The breakage would not involve any damage to DNA segments. Wolff²⁶ has shown that protein synthesis is necessary for the rejoining of radiation-induced chromosome breaks. It has also been strongly suggested by Sharma and Sharma²⁷ that chemically induced chromosome breaks are chiefly due to hazards of protein synthesis. The mechanism of crossing-over could be easily explained by the proposed structure in which the protein backbone plays the vital part.

Mutation due to structural aberration is understood. The point mutations would involve change in the DNA segment. Any damage to DNA segment would cause intragenic mutation. According to Rhoades²⁸, in maize none of the mutations has been demonstrated by cytogenetic evidence to be an intragenic change. Nevertheless, position effect can be explained in the following way. A break of the protein backbone occurs between a particular sequence of DNA segments and the distal portion is rejoined to some chromonema in the chromosome complement. Even though the segments are not lost, the sequence is altered, causing alteration or blockade of gene function. The restoration of the segment-sequence restores normal gene function.

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OBITUARY

Dr. G. W. Monier-Williams, O.B.E.

WITH the death of Dr. G. W. Monier-Williams one of the last links, if not the last, with the control of food and drug administration by the old Local Government Board has been severed.

Dr. Monier-Williams was born on April 17, 1881, and came of a well-known legal family, the effects of which were often displayed in his approach both in his chemical work and also in his dealings with those with whom he came in contact in his official capacity. He was educated at University College, Oxford, where he took a first class in chemistry in 1903, having spent part of the summer vacation in 1902 at Leipzig studying physical chemistry. From Oxford he went to Freiburg (1903-05), where he undertook research and obtained his Ph.D., after which he spent some weeks at Cognac studying distillation. He spent short periods as research chemist at the tar works of the Gas Light and Coke Company at Becton, and with A. Chaston Chapman, before commencing work in January 1909 as an assistant inspector of foods at the Local Government Board under Sir William Power, medical officer, and Dr. G. S. Buchanan, who was in charge of the newly formed food section.

Monier-Williams's name was first mentioned in the eighth report on the application of formaldehyde to meat, when he received a mention for having examined a formaldehyde preservative; but after this a steady stream of reports began to appear over his own name and dealt with such diverse topics as the colouring matters of flour, the artificial bleaching of flour, and preservatives. His report on the freezing-point test for the determination of added water in milk appeared in 1914 and contains about 100 references to the scientific literature—surely almost a record at that time. This work was interrupted by service during the First World War, when he went to France with the Expeditionary Force and transferred to the Special Brigade, Royal Engineers, on its formation in 1915, being appointed adjutant at the depot at Helfaut, France, where he remained for the remainder of the War, being awarded the M.C. and the O.B.E. for his services. Owing to his retiring nature he gave the impression that he was reserved, but with his tall and rather handsome appearance combined with his government experience he made an ideal officer for the post.

With the formation of the Ministry of Health the series of reports on foods was discontinued, and Monier-Williams read occasional papers to the Society of Public Analysts, though a few important and authoritative reports issued by the Ministry were written by him, notably those on the solubility of glazes and enamels used in cooking vessels, antimony in enamelled hollow-ware, the determination of benzoic acid in foods, the determination of sulphur dioxide in foods, the effect on foods of fumigation with hydrogen cyanide, and lead in food. After his retirement he wrote his well-known book on *Trace Elements in Food*, a volume which will remain a standard for many years, although the methods used for analysis are now being superseded. It is probably safe to say that few analysts have issued so many reports, which, though few in total number, will remain for so many years as the outstanding works on their particular subjects.

Apart from his work as an analyst and inspector of foods, Monier-Williams was a recognized authority at the Ministry, to whom public analysts or manufacturers could appeal for advice not merely on what was believed to be the legal interpretation of various food orders, but, even more important, what had been the underlying intention of the Ministry, when a particular item had been introduced into a statutory order. Public analysts had cause to be grateful to Monier-Williams and his colleague Mr. R. Butcher, for the investigation of any complaints which they might have in their dealings with local authorities. Although he served for three periods on the Council of the Royal Institute of Chemistry, and published articles in the *Journal of the Chemical Society* and the *Biochemical Journal*, it was to the Society of Public Analysts, now the Society for Analytical Chemistry, that he gave his greatest support, serving for no less than seven periods as a member of council or vice-president and finally, during 1945-46, as president. Monier-Williams was no mean artist and exhibited his landscapes at the Royal Academy and elsewhere; but with increasing deafness he tended to withdraw gradually from public life, much to the regret of his colleagues and friends. He was twice married, his first wife dying young, and our sympathy is extended to his widow and children, who survive him.

T. McLACHLAN