

## Ballooning fruitfly literature

Peter A. Lawrence

**The Development of *Drosophila melanogaster*.** Two-volume set. Edited by Michael Bate and Alfonso Martinez Arias. Cold Spring Harbor Laboratory Press: 1994. Pp. 1,558. \$350.

ON my shelf, some of the time, there is a tattered old copy of Milislav Demerec's edited volume *The Biology of Drosophila*. The book, published in 1950, covers what was known at the time about the anatomy and development of the fruitfly. Some of the chapters are the result of years of full-time work by one author and the whole is an indispensable source, so much so that the pages need, even now, to be constantly repaired with tape and the binding stitched up.

Now we have the new multi-authored *The Development of Drosophila melanogaster*. This also promises to be useful. Once again, most things are covered; oogenesis, spermatogenesis, the laying down of the embryo's body plan, the adult and larval epidermis, the trachea, the mesoderm, the gut, metamorphosis, neurogenesis and the acquisition and modification of the central nervous system, plus a good chunk on the visual system. As usual with such books, the whole is not much more than a sum of the parts — the authors write individually, independently; their contributions, even though they cover much of the known ground, do not link together to guide the reader, and things get missed out. For example, there is nothing on sex determination and the coverage of the most interesting genetic system known anywhere is scanty — I mean, of course, the bithorax complex. It is not a book where big ideas are given emphasis; rather they are embedded in a mass of facts, factlets, guesses, speculations and rumours.

Few modern scientists, I think, would spend years producing a chapter for a book; most now prefer to feed the insatiable maws of the secondary literature, or to write papers and grant applications. So editors producing a multi-authored work need disciplinarian qualities: they need to have a clear vision of what is contemplated, the clarity to transmit this vision to the authors and the resolution to insist that the authors conform. In their preface, the editors of the new work declare a worthy purpose: they wish to update and to replace Demerec. If so, then they need to cajole the best to write for them and to insist that those people give us the meat and throw away the ephemera; there are plenty of other places to seek out current opinion. Indeed, the editors have per-

suaded many luminaries to write on their own subjects, but some have grasped the opportunity too eagerly. They have described every little gene, every matter and measurement, every unpublished experiment — like conservationists on a treasured landscape that is threatened with a new motorway.

In guiding and curbing their contributors, the editors therefore seem to me to have been far too indulgent, and the outcome is an elephantine book that in places exhausts as much as it informs. One way to save words would have been to curtail the practice of quoting one's own unpublished experiments and those of friends; it amounts to the propagation of rumour and usually means no more than: "please remember folks, I think I did this

too!" Such statements do not help the reader one jot and do not make the evidence any more convincing. Nevertheless, many chapters are excellent and fulfil exactly the stated purpose: examples are chapters on the anatomy and development of the mesoderm by Michael Bate, on the pole plasm by Daniel St Johnston and on the retina by Tanya Wolff and Donald Ready. Such articles make the book of real value to the specialist.

In order to succeed, books, like balloons, need the right mix of hot air and ballast. This one has plenty of both. We shall have to see if it can fly for long. □

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## A human geneticist's odyssey

Arno G. Motulsky

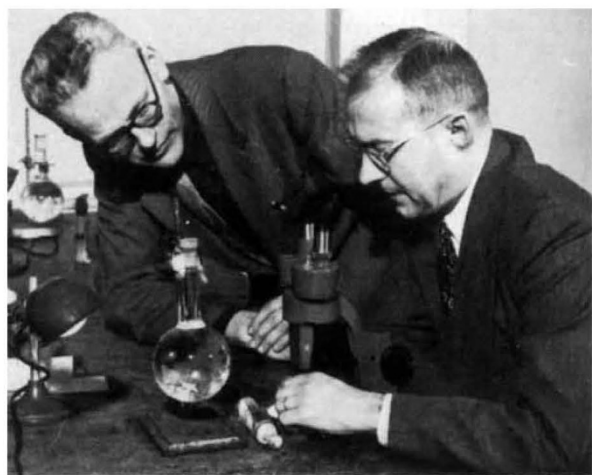
**Physician to the Gene Pool: Genetic Lessons and Other Stories.** By James V. Neel. Wiley: 1994. Pp. 460. \$24.95, £18.95.

JAMES Neel is an American pioneer of human and medical genetics. In this book, he gives a personal account of his research, describes modern understanding of genes and passionately assesses the principal genetic problems facing humanity.

Neel obtained his PhD at the University of Rochester under Curt Stern, the eminent *Drosophila* geneticist who later wrote an influential textbook of human genetics. After being exposed to many luminaries in US genetics, Neel decided to cast his lot with human genetics and obtained medical and hospital training. This was a courageous decision in the early 1940s when reputable American geneticists, aware of earlier eugenic excesses and the Nazi abuses in Germany, saw human genetics as a soft and tainted science.

A young Army medical officer after the Second World War, Neel was responsible for follow-up studies of atomic bomb survivors in Hiroshima and Nagasaki and has persisted with this work ever since. The results of extensive genetic studies of children of survivors conceived after the bombings are not as well known as they should be. No statistically significant medical or biological differences were detected between subjects and controls (including chromosome aberrations and

protein mutations), although there were some slight untoward effects on pregnancy outcomes and on mortality. On the reasonable assumption that some mutations must have been induced, the radiation dose that would double the background level of mutations in humans was calculated from these data, and from parental exposure, as between 1.7 to 2.3 sieverts (170 to 230 rems) for acute radiation exposure, and was inferred to be



James Neel (right) with W. R. Spencer in 1954.

about 4 sieverts (400 rems) for chronic radiation exposure. So humans do not seem to be particularly sensitive to radiation-induced mutation. In mice, where more extensive data are available, Lewis and Neel calculated a similar doubling dose. This is the most comprehensive human study of the genetic effects of radiation and is a key resource when assessing radiation accidents such as that at Chernobyl.

A frequent participant in committees on radiation risk assessment, Neel believes that current radiation exposure