HISTORY OF SCIENCE

Delicious Tales of Guinea Pigs, Etc.

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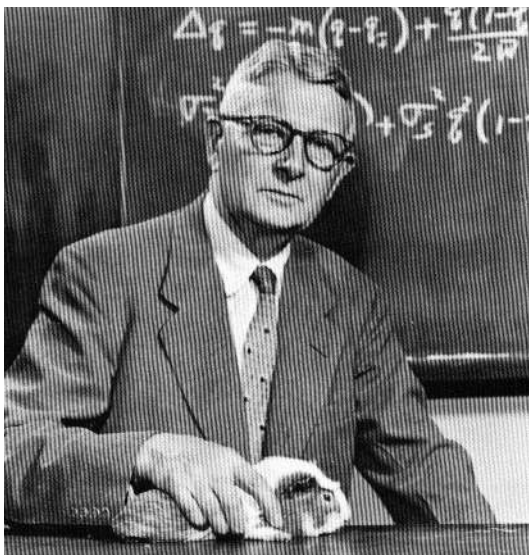
Rumor has it that the great mathematical population geneticist Sewall Wright could be so absent-minded that, needing room for his equations on the blackboard one day, he made an ersatz eraser out of a fractious guinea pig he had brought to class. The story happens to be untrue [as William Provine's careful research showed (*1*)], but it can spice up an otherwise bland historical stew for nonspecialists. Along with other fun anecdotes, interesting asides, and startling connections, it appears in Jim Endersby's charming *A Guinea Pig's History of Biology.*

The book isn't all fun and games, however. It is part of a growing trend among historians of biology to concentrate on "the organism," variously used as model, experimental system, or just plain object of study. In one guise, the movement merely seeks to explore the varied ways in which biologists' organisms have shaped the development of biology. In another, it has a more ambitious project: to give "voice" or perhaps even agency to nonhumans (though the latter has been the subject of much debate). So, silly as it seems, the book's title isn't just a cute way to entice readers' interests; it is also a kind of word play on a body of literature that has made "historical actors" of things like microbes and sea scallops (*2*, *3*).

Blessedly, discussion of such challenges to traditional understanding of science is brief and included mostly in the preface and acknowledgments. The remaining 12 chapters are devoted to the subject at hand, which is not so much the history of biology as the history of genetics and evolution retold (with occasional additions of microbiology, physiology, and cell biology) through some of the many prominent organisms studied. Each chapter is actually an independent essay that can be read alone; each is framed by an organism that has played some interesting historical role and arranged around some key event. Some are instantly recognizable "celebrity" organisms (e.g., the fruit fly *Drosophila melanogaster* and maize, *Zea mays*), others are more obscure and now extinct (e.g., quagga, *Equus quagga*) or largely forgotten (e.g., Gregor Mendel's pale hawkweed, *Hieracium auricula*, and Hugo de Vries's evening primrose, *Oenothera lamarckiana*), while still others are actively used by researchers (e.g., the cress *Arabidopsis thaliana* and zebrafish, *Danio rerio*). One chapter is devoted to a genetically engineered organism (the famously trademarked OncoMouse).



Sewall Wright and one of his guinea pigs.

A Guinea Pig's History of Biology
The Plants and Animals Who Taught Us the Facts of Life
by Jim Endersby
Heinemann (Random House), London, 2007. 511 pp. £20. ISBN 9780434012596. Harvard University Press, Cambridge, MA. $27.95. ISBN 9780674027138.

What emerges is a lighthearted retelling of a familiar story that will appeal to a wide audience. As we learn about the breeding patterns in horses and zebras, we also learn about the leisurely interests of Victorian aristocrats, radical political movements, and the challenges of gardening in an increasingly industrial context. While gaining an understanding of Victorian attempts to study inheritance in humans, we learn about the growing concern with London's sanitation, the famous Health Exhibition, and the development and use of industrial ceramics as toilet bowls and sewer pipes by Doulton and Company (now known as Royal Doulton, the maker of fine dinnerware). As we learn much about the guinea pig as model organism for geneticists, we gain an appreciation of its culinary merits.

Although enjoyable, this approach has some drawbacks. Throughout the book, necessary historical details or critical developments are missing or "off," while irrelevant digressions and asides include far more detail than needed. For example, the chapter framed by the guinea pig, *Cavia porcellus*, (really the chapter on the "modern" synthesis of evolution) provides a fascinating discussion of historical and ethnographic uses of the experimental cavy (along with descriptions of recipes) but a misleading picture of the historical event it is supposed to cover. That synthesis wasn't all due to the use of guinea pigs and *Drosophila*, the insights of theoretical population geneticists like Wright, or the field work and experiments of Theodosius Dobzhansky. It is almost as though Ernst Mayr, Julian Huxley, George Gaylord Simpson, and G. Ledyard Stebbins Jr. (among many others) and their critical contributions didn't exist. Given the book's many plant examples, Stebbins, whose classic book (*4*) brought botany into the synthesis, would have been a much more appropriate end point for the chapter than his friend Dobzhansky. One must also wonder what kind of historical account of evolution can be told without fossils. And although the book is to be lauded for including so much from the botanical side, the actual historical analysis is disappointing. It's great to feature *Oenothera* for the section on the "eclipse of Darwin" (the interval of time around 1900), but to give it a central place in understanding the phenomenon of polyploidy isn't fair. That part properly belongs to the Kew primrose, *Primula kewensis*, and the histories of polyploidy, apomixis, and hybridization are vastly more complicated than portrayed here.

In short, the book offers lay readers an engaging and lively introduction to the history of biology. But I'm not sure that it actually enriches historical understanding of the field.

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References

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3. M. Callon, in *Power, Action and Belief: A New Sociology of Knowledge*, J. Law, Ed. (Routledge and Kegan Paul, London, 1985), pp. 196–229.
4. G. L. Stebbins, *Variation and Evolution in Plants* (Columbia Univ. Press, New York, 1950).

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