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## Perspectives in Crystallography. By John R. Helliwell. CRC Press, 2016. Hardback, Pp. xv + 155. Price GBP 75.65. ISBN 978-1-4987-3210-9.

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The author of the book is well known for his significant contributions to the development of beamlines dedicated to biocrystallography at several synchrotron light sources. Helliwell is also among the brightest users of this dedicated instrumentation, and the results published under his leadership are among the most important in elucidating the molecular structures of proteins by X-ray and, sometimes, neutron diffraction.

Among others, the author has held important positions at the service of the University of Manchester, the International Union of Crystallography (IUCr) and the European Crystallographic Association (ECA). Helliwell has always paid great attention to the promotion of crystallography at various levels: from primary-school pupils, to students looking for their choice of university studies and funders of scientific research.

Admittedly, the International Year of Crystallography, celebrated in 2014 (IYCr2014), was the catalyst for publication of the book, but I surmise that the author's transition to the status of professor emeritus was also a factor in the publication of this stimulating and often personal collection of papers. In fact, apart from the addition of some comments, the book re-proposes a series of articles recently published by the author in *Crystallography Reviews*. In turn, almost all the original contributions had been the elaboration of lectures delivered by the author on several important occasions.

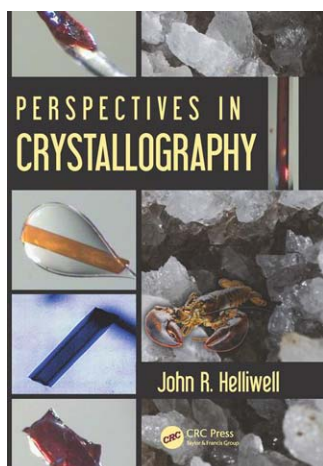
The book opens with an illustration of the strategy adopted by the author to make crystallography palatable to visitors on open days at the School of Chemistry, the University of Manchester, and to atypical audiences such as, for example, a group of prisoners.

Chapters 2 and 3 pay homage to the Braggs, father (William Henry) and son (William Lawrence); the son was professor at the University of Manchester from 1919 to 1937. Among other aspects, the two chapters address the issue of the scientific relations between father and son, a question that immediately thereafter received fresh contributions from the book *Crystal Clear. The Autobiographies of Sir Lawrence Bragg & Lady Bragg* (edited by A. M. Glazer & P. Thomson). [For a review see Ferraris, G. (2016). *Acta Cryst.* **A72**, 510–511.]

Section III of the book consists of four chapters that are mainly devoted to the development and increasing role of synchrotron radiation in determining the structures of biological macromolecules. Here the author has played a frontier role both in developing and in exploiting this new, powerful and flexible source of X-rays that, since the last two decades of the past century, has triggered the still growing role of biocrystallography in the life sciences.

The book is certainly of interest from the point of view of biocrystallography and its history; however, it might be rather disappointing to those readers who, attracted by the title, would be looking for general perspectives in crystallography.

The book has a tendency to identify *tout court* structural crystallography with the investigation of molecules *via* diffraction, even when they are not 'frozen' into a crystal. The author's extreme focus on molecules also led him to the use, unfortunately now widespread, of the term 'molecular structure' as a synonym for 'crystal structure' (e.g. p. 23 for quartz!). This is comparable to treating lattice and structure as synonyms, a mistake particularly common in materials science. Actually, even W. L. Bragg (p. 36) described Laue's experiment on ZnS using the term molecule instead of atom; but in



1912 the difference between the two concepts – pioneered one century before by A. Avogadro – had not been fully digested, such that the chemical community was astonished to learn that in the structure of common salt there were no NaCl molecules!

In conclusion, as mentioned above, the book may be recommended to biocrystallographers looking for highlights of the history of their topic and, more generally, to people interested in the crucial impact of synchrotron radiation on structural crystallography.