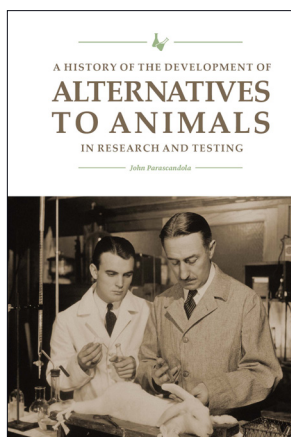




Book Review



John Parascandola A History of the Development of Alternatives to Animals in Research and Testing

This groundbreaking and meticulously researched book¹ provides the first comprehensive historical account of how alternatives to animal experimentation

evolved from early humanitarian concerns to an established scientific field. Parascandola traces this development from its origins in the 19th century through the transformative 1980s, with a primary focus on developments in Britain and the United States. Through careful analysis of archival sources, interviews, and published materials, the author illuminates how scientific advances, ethical considerations, and advocacy efforts combined to create new approaches to research and testing that reduced reliance on animal subjects.

The book begins by examining early calls for more humane animal experimentation in the 19th century, including Marshall Hall's pioneering 1835 rules for animal research that presaged some elements of the later 3Rs framework. Parascandola effectively contextualizes these early efforts within the broader scientific and social developments of the time, including the emergence of experimental physiology and early animal welfare movements.

The author provides a particularly insightful analysis of how tissue culture techniques, developed in the early 20th century, created new possibilities for alternatives even though their potential was not immediately recognized. The book also examines important but often overlooked figures like Robert Gesell, who promoted both alternatives and animal welfare within the scientific establishment in the 1940s and 50s despite considerable professional risk.

A central focus of the book is the development and initial impact of William Russell and Rex Burch's seminal 1959 work *The Principles of Humane Experimental Technique*, which introduced the 3Rs framework of replacement, reduction, and refinement. Parascandola provides fascinating detail on the Universities Federation for Animal Welfare (UFAW) project that led to this publication and offers a compelling analysis of why the work initially had little impact before being rediscovered in later decades. The author persuasively argues that the limited initial reception of Russell and Burch's work was due primarily to the entrenched culture of animal research in biomedicine

rather than, as some have suggested, to any fundamental divide between scientific and humanistic thinking. This analysis is particularly valuable in understanding the challenges faced by advocates of alternatives.

The book excels in its examination of the organizations and individuals that shaped the field's development. Parascandola provides detailed accounts of pioneering organizations including the Fund for the Replacement of Animals in Medical Experiments (FRAME), the Animal Welfare Institute (AWI), the Johns Hopkins Center for Alternatives to Animal Testing (CAAT), and the UFAW. The author skillfully analyzes how these organizations navigated relationships with both the scientific establishment and animal welfare advocates, often walking a fine line between pushing for change while maintaining scientific credibility.

A significant strength of the book is its thorough examination of legislative and regulatory developments in both Britain and the United States. Parascandola provides detailed analysis of the 1876 British Cruelty to Animals Act, the 1966 US Animal Welfare Act, various attempts to strengthen these laws, and the role of regulatory requirements in both promoting and hindering alternatives. The author effectively demonstrates how legislative efforts both reflected and shaped the development of alternatives, while also highlighting the complex interplay between scientific, economic, and ethical considerations in policy development.

The book provides clear explanations of the scientific advances that made alternatives possible, including tissue culture techniques, cell-based assays, computer modeling, and *in vitro* testing methods. Parascandola effectively shows how these technical developments intersected with growing ethical concerns and economic pressures to create opportunities for reducing animal use. He also thoughtfully examines the various challenges to implementing alternatives, including regulatory requirements, scientific conservatism, technical limitations, economic factors, and institutional resistance.

The book powerfully demonstrates how alternatives gained legitimacy through several key developments in the 1980s: the establishment of dedicated research centers, creation of specialized journals, development of validation procedures, growing industry support, increased government funding, and international

¹ free copy available for download: <https://docs.lib.purdue.edu/ndhab/7/>



collaboration. The author effectively shows how these developments helped transform alternatives from a marginal concern to an established field while also highlighting ongoing challenges and limitations.

The epilogue provides a valuable overview of developments since the 1980s while maintaining the book's primary historical focus. This includes discussion of new technological developments, growing international cooperation, regulatory changes, emerging challenges, and future prospects.

The book's major strengths include exceptional depth and breadth of research, clear organization and engaging writing style, balanced treatment of different stakeholder perspectives, strong contextualization within broader historical developments, nuanced analysis of both scientific and social/political factors, careful attention to primary sources, thoughtful integration of oral history, and comprehensive documentation.

While the book is exceptionally thorough, some readers might wish for more detail on developments outside Britain and the US, greater coverage of specific alternative methods, more discussion of economic factors, and additional coverage of the post-1980s period. Noteworthy, the author also co-authored a recent

contribution on 60 years of the 3Rs (Balls et al., 2024), which includes these more recent developments.

This work makes several important contributions to multiple fields, serving as the first comprehensive history of alternatives in animal research, providing a valuable addition to the history of biomedical science, offering an important perspective on animal welfare history, presenting a useful analysis of science-society interactions, and acting as a model for examining the development of new scientific approaches. The book will be invaluable for historians of science and medicine, biomedical researchers, animal welfare advocates, policy makers, students in various fields, and anyone interested in the development of more humane approaches to scientific research.

Reference

Balls, M., Bass, R., Curren, R. et al. (2024). 60 years of the 3Rs symposium: Lessons learned and the road ahead. *ALTEX* 41, 179-201. doi:10.14573/altex.2403061

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P.S. It is with deep sadness that we note the passing of John Parascandola on November 30, 2024, at the age of 83. His distinguished career included serving as Chief of the History of Medicine Division at the National Library of Medicine and as Public Health Service Historian. A graduate of Brooklyn College and the University of Wisconsin-Madison, Parascandola made lasting contributions to the history of medicine and public health through his scholarly work. His final book, reviewed here, represents the culmination of many years of research into alternatives to animal testing, demonstrating his longstanding commitment to examining crucial developments in biomedical science. This work stands as a fitting capstone to a career marked by meticulous scholarship and important contributions to our understanding of medical history.