



O. R. PAGÁN

ONÉ R. PAGÁN is Associate Professor of Biology at West Chester University of Pennsylvania.

“There are few good books about the evolution of the brain, but this is one of those few—a journey along an ancient byway of the animal kingdom which shows just how blinkered and vertebrate-obsessed neuroscience has become. In *The First Brain* we learn that planarians have an array of frankly bizarre features with very real implications for the origins of our own cerebral majesty. By the end of this appealingly personal and reflective book, Pagán has cogently argued that it is only by studying his favorite cannibalistic worm that we can truly understand ourselves.”

DAVID BAINBRIDGE,
University Clinical Veterinary Anatomist, Cambridge University



“Flatworms are about as alien to us as an animal can be, but they finally have an ambassador. Pagán’s engaging book walks us through why flatworms aren’t aliens at all, and why they have the distinction of being the first animals on Earth having a “brain.” ... A brain in many respects like our own.”

MARK CHANGIZI, 2ai Labs



“Reading Oné Pagán’s *The First Brain* is a pleasure akin to sitting in the company of an especially engaging and erudite scientist as he tells of research (his own and others) on his favorite subject: in this case, the wondrous animals you and I call flatworms and biologists call planarians. Dr. Pagán’s enthusiasm for science, neurobiology and the aforementioned creatures is utterly contagious. If you begin the book (like me) not recalling exactly what a planarian is, you’ll close it wondering why you and everyone you know aren’t talking, thinking and writing about them all the time.”

DAVID TOOMEY, author of
Weird Life: The Search for Life That is Very, Very Different from Our Own



OXFORD
UNIVERSITY PRESS

www.oup.com

Jacket design: Angela Goddard
Cover images: © European Journal of Neuroscience, © 2011 Federation of Neuroscience Societies and Blackwell Publishing Ltd.

ISBN 978-0-19-996504-5

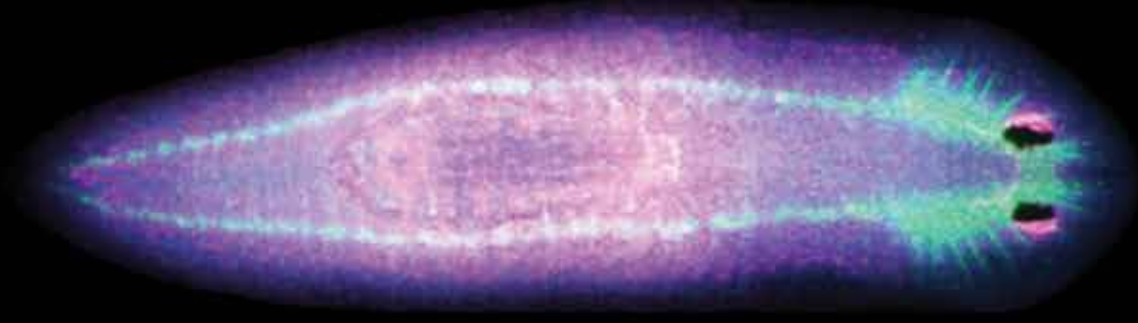


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PAGÁN THE FIRST BRAIN



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THE FIRST BRAIN

The Neuroscience of Planarians

ONÉ R. PAGÁN



PLANARIANS, A CLASS OF FLATWORMS, are extraordinary: they possess the remarkable ability to regenerate lost body parts, including complete regeneration of the nervous system. If cut into pieces, each piece of the planarian can regenerate into a complete organism, and are therefore a very useful and popular model in regenerative and developmental biology. They are also unique among invertebrates in that they display addiction-like behaviors to many drugs abused by humans. Because of these distinct neurobiological traits, the planarian is emerging as a useful animal model in neuroscience research, being used most recently for developments in neuropharmacology.

The First Brain is a discussion of how planarians are one of the earliest examples of organisms possessing an actual brain, how they have been used in neuroscience, particularly neuropharmacology, and what role they have played in scientific developments that may have a high impact on our culture. Planarians have been the animal models for research in drug addiction, and various other topics in biology, neurobiology, and even zoology. Pagán uses these flatworms as a framework to explore aspects of the history of biological research. The book provides accessible background information on how evolution influences biomedical research and defines neurobiology and neuropharmacology in ways that are easy to understand. At the same time, Pagán provides enough detail for the book to be useful for scientists working in various subsections of biology.

In addition to all of this, the planarian has even made appearances in a few unexpected places in popular culture. Oné Pagán explores all these roles, and shows us why the planarian truly is one of the most extraordinary and influential organisms in scientific research today.