain of the School. It was never clear how much of the last stuck to him but he retained an abiding affection for the classics and his writings showed many a turn of phrase that was classical in construction. He went up to Cambridge on a scholarship in the classics, but changed to medicine, did brilliantly and even thought of becoming a professional physiologist, but eventually qualified in medicine during World War 2. He would tell of anaesthetizing critically wounded patients for urgent surgical procedures during the blitz with ether or chloroform, using simply a rag and bottle.

At the end of the war he joined a Human Nutrition Institute under Professor Platt whose prescient advice was that nutrition would be the problem of the future and who in 1945 sent him to the Caribbean on behalf of the Colonial Office to find out why so many infants and young children were dying of malnutrition. John’s account of his year in the Caribbean, visiting British Guiana, Trinidad and Jamaica make fascinating reading. He describes being sent to the far north of British Guiana to the Pakaraima Mountains to look at the health of the Akowoio Indians and on completion of his mission being offered the post of Director of Aboriginal Medical Services by the Governor. He declined and noted that one of the reasons was that he knew so little about obstetrics and gynaecology; an ignorance that stuck in his mind as he tried to carry out a vaginal examination on an aboriginal lady lying in a hammock! A meeting in 1946 with the members of the Irvine Commission sent out from Britain to examine the possibility of University education in the

Caribbean made a great impression on him and he decided then that he wished to be a part of any university initiative in the West Indies.

He returned to Britain after a year and wandered far and wide over land and sea, investigating various nutritional problems. But the call of the Caribbean was irresistible so he returned to the then University College of the West Indies in 1950 to teach physiology, carry out research on childhood malnutrition and eventually establish the Tropical Metabolism Research Unit in 1954 – a unit that has aptly been described as the house that John built. He chose the name deliberately. He wished the Unit to be engaged in the study of the metabolic perturbations and controls that were found in the diseases in the tropics. He sometimes contended that the appellation tropical was simply to indicate the geographical locus but it was always his view that although Caribbean science was primarily science in and of the Caribbean, there was an indivisibility of science which meant that findings there would have applicability elsewhere. He eschewed the false division of science into what was basic and what was applied and would often quip that the only two divisions were into good science and bad science.

John did not only set the example of doing good science, but as the first Secretary of the Standing Advisory Committee for Medical Research in the British Caribbean, he would lay the foundations of the current Caribbean Health Research Council, still dedicated to showcasing the best of Caribbean science and providing a forum for the young scientists to show their wares. John was a nutritional scientist and the several path-breaking discoveries to his name are essentially in that field. He investigated thoroughly the fatty liver of children with kwashiorkor and would make a significant contribution to the clinical classification of childhood malnutrition. His measurements of metabolic reactions in tiny pieces of liver tissue with a micro-respirometer were a source of amazement to his peers.

However, John would undoubtedly agree that his major contribution to nutrition in general was his work on protein turnover – the breakdown and synthesis of protein. Even to the non-scientist, the concept is fascinating. In an article published 40 years ago, John wrote:

*“Protein turnover is the sum of all the individual proteins of the body and is therefore directly analogous to the basic metabolic rate which is the sum of all oxygen uptakes of all the cells of the body and might therefore be called the rate of oxygen turnover. The concept of BMR (basal metabolic rate) has been an extremely valuable one in physiology and medicine: it seems to me that a priori, the concept of total protein turnover should prove equally valuable.”*

There is no doubt that his pioneering work has indeed proved to be valuable and the methodological and conceptual advances in this area, including now the possibility of measuring the turnover of specific proteins all bear the thumbprint of John Waterlow.

It would not be inappropriate to describe him as a fisher of men (and women) as he attracted bright people to him and to the shores of science and allowed them to flourish and satisfy their scientific curiosity with just the correct amount of supervision and guidance. His catch included scores of young Englishmen and women who came to train under him and several returned to prominent positions in their country. But his most durable legacy is that he appreciated that no scientific establishment could continue to flourish on the basis of attracting expatriates who would naturally return to their native land. He believed with a passion that the capacity to be part of a tradition of scientific exploration was not geographically determined. His proactive approach to incorporating West Indians into TMRU and his belief that they had the capacity to do good work and themselves breed their own scientific children ran counter to the philosophy of his English masters.

The dominant view then was that scientific establishments overseas supported by Britain were temporary and would close with the return of the British head. John challenged that view and it was partly because of his disappointment with the treatment of his West Indian staff by those who ran the Unit from Britain that he decided to leave Jamaica and negotiated the hand-over of the Unit to the University of the West Indies. He returned to Britain to be Professor of Human Nutrition in the London School of Hygiene and Tropical Medicine where he continued to embellish his already formidable reputation as one of the world's foremost nutritional scientists.

His lasting legacy is not only a physical structure which has expanded, but a scientific establishment that demonstrates the validity of his thesis. Good science can come from the Caribbean. There will be difficulties consequent on the realities of physical underdevelopment, but these can be overcome.

John was the epitome of generosity. He was generous with his time, his resources and his knowledge. When confronted by one of his trainees with a proposal, his attitude was one of “why not” rather than one of “why”. Thus the research in the TMRU covered almost every conceivable aspect of childhood nutrition, particularly malnutrition. Research on infant malnutrition involved studies on appropriate dietary management, growth and development, water and electrolyte metabolism, mental and psychosocial development, cardiac and renal function, micronutrients, protein, carbohydrate and fat metabolism, gastroenterology, and endocrinology. Arising from the work of TMRU came a regime for treating severe malnutrition which, when adapted for use in the field, has saved and continues to save hundreds of thousands of malnourished children and adults throughout the world. In addition, it provided a home for studies on basic renal biochemistry and such local disorders as tropical spastic paralysis.

He did nothing that he would not ask others to do. This sometimes led to the culture of self-experimentation with

hilarious and sometimes hair-raising results. He would infuse himself with a mixture of amino acids without adjusting the level of acidity for fear of changing its composition and end up violently ill with a swollen arm and highly inflamed veins. But it was a good experiment!

No account of John's contribution would be complete without mention of two remarkable women. His wife Angela devoted her own life to facilitating the development of John's scientific career. She was a remarkable woman; gracious to a fault, as generous as her John and always finding time among her many charitable pursuits to grow and develop artistically. Her cartoons for the Jamaica pantomimes, her murals in the TMRU and that of the Good Samaritan at the entrance to the Medical School are some of the tangible remembrances of one who was more than three times a lady. Joan Stephen was John's scientific collaborator for many years and much of the detailed analysis of many of his early

experiments bear the imprint of her fine hand. She was his companion in his later years and was a perpetual source of support and encouragement.

The Caribbean owes a great debt to this remarkable ambassador, this mighty fisher of men. He was not one for memorials and no stele of stone or steel could really ever do justice to his memory. If he ever did call for a repayment of the debt, he would wish it to be repaid in the coin of contribution by those whom he caught and by those who follow in their scientific footsteps.

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