BOOK REVIEW

The man who invented the chromosome

The Man Who Invented the Chromosome:

A life of Cyril Darlington

Oren Solomon Harman

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Reviewed by DW Rudge

Oren Harman's *The Man Who Invented the Chromosome* is a scholarly biography of one of the most influential and controversial scientists of the twentieth century, Cyril Darlington (1903–1981). He was a cofounder with Sir RA Fisher of *Heredity* in 1947, and is perhaps best known for his pioneering work on the behavior of chromosomes and the relationship between chromosomes and genetics. The book is subdivided into four parts. The first discusses his childhood and formal education, as well as providing a detailed portrayal of the circumstances that led to his early association in late 1923 with the John Innes Horticultural Institution, then under the direction of William Bateson. The second reviews his scientific career, focusing on his cytological studies of chromosomes. It is particularly useful in drawing attention to the increasing role of evolutionary considerations in Darlington's thought. It also provides a context within which modern readers can better appreciate why his very influential (1932) *Recent Advances in Cytology* was initially seen as controversial, tracing it ultimately to fundamental questions concerning method or how science should be done. The third part reviews Darlington's politics, albeit primarily with reference to the Lysenko Affair, providing valuable insight into how genetics community reacted to the overt politicization of science in the Soviet Union. The fourth and final part documents Darlington's increasing attention during the latter half of his professional career to what he saw as the implications of his work (as well as that of other scientists) for our understanding of man and the place of science in society. Harman is particularly careful to disentangle the lines of reasoning (scientific and historical) that led Darlington to emphasize heredity considerations over environmental influences, and in particular

the reality of genetic differences between races and classes. Particularly valuable is Harman's attempt to make sense of Darlington's later work as an attempt to integrate scientific knowledge with the study of man. An epilogue, entitled 'Conclusion: Paradoxes' summarizes several themes that unify Darlington's life and work, each 'tinged by paradox.'

It's generally recognized that chromosomes were first discovered by Walther Flemming in 1882. (As indicated in the preface, the title of this book was suggested by the late Dame Miriam Rothschild, who is quoted as saying 'The chromosome? Why Darlington practically *invented* the chromosome!') Harman's book is not an introductory text. The chapters devoted to discussing Darlington's scientific work in Parts I and II contain a fair amount of jargon, making them difficult to follow for individuals who don't have some background in cell biology. Even here, those who do have a strong background may find the story difficult to follow, in that the broader scientific context within which Darlington worked, although comprehensive, seems sketchy. It seems clear that Harman's interests lie primarily in the third and fourth parts of this work, where the prose is decidedly easier to follow.

These concerns aside, Harman's study of Darlington is certainly a valuable contribution to historical scholarship on both Darlington and the history of genetics during the early mid-twentieth century. The discussion of how and why evolutionary considerations weighed on Darlington's scientific work is engaging. Harman's discussion of Darlington's relationship with JBS Haldane is also quite insightful. Each of the major claims is carefully documented with reference to primary source material, primarily taken from Darlington's archived papers at the Bodleian library in Oxford. His comprehensive analysis provides a context within which to understand Darlington's complex thought that draws upon (but does not overlay) considerations of his forceful personality, childhood influences and relationships with peers and, of course, his scientific work against a backdrop of broader social and political changes. This was a very challenging subject to take on, and Harman is to be commended.

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