A Life That Raises Questions

The Story of Fritz Haber. MORRIS GORAN. University of Oklahoma Press, Norman, 1967. xii + 212 pp., illus. $4.95.

Fritz Haber is an enigma, and reading this book makes him more of one. He was, of course, responsible for the commercial fixation of nitrogen, thus making Germany independent of Chilean nitrates for fertilizers and explosives and hence capable of waging modern war under blockade. Now we learn that he was also intensely patriotic. He was in charge of developing German gas warfare during World War I. Germany's leaders, according to Haber, "admitted afterward that if they had followed my advice and made a large-scale attack instead of the experiment at Ypres, the Germans would have won" (p. 69). Haber was of Jewish ancestry, though a Protestant by affiliation. He seems not to have suffered seriously from anti-Semitism until the Nazis imposed conditions on his leadership of the Kaiser Wilhelm Institute in Berlin. He refused to accept these, resigned, and went into exile. Until the seizure of power by the Nazis, Haber was opposed to Zionism as an aim for German Jews. He then came into closer contact with Chaim Weizmann and accepted a post in Palestine which, however, for reasons of health, he was never able to assume.

Reading the book one has the impression that Haber looked at the problem of Germany's winning the war in the same way as he looked at any other technical problem. There is little sign that Haber had any political or ethical sophistication when it came to the question of the role of scientists in war. His wife, a chemist herself, reflected the simple horror at gas warfare and tried to dissuade Haber from pursuing it. He ignored her pleas, and when he went to the Eastern Front to supervise the installation of gas cylinders she committed suicide.

The author points out the relative ineffectiveness of gas warfare as compared with bullets and high explosives. But death by physical means will probably always be more acceptable because it is more understandable than chemical death. Poisoning has always been considered an insidious form of murder. The author suggests, moreover, that scientists' scruples at using their skills in warfare are a recent phenomenon. He points to Leonardo as having been paid for knowing about fortification and, among scientists living before recent times, recognizes only Faraday as having objected to getting involved in new forms of warfare—strangely enough Faraday was asked about using poison gas in the Crimean War. But Leonardo refused to divulge his design of a submarine because he knew it would be misused, and there are plentiful examples, from alchemists through the Renaissance to the middle of the 18th century, of scientists who limited their availability when it came to the destructive uses of science. Then the "enlightenment" and the belief in progress clouded men's consciences, to be slowly cleared again in our time.

The book assumes no technical knowledge, yet reports on numerous scientists whose names have meaning mainly to fellow scientists. The author has found much detailed information about every phase and facet of Haber's life and achievements. Haber's life and frustrations and successes leave numerous unanswered questions. It is a disturbing book, easily read but not quickly forgotten.

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Macromolecules

Poly-α-Amino Acids. Protein Models for Conformational Studies. GERALD D. FASMAN, Ed. Dekker, New York, 1967. xvi + 764 pp., illus. $34.50; to students, $25.50. Biological Macromolecules, vol. 1.

This is the first volume of a proposed series, which is intended to be "not the publication of a new set of annual advances or progress publications, but the periodic presentation of critical evaluations of various aspects of a general field." The series as a whole is intended to deal with biological macromolecules in general, with the emphasis on structure and conformation, and their relation to biological function. This first volume is devoted to poly-α-amino acids, which, of course, are not biological macromolecules at all, but products of the synthetic organic chemist. (Neither are they "protein models," as the subtitle of the volume suggests.) Nevertheless, the protein chemist confronted with the difficult task of interpreting properties of protein molecules often turns to experimental results which have been obtained with simple synthetic polymers for at least initial guidance. The relevance of polypeptide studies to protein chemistry is indisputable.

The monograph presents a fairly comprehensive coverage of those aspects of the physical chemistry of the poly-α-amino acids which have in fact been most useful and stimulating to protein chemists. Nine of the 13 chapters deal with physical methods of examining polypeptide conformation, two are theoretical, one deals with the biological properties of poly-α-amino acids, and one chapter is an authoritative account of the physical chemistry of poly-L-proline. Two important topics that are not covered at all are synthesis and degradation. All the chapters are written by qualified experts, and all are scholarly presentations.

This much authoritative material dealing with the poly-α-amino acids has never before been presented together in a single volume, and for that reason alone this book would constitute a useful addition to many libraries, even if the individual chapters were to present only material which had been critically reviewed before in scattered places. Actually the book goes beyond this. It happens to have been written at an opportune time, for major advances in a number of areas which are treated have been made in the last few years. As a result, several of the chapters represent definitive reviews in areas in which no previous reviews exist, or in which previous reviews have been rendered obsolete by recent work. The chapters on ultraviolet spectra (by W. B. Gratzer) and circular dichroism (by S. Beychok) may be cited as examples. Both Gratzer and Beychok, as a matter of fact, discuss proteins as well as polypeptides, and their chapters represent the best available general references on the application of these measurements both to proteins and to polypeptides.

It is evident from the foregoing description that this is a volume which can be recommended without reservation to all professional chemists and biochemists with an interest in protein conformation, and to students aspiring to that status. The book deserves a broader distribution than it will get at the present price, even with the reduction for students.

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