hung "a serious fraction of a billion dollars." Mullis tells a good story as he recounts his invention of PCR in 1983 and the subsequent patent travails. He describes the science that was at the heart of the dispute, reprints the passages of text cited by the DuPont group as prior art, and explains the arguments made in response by the Cetus team. His breezy prose is enjoyable to read but belies the intensity of his antipathy toward the opposition, as personified by Arthur Kornberg. Clearly, bygones are not yet bygones. Though it is unlikely that this account will sway those who have strong opinions, one way or the other, on the justice of the verdict, the chapter does illustrate the subtlety of patent claims drafting and provides a window on the courtroom drama of a high-stakes dispute.

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Fly Assembly

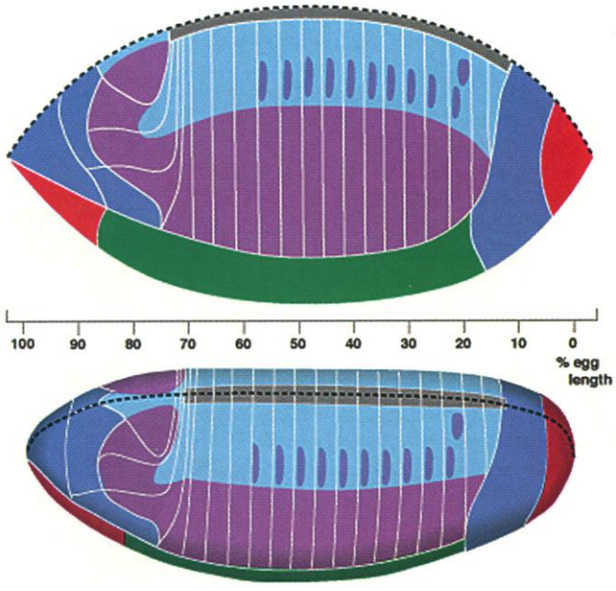
The Development of *Drosophila melanogaster*. MICHAEL BATE and ALFONSO MARTINEZ ARIAS, Eds. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1993. In two volumes. xxii, 1558 pp., illus., + atlas + poster. $350.

Classical embryological and molecular genetics are brought together in this collective summary of fruit fly development. The work is an ambitious venture dogged by a persistent dilemma—exclude reams of detail to make a readable book, or produce the comprehensive descriptions needed by active workers in the field. Almost inevitably the burgeoning field demanded an expansive text, and the editors opted for the latter course. The book is clearly a work of reference for people in the field and not night-time reading for those only casually interested in the subject.

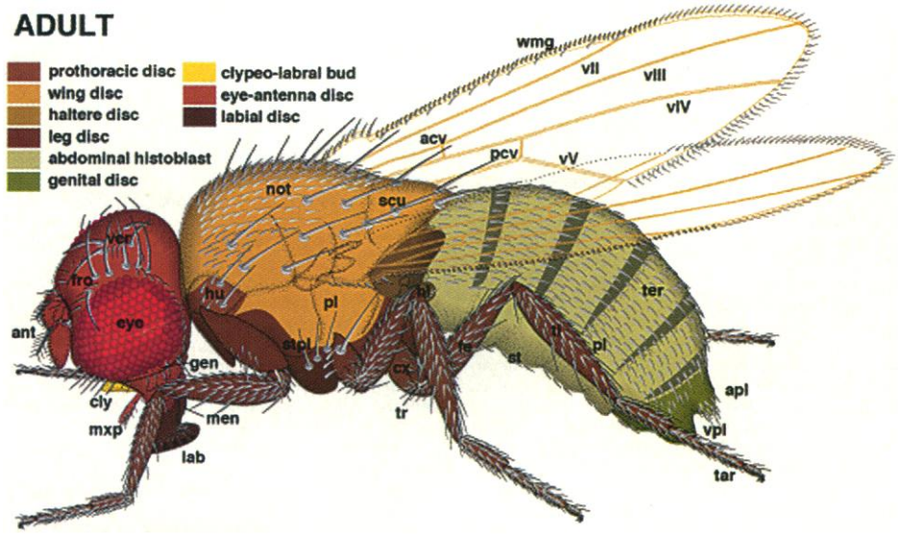
The 24 chapters give an almost comprehensive view of development in the fruit fly, from gametogenesis to the formation of the adult nervous system. The individual chapters are largely autonomous and range greatly in quality. Some are scholarly, objective, and comprehensive accounts of their subjects to date, and others are "cut and pastes" from previous reviews. Although one or two chapters have a quality of "own trumpet-blowing," subjective opinion is mostly held in check.

There are impressive chapters that may eventually garner for this book the reputation and respect afforded to Demerec's long-out-of-print *The Biology of Drosophila*, but to me the chapter by Meinertzhagen and Hanson on the development of the optic lobes stands out. It is an erudite and comprehensive description containing information not to be found elsewhere. The topology of the cellular arrangements in the optic lobes is grueling and the chapter is not for the faint-hearted, but the attention to detail inspires the confidence needed in such a work of reference.

Some subjects are dealt with in two (or more) chapters when one would have been better. This occurs in the cases of the imaginal disks and the adult epidermis, but the striking example is the two chapters devoted to eye development, one a description of the cell biology of the system and the other a molecular perspective of genes and proteins. The molecular and cellular data can be smoothly interwoven in descriptions of eye development, and I wonder why the editors did not coerce somebody to do this. On the other hand, there is no chapter devoted to how the diversity of segment identity is achieved, though there exists a huge body of detailed work that explains how a particular segment is determined as thoracic or abdominal or head, whether it should develop with wings or legs or mouth parts. The subject is given cursory treatment in the chapter on larval epidermis, but even here it appears as an afterthought.



Composite fate maps of the *Drosophila melanogaster* blastoderm. *Top*, "The fate map is projected onto a planimetric reconstruction of the blastoderm. In this type of reconstruction, one half of the curved blastoderm is flattened in order to depict true distances between blastodermal positions. The upper margin of the drawing (*dashed line*) represents the dorsal midline and the lower margin represents the ventral midline." *Bottom*, "The fate map is projected onto a blastoderm shown in the standard dorsal-lateral view used for all drawings in this Atlas. (*Thick dashed line*) Dorsal midline. The anlagen of different tissues are illustrated in different colors used throughout the figures in the Atlas." [From the Atlas accompanying *The Development of Drosophila melanogaster*]



"The epidermis of an adult fly (female)." [From the Atlas accompanying *The Development of Drosophila melanogaster*]

The book has an incongruous "epilogue" by Michael Ashburner that muses on the history of the field. An introduction attempting to unify the disparate chapters around a common theme would have been more appropriate and useful.

The book itself is lavishly illustrated, with effective use of color, and comes with a 54-page paperback "Atlas of *Drosophila* Development" by Volker Hartenstein. In the 1980s José Campos-Ortega and Hartenstein produced *The Embryonic Development of Drosophila melanogaster*, which became the standard reference on fly embryos. Hartenstein has now gone further, using computer graphics and vivid color to display the developing animal in all its glory. Now I can identify those bristles and bits of the adult I was never quite sure about, and all those tubes and blobs in the viscera of the embryos and larvae no longer are a mystery to me.

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