

book reviews

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Present at the Flood. By Richard E. Dickerson. Sunderland, Mass.: Sinauer Associates, Inc., 2005. Pp. 307. Price (paperback) US\$ 36.95. ISBN 0-87893-168-6.

First you should know something of the author. Richard 'Dick' Dickerson was a participant in some of the early computational crystallography on myoglobin whilst a post-doc in Cambridge. This, when a significant amount of the world wide available computing resource was devoted to crystallographic calculations, was adventurous. The successful experience and now knowing the difference between protons and proteins set him on the career path during which he has investigated the structural biology of cytochrome proteins and their molecular evolution, protein–nucleic acid associations and perhaps the work with which he is most closely associated, the intricacies of DNA structure and interactions with drugs. So, with his credentials established for the younger readers, let us begin.

Dick Dickerson identifies the period between 1933 and 1963 as the genesis of structural molecular biology. He then tells the story of how protein structure came to be investigated by fibre diffraction, and modelled and then how the models could be tested. How DNA came into the limelight and of the race to produce the correct model of this macromolecule. Of how single crystal diffraction methods progressed and eventually revealed the structures of myoglobin and hemoglobin. And then of how, following a period of consolidation (drought) the field of structural biology took off. Perhaps this sounds like a nice little book reviewing an interesting period in science. It most certainly is not. This is a book about important science and real people who shaped a cornerstone of modern biological, chemical and biomedical research.

We often take things for granted especially in our science, as progress appears relentless. There is a risk that in our diet of facts the methods and reasoning, occasional serendipity and fate, that allowed to us obtain the facts in the first place are lost. Often, in the dryness of a scientific publication, where all aspects are clearly laid out and explained, what is missing is the sometimes chaotic reality of how and why things actually happened. What factors influenced decisions? So, with respect to structural biology some of the answers are to be found here as Dick takes us on a journey that evolves from Astbury working in Leeds, down to Kings College in London and up to Cambridge, and across the Atlantic a couple of times. The story involves a sickbed in Oxford, slabs of whale meat, conferences organised to coincide with good skiing in Austria, the speed of an owls blink, arson and sinister McCarthyism. The story encompasses chemistry, physics and biology with a little bit of politics and sociology mixed in. Human strengths

are evident and some frailties are exposed; as in every aspect of life these can determine success or failure and often how contributions are remembered. The author's admiration for the many of the contributors to the story shines through. There are no villains but there are examples of arrogance, ignorance, at least one 'monstrous ego', and thankfully several heroes of whom Max Perutz is perhaps foremost (my bias I suppose). Max Perutz does not get all the honours, which are shared with Pauling and Corey, Watson and Crick, and of course Bragg.

Then there are the molecules themselves, which in the first place caught the attention and imagination of these talented individuals. The early attempts to address an important issue of how to represent such complex molecules are interesting to see. The images of the early models stirred my memory of the model room at the Medical Research Council Laboratory of Molecular Biology and it is delightful to see reproduction of the beautiful images produced by Irving Geis.

Different people may put the emphasis elsewhere, I for example would consider Jack Sumner's work to have been worth more details (he is mentioned) but Dick explains what is included and justifies why. In places this is a very personal account, which serves as a positive factor in making the story and the players accessible.

I like the style of incorporating some of the original literature. The strategy of placing the original papers alongside the story works well. I have some of these papers in my reprint collection, which together with early reprints on lysozyme helped educate me, and I have no doubt that other readers will find them interesting. There is clarity in the explanation of diffraction without mathematics. This may usefully help some readers understand how the important scientific results were derived. The one area that, for me, did not work were the study questions at the end of the chapters together with answers given in a section towards the end of the book. The book may have been delivered because of course work at UCLA but it is unlikely to be used to supplement other courses in quite the same way. However, the incorporation of additional details or anecdotes, as found here, would certainly liven up the driest of lectures.

My advice is read this book; there is material here that will both captivate and educate. Thank you Dick.

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