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Mendel's Legacy: The Origin of Classical Genetics

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extrapolation of data obtained from mice to human bodies and developmental processes. She makes good use of the emerging "animal studies" literature to capture the tensions of the murine imaginary, exploring the implications of manipulating and patenting specialized mice, from the Oncomouse™ to the fictional Future Mouse©.

Susan E. Lederer

Elof Axel Carlson, *Mendel's Legacy: The Origin of Classical Genetics* (Cold Spring Harbor, N.Y.: Cold Spring Harbor Laboratory Press, 2004), xix + 332 pp, illus., $45.00.

Mendel's Legacy is admittedly a scientist's history of genetics (p. 307). In the tradition of L.C. Dunn's *A Short History of Genetics* and A.H. Sturtevant's *A History of Genetics*, Carlson focuses on the development of the ideas at the core of classical genetics. As such, he rarely engages the extensive secondary literature on the history of genetics, preferring instead to concentrate on primary sources, interviews, and recollections. While not a historian's history of genetics, *Mendel's Legacy* is nonetheless a rich and valuable contribution.

The book is divided into six parts. In the first, Carlson examines the early routes to classical genetics through evolution, cytology, embryology, and breeding. The emphasis on cytology in this first part and the chromosome theory of heredity in the second is particularly welcome. Past histories of genetics often mention early work on chromosomes, but frequently let cytogenetics drop in favor of narratives celebrating Mendelism or the theory of the gene. Because he is following the primary source literature, Carlson does not allow cytogenetics to become marginalized even in his discussion of Mendelism in part three and the rise of *Drosophila* genetics in part four.

As a student of H.J. Muller, one might expect Carlson to dwell on *Drosophila* genetics. He does devote the four chapters in part four to Morgan's fly group, but in doing so he sheds new light on the group's research by carefully demarcating the scientific contributions of Morgan, H.J. Muller, Calvin Bridges, and A.H. Sturtevant. (Especially interesting here is Muller's own table of individual contributions reprinted on pages 209–211).

In part five, Carlson charts the influence of classical genetics on the evolutionary synthesis, the development of microbial genetics, and changing gene concepts. While Carlson links research on pseudoallelism to E.B. Lewis's work on the developmental implications of the homeotic

mutant bithorax, his references to developmental biology are sparing after his early chapter on embryology. George Beadle and Boris Ephrussi's research on eye color mutants, for instance, is placed in a trajectory leading to biochemical genetics and molecular biology, when it could have also been contextualized in terms of developmental biology.

Carlson reserves his discussion of the association between genetics and eugenics and genetics and the Lysenko controversy for the final section of *Mendel's Legacy*. Here he also discusses his own perspective on the relevance of social factors to the history of genetics. In doing so he raises a number of interesting questions worthy of further consideration. For instance, Carlson argues that the United States dominated genetics from 1900 to 1940. He supports this argument with a list of major contributions to classical genetics and the scientists who made them. Because American scientists dominate the list, Carlson asks if there is an American bias in classical genetics. We could also ask if Carlson's list is itself biased. Whether Carlson will inspire a rash of list making remains to be seen, but he is certainly correct to raise the important question of the role of national context in the rise of genetics.

Carlson's style in *Mendel's Legacy* is telegraphic. Each chapter is broken down into many smaller sections with declarative titles, such "Johannsen's Study of Pure Lines Stimulates Evolutionary Theories" (p. 129) or "Cytological Approaches to Evolution Yield Results" (p. 232). To historians more used to longer narratives, this style may be a bit off-putting. However, Carlson's approach also renders *Mendel's Legacy* easily accessible as a reference and teaching resource. As a richly illustrated overview of the history of classical genetics, *Mendel's Legacy* is an interesting and useful contribution to the history of biology.

Michael R. Dietrich

Tim Birkhead, *A Brand New Bird: How Two Amateur Geneticists Created the First Genetically Engineered Animal* (New York: Basic Books/Perseus, 2003), xx + 268 pp., illus., $26.00.

Tim Birkhead's engaging account of how amateur bird keeping shaped the emergence of early twentieth-century ornithology and genetics was published in England under the title *The Red Canary*, but the American title of this book gets the focus only two-thirds correct. Judging from the epic-style jacket blurbs on *A Brand New Bird* (e.g., "Long before Dolly the Sheep or transgenic mice or bioengineered corn, there was the