



SIR RUDOLPH PETERS

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Obituary Notice

SIR RUDOLPH PETERS, MC, MD, FRS

(1889–1982)

On the death of Sir Rudolph Peters on 29 January 1982, the Nutrition Society has lost the last surviving member of the eleven Founding Fathers who signed the original letter that was presented as a manifesto to a preliminary conference held at the Royal Institution in London on 23 July 1941. Those who attended this conference agreed to set up a committee and proceed with the inauguration of the Nutrition Society. Sir Rudolph had been a member of the informal group of about thirty-five people concerned with nutrition in wartime who met from early in 1940 and needed to be given official status, as many could not be spared from their posts for 'informal' conferences. As a biochemist fully involved in the study of the chemistry of living matter he was able to give cogent reasons for further study in nutrition.

Rudolph Peters had a fine medical background as the son of Dr A. E. Peters of Petersfield where he grew up in a prosperous pre-1914 practitioner's household. He was educated at Wellington College and went up to Gonville and Caius College, Cambridge, where he obtained a first class degree in the Natural Science Tripos. With a Benn Levy Studentship he began research in the Department of Physiology under Joseph Barcroft (another of our Founding Fathers). He studied the combination of oxygen with haemoglobin and showed it to be a chemical reaction for which he defined the stoichiometry. He then went on to complete his medical qualification at St Bartholomew's Hospital and in 1915 was commissioned in the Royal Army Medical Corps where he served both actively in France and in a research capacity with the Chemical Warfare Unit at Porton Down in Wiltshire. He was awarded the Military Cross in 1917 and mentioned in dispatches. In 1919 he took his MD but decided to return to research in Cambridge where he had a lectureship and senior demonstratorship in Gowland Hopkins' laboratory. Thus his interests were drawn into fundamental nutritional fields of biochemistry in the early days of the subject.

In 1923 he was invited to occupy the newly founded Whitley Chair of Biochemistry at Oxford, where he succeeded Benjamin Moore. At first the laboratory accommodation was totally inadequate, being a somewhat reluctant loan of a corner of the Physiology Department. However, his active group of workers and his own energy soon attracted help, which included a generous gift from the Rockefeller Foundation, so that a fine new Department of Biochemistry was built. From 1923 until his retirement in 1954 Peters surrounded himself with a distinguished collection of biochemists and expanded his own ideas of the initial biochemical changes in living cells that precede visible or pathological changes. With his colleagues C. W. Carter and H. W. Kinnersley and others he studied the nature of vitamin B₁ for 12 years or more and much of his later work made contributions to other problems of the vitamin B complex. The preparations of active vitamin extracts derived from their work were widely used and they were unfortunate not to be the eventual group to elucidate the chemical nature of vitamin B₁ (aneurin, thiamin). They did establish the role of the vitamin as essential for normal oxidation of pyruvate by tissues.

Over the 50 years since these studies began the function of vitamins in metabolic processes has been investigated so widely that younger biochemists and nutritionists probably forget how it began. Peters advocated the concept that pathological changes were often initiated by biochemical changes. His work at Porton Down during World War I led him to think deeply about the biochemical actions of war gases, especially the arsenicals, and the

possibility that these might react with protein thiol groups. During World War II his department at Oxford turned much of its work towards the problem of finding antidotes for such toxic substances as lewisite (dichloro-(2-chlorovinyl)-arsine) and eventually developed dithioglycerol (British antilewisite), a compound which could penetrate into cells and either protect against or reverse the effects of lewisite. After the war Peters' attention was attracted to a group of toxic compounds containing the carbon-fluorine bond and occurring in seeds and leaves that were highly poisonous to mammals. With his co-workers he showed that one such compound, fluoroacetate, although not toxic itself, entered into the tricarboxylic acid cycle and was synthesized into fluorocitrate which inhibited the aconitase system and deprived the heart and brain of metabolic energy. He termed this process 'lethal synthesis', indicating a phenomenon involving the conversion of a non-toxic substance by an enzymic modification into a substance causing a biochemical lesion affecting the physiological or morphological integrity of the whole animal.

When he retired from the Chair of Biochemistry at Oxford in 1954, Sir Rudolph was invited to establish a biochemical laboratory at the ARC Institute of Animal Physiology at Babraham, Cambridge, and these studies were fruitfully continued. After 5 years at Babraham he came back to the Biochemical Laboratory in Cambridge as a Senior Visiting Fellow and devoted his time to the successful exploration of many outstanding experimental points and puzzles derived from his previous research programmes. He worked at his bench until 1976 when he was 87 and those years provided many other biochemists with a lively contact of ideas and much generous advice.

In the 1920s when the Accessory Food Factors Committee (AFFC) was set up jointly by the Medical Research Council and the Lister Institute, Rudolph Peters became a member, and subsequently he served as chairman of the Vitamin B Sub-Committee of the AFFC and eventually as chairman of the main committee as well. He was an admirable chairman in his ability to inspire and channel deliberations. In 1935 he became a Fellow of the Royal Society; he served on its council from 1944 to 1946 and was awarded its Royal Medal in 1949. He was knighted for his services to science in 1952. Many universities throughout the world awarded him honorary degrees and special prizes. He was made a member of the American Institute of Nutrition and an Honorary Member of the Nutrition Society. He was very proud of his honours and successes since he felt they reflected not only on him but also on his colleagues.

He had a strong historical sense and could give excellent lectures on developments in research. After he had given a lecture of this type on the invitation of the Board of Studies in Nutrition and Dietetics of the University of London a few members of the Board had great pleasure in entertaining him to dinner before he went back to Cambridge. On another occasion I asked him to give me his help in a project for collecting the voices of pioneers in the field of Nutrition for the History of Nutrition Center at Vanderbilt University, Nashville, Tennessee. He happily agreed and after a delightful tea party with him and Lady Peters in their lovely rose garden he recorded a fine tape, much to the joy of the Vanderbilt Center. After the July meeting of the Nutrition Society in 1980 he wrote me a charming letter in his strong clear hand regretting that he had not been able to come to the dinner for two reasons: one that his sight was not good, nor his strength in the evening, and the second that the grandchildren had just arrived from Italy. He married Frances Vérel in 1917 and with their two sons they have been a close and friendly family, entertaining colleagues, students and friends all their long lives. Sir Rudolph was a gifted musician and his violin was often part of an evening in his home. Through his interest in music he was largely responsible for securing the Hill Collection of Early Musical Instruments for the Ashmolean Museum. We have lost a charming and friendly person as well as a distinguished nutritionist and can only know that his family and all who had the privilege of knowing him must miss him greatly.

A. M. COPPING