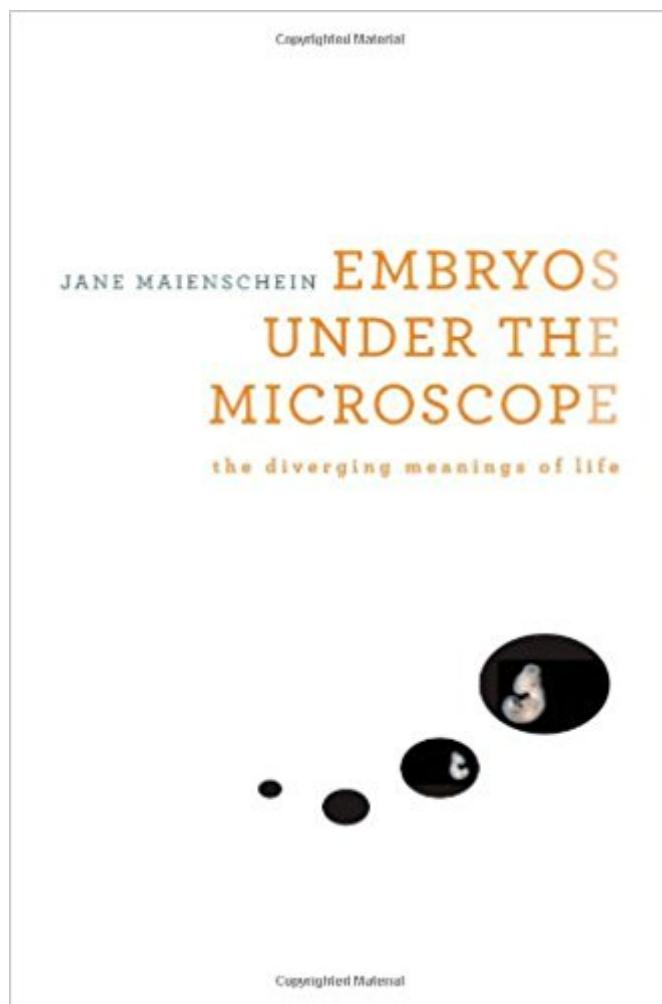


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# Embryos Under The Microscope: The Diverging Meanings Of Life



## **Synopsis**

Too tiny to see with the naked eye, the human embryo was just a hypothesis until the microscope made observation of embryonic development possible. This changed forever our view of the minuscule cluster of cells that looms large in questions about the meaning of life. *Embryos under the Microscope* examines how our scientific understanding of the embryo has evolved from the earliest speculations of natural philosophers to today's biological engineering, with its many prospects for life-enhancing therapies. Jane Maienschein shows that research on embryos has always revealed possibilities that appear promising to some but deeply frightening to others, and she makes a persuasive case that public understanding must be informed by up-to-date scientific findings. Direct observation of embryos greatly expanded knowledge but also led to disagreements over what investigators were seeing. Biologists confirmed that embryos are living organisms undergoing rapid change and are not in any sense functioning persons. They do not feel pain or have any capacity to think until very late stages of fetal development. New information about DNA led to discoveries about embryonic regulation of genetic inheritance, as well as evolutionary relationships among species. Scientists have learned how to manipulate embryos in the lab, taking them apart, reconstructing them, and even synthesizing--practically from scratch--cells, body parts, and maybe someday entire embryos. Showing how we have learned what we now know about the biology of embryos, Maienschein changes our view of what it means to be alive.

## **Book Information**

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## **Customer Reviews**

From abortion and contraception through stem cell research, human embryos find themselves at the center of numerous political debates. Maienschein's goal here is to provide the sort of biological knowledge that will elevate the quality of dialogue and decision-making about these controversial issues. Balancing a rich historical perspective with modern insights, Maienschein demonstrates that some of the most deeply held beliefs—beliefs that run contrary to our scientific understanding—are consistent with those professed centuries ago. While awareness of biological realities should shape public policy, she is politically astute enough to recognize that underlying faith and belief will trump any other evidence, including scientific. Maienschein explains the biological basis for the Roe v. Wade decision and weighs in on the debate over fetal pain, asserting that it is impossible for fetuses to feel pain as early as proponents claim since they don't have the necessary neural wiring until after week 24. [Embryos under the Microscope] illuminates and clarifies debates often obscured by emotion. (Publishers Weekly 2014-03-24) A balanced combination of history and science. We track the thoughts of philosophers Aristotle and Descartes; follow the development of modern experimental embryology by scientists such as Frank Lillie; and examine the twentieth- and twenty-first-century focus on understanding the molecular and genetic contribution of the sperm, egg and embryo to the offspring. Through this, Maienschein interweaves the science of embryology and the many controversies that it continues to spark. Maienschein covers broad territory with surprising depth and concision. It seems unlikely that a more readable text will soon emerge to illuminate the journey from theory to observation to ethical considerations in this exciting science. (Renee Reijo Pera Nature 2014-05-08) Maienschein explores the scientific, cultural, legal and philosophical history of embryos. This is a big task for a single book, but she does a thorough job. [Embryos Under the Microscope] made me appreciate the phenomenally complex chain of events by which a person or animal develops. It really is amazing that any of us exist at all. (Linda Geddes New Scientist 2014-05-03) Maienschein examines research on human embryos, correcting misconceptions spread in popular media by citing scientific studies as well as her own experience as a biologist. Maienschein also addresses stem cells as well as scientific efforts to dismantle, reconstruct, and synthesize embryos. Drawing from a vast body of her own scientific research and that of other scientists, the author makes the case that the general public must be educated about human embryos and kept apprised of current research. Recommended for anyone who wants to learn about human embryos and how investigation on them affects society. (Tina Chan Library Journal 2014-06-15) Many labs around the world aim to harness the power of human embryonic stem cells to restore function to degenerating tissues. The public reaction to such

regenerative therapies is a mixture of excitement, fear and confusion. Maienschein sifts the hope from the hype, setting out what is currently possible and where the technical and ethical limits lie. Her book helps us to navigate a path through this dizzying rhetoric by presenting us with a view of embryonic development that is both clear-headed and captivating. (Sally Lowell Times Higher Education 2014-06-19)

Jane Maienschein is Regents' Professor, President's Professor, and Parents Association Professor at the School of Life Sciences and Director of the Center for Biology and Society at Arizona State University. She is also Adjunct Scientist at the Marine Biological Laboratory in Woods Hole, Massachusetts.

This book has a very readable description of embryology which covers most of the field without being too technical for the intelligent reader. It also covers many legal, political, and social issues that involve reproduction and birth control. If only the members of Congress and the State legislators read this book we would have a far more intelligent discussion of these issues and better laws. I give it 5 out of 5 stars.

Written in a tone that is easy to understand and fun to read, Maienschein tells the story of the history of developmental biology through the exciting science of embryology. I opened Maienschein's book with no prior knowledge of either dev bio or its history, and she walked me through the history and different understandings that gave context and background to the policy debates that rage today. I had no idea the history embryo studies could provide such an interesting story. This is a must read for anyone interested in biology, history of science, policy, and more!

This text was suggested to me as an entry into the debate over reproductive rights, and I must say, it is a fascinating read. Maienschein makes accessible to general readers the history behind understanding embryos. In clear prose and through well-structured arguments, she lays bare the claims and tenets that have surrounded embryo research over the past hundred years. I highly enjoyed reading this book, and would recommend it to anyone who has an interest in reproductive rights, embryos, or the history of embryos.

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