

Obituary Notice

STANISLAS KAZIMIERZ KON, CBE, PhD (Warsaw), DSc (Reading), FRIC
(1900–1986)

Professor S. K. Kon – ‘Stas’ to his friends – was born in Minsk on the first day of the year 1900 while his father, a lawyer, was on a short assignment to Russia. The family returned to their home country, Poland, shortly afterwards, and he grew up in Lodz. After serving for 2 years in the army during the Russo-Polish war he studied at the University of Warsaw, and gained his degree in chemistry in 1923. His interests ranged beyond the bounds of continental Europe. He was awarded a Rockefeller scholarship and spent the next few years travelling and studying in the USA and England. This was the time when nutrition became divorced from pure chemistry and began to be a science in its own right. Working in the laboratories of Steenbock in Madison, Herbert Evans in California, Hopkins in Cambridge and Drummond in London, Kon saw and shared in the big advances of the time, notably the concept of vitamins, the structure of food proteins and the discovery of hormones. For instance, while he was a member of Steenbock’s team they showed that an impurity in cholesterol, ergosterol, had antirachitic activity. This interest in vitamin D continued throughout his career.

He returned to Poland briefly but, no doubt feeling the need to be part of the mainstream of biochemical research as it then was, he accepted a post in England at the National Institute for Research in Dairying (NIRD) to study the nutritive value of milk and milk products. The appointment was for 5 years, but he stayed until he retired in 1965. At the NIRD he met his wife, Phyllis, a veterinarian studying for her PhD. They were married in 1932, and he took English nationality in 1936. In the same year he was awarded the degree of DSc by Reading University, and was elected a Fellow of the Institute of Chemistry in 1942.

In 1937, thanks to the generosity of Lord Iveagh, a Department of Biochemistry and Physiology was formed with S. K. Kon as its head. Subsequently the section dealing with physiology was made into a separate department and Kon became head of the renamed Nutrition Department. He had built up a colony of Norwegian Hooded rats from a nucleus of the Lister Institute strain, and thus had at his disposal facilities both for biological and chemical assays for riboflavin, vitamin A and thiamin. The work at this stage concentrated on factors affecting the nutritive value of milk. The influence of the breed and diet of the cow, and the effects of heat treatments such as pasteurization, sterilization and spray and roller drying were all investigated. Since calcium is an important constituent of milk, Ca balance studies on rats of different ages and the effects of Ca on the biological value of proteins were also included in the programme.

In the early 1940s his department was engaged on work of wartime significance at the request of the Ministry of Food. In particular they studied the vitamin content of milk and dairy products, the National loaf and emergency rations. He collaborated with the Medical Research Council to ascertain the vitamin A requirements of human subjects and carried out a survey of the composition of human milk under wartime conditions.

The 1950s and 1960s were a golden age for research. Within broad limits scientists were free to follow their interests without the crippling restraints that the present day grant system imposes. The Nutrition Department’s programme widened considerably, although it still retained its central interests in vitamin and protein metabolism. Microbiological and



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chemical assays for vitamins were developed and applied to a variety of foods. Following careful comparisons with results of assays in rats and chicks, most were found suitable to replace the more cumbersome and costly biological methods. There were a few exceptions; notably when biological and microbiological assays were applied to sow's milk the results confirmed the observation of workers in Oklahoma that its riboflavin content was much higher than had been found by chemical assay. Riboflavin proved to be present in sow's milk in a bound form undetectable by the chemical technique.

All these facilities allowed the department to diversify its interests from applied problems of the dairy industry to more esoteric studies, for example a comparative investigation of the composition of the milk of exotic species such as the rhinoceros, giraffe, okapi, whale and kangaroo. He found the latter problem very entertaining. Just before he retired, while on a visit to Australia, he and his wife participated in an intriguing project on kangaroo milk. At times a kangaroo may suckle two young, separated in age by at least 6 months, and presumably with different nutritional demands. Analyses at NIRD of milks from individual mammary glands, one serving the young in the pouch and the other the older one 'at foot', showed that the milks from the two glands in the same dam differed in composition.

Leading on from earlier studies on the fate of retinol and carotenoids during digestion in rats and pigs, Kon's department established, at the same time as workers in Liverpool and the USA, that the conversion of β -carotene to vitamin A takes place mainly in the intestinal tract. His curiosity was aroused when he heard that German scientists during the war had made a similar claim for whales. He made several expeditions on whaling vessels in the North Sea to collect fresh samples of krill, the food of both baleen and fin whales in the arctic and antarctic regions. The claim was, however, refuted when he and his colleagues showed that krill contained only traces of β -carotene, and that the source of vitamin A in the intestinal tract of the whale was the preformed vitamin present in the eyes of the krill. Kon then persuaded the Development Commission to fund a unit in his department for biochemical research bearing on fisheries problems, particularly to study the source of vitamin A in the food chain. This unit of six workers remained at NIRD from 1951 until it was moved to Aberdeen in 1965. It systematically studied the nature, distribution and sources of vitamin A in some marine crustaceans and found that vitamin A was present in the eyes as the 11-*cis* and not the usual all-*trans* form. Further, the vitamin A activity in herring eggs was present as the aldehyde, complexed with a lipid. This was the first reported occurrence of vitamin A aldehyde in animals outside the eye. The search for suitable material for these projects allowed Kon to indulge a favourite past-time – underwater swimming – at which he was highly proficient.

At any institute concerned with dairying the ruminant is of paramount importance, and the synthesis of vitamins by rumen micro-organisms was one of the Nutrition Department's main interests. When the anti-pernicious anaemia factor (vitamin B₁₂) was isolated it proved to be identical with the 'animal protein factor', for which a biological assay with chicks had been designed. Several vitamin B₁₂-like compounds are microbially synthesized in the rumen but, although they can be utilized by micro-organisms, none showed growth activity for the chick. Using the chick as an indicator of vitamin B₁₂ activity for higher organisms, a range of compounds synthesized by chemists in the Glaxo Laboratories was examined and their likely use in clinical medicine was assessed.

The search for vitamin B₁₂ and allied compounds in fermentation residues from the manufacture of antibiotics led naturally to studies on the growth-promoting effects of antibiotics on chicks, pigs and calves. Although the mechanism of the phenomenon still remains a mystery, the work highlighted the possible importance of the gut microflora in the nutrition of its host. This had long been an interest of Kon's, from his early

investigations on the phenomenon of potato starch refection in the rat. Furthermore, since microbial activity in the gastrointestinal tract was so important to the ruminant was it not likely to have some significance in the non-ruminant? The gnotobiotic animal was obviously the correct model in which to investigate these questions, and in 1958 Kon realized a long-held ambition to establish a facility for research with germ-free animals.

During these years Kon was accorded many distinctions. He was appointed Deputy Director of the NIRD in 1959, and in 1964 the title of Research Professor in the University of Reading was conferred on him. In the same year, in the Birthday Honours list, he was appointed a Commander of the Most Excellent Order of the British Empire. His native country honoured him in 1969 by electing him a member of the Polish Academy of Sciences, and in the same year his reputation was again recognized internationally when he was made a fellow of the American Institute of Nutrition. He retained a close relationship with academics in Poland, and many Polish scientists came to the NIRD to pursue their postgraduate or postdoctoral studies under his guidance. When he retired he left a thriving department which, until the disastrous change of government policy towards agricultural research, continued to build on the foundations he had laid.

The Nutrition Society owes much to S. K. Kon. He was one of the small group who, largely as a result of their work on the food programme during the Second World War, recognized the need to bring together human and animal nutritionists to share and disperse their knowledge. As a result the Nutrition Society was formed in 1941. Records of its meetings were published as the *Proceedings of the Nutrition Society*, edited jointly by S. K. Kon and Margaret Hume. In 1947 when the *British Journal of Nutrition* was established he became its first editor, and remained in that office until 1965. It would be impossible to estimate the many hours he spent on the work of the Journal, or the patience and meticulous care he devoted to its production. His passionate demand for accuracy and his insistence on clarity of expression may have offended some of his authors, but many of us have cause to be grateful for the – sometimes harsh – lessons he taught us about the proper presentation of our results. His editorship set the pattern for the high standards the Journal maintains today. He served the Society as its President from 1965 to 1968, and was made an Honorary Fellow in 1969.

Stas Kon was a good companion, with an amiable and patient disposition. He had a wide circle of friends from many countries, and he and his wife entertained them freely at their delightful house by the River Thames. He enjoyed good food and wine, appreciated art and literature, and loved to travel. In earlier years his absorbing hobby was alpine gardening but regrettably the exquisite rock garden he had built became sadly neglected as a result of his editorial duties. Kon was a natural linguist, and his central European upbringing made him familiar with Russian, French, German and several of the lesser-known languages. After his retirement his linguistic skills made him a valued member of the Commonwealth Bureau producing *Dairy Science Abstracts* and later *Food Science and Technology Abstracts*. He was, in fact, still preparing abstracts until a few days before he died. This is what he would have wished, for inactivity and separation from scientific thought would have been hard for him to bear.

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