

San Jose State University

From the Selected Works of Grinell Smith

2008

Science books for professional pleasure reading:
round out your content knowledge and foster
interest in science with this list

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SCIENCE BOOKS *for* PROFESSIONAL PLEASURE READING

*Round out your content knowledge
and foster interest in science with this list.*

By Grinell Smith

S&C readers love science, and they passionately share this love with colleagues and education students. Here's how I encourage a love of science in my preservice students. I have them select a book from this list—with the only requirement being that they enjoy it! So far, the list has proven extensive enough that none of my students has come to the end of it without a book to enjoy, and hopefully it will always contain a few books that even the most well-read among us hasn't yet gotten around to.

Next time you hear someone say, "I was never good at science" or "I don't know enough about science to teach it well," share this list. There's bound to be something there for everyone. Or, peruse the list to see where you'd like to beef up your own content knowledge.

The list of books has been years in the making, and although many of the books are established science classics, certainly not all of them are. Some books were suggested by scientists, science educators, and former students. Some came from an analogous list for science journalists compiled by Boyce Rensberger, director of the Knight Science Journalism Fellowship at MIT (see Internet Resources). Some are simply my personal favorites. I've categorized the books by subject, and within each subject, arranged the books alphabetically by author. Also, when I include a new book, I write to its author and ask for suggestions for an addition or two that he or she thinks would be both worthwhile for science educators and accessible to people who may not have much formal education in science. If you have suggestions for additions to the list, by all means, share them!

Biology

The Origin of Species [1859]. Charles Darwin. 1991. Amherst, NY: Prometheus Books.

The Descent of Man, and Selection in Relation to Sex [1871, 1874]. Charles Darwin. 1997. Amherst, NY: Prometheus Books.

Two of the most influential books of all time—and surprisingly readable.

The Ancestor's Tale: A Pilgrimage to the Dawn of Evolution. Richard Dawkins. 2004. Boston: Houghton Mifflin. A reverse-chronology of life on Earth.

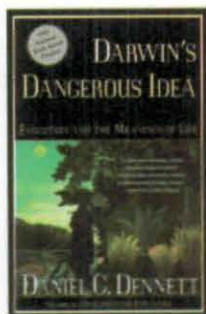
The Blind Watchmaker: Why Evidence of Evolution Reveals a Universe Without Design. Richard Dawkins 1996. New York: Norton.

A clear, entertaining, accessible, and utterly compelling rejection of intelligent design.

The Selfish Gene (30th anniversary ed.). Richard Dawkins. 2006. New York: Oxford University Press.

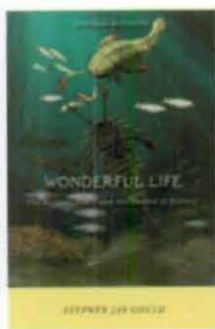
An account of evolution that makes you wonder whether your genes belong to you or you belong to your genes.

Darwin's Dangerous Idea: Evolution and the Meanings of Life. Daniel Dennett. 1996. London: Penguin. An excellent description of Darwinian evolution and its philosophical implications.



Trilobite!: Eyewitness to Evolution. Richard Fortey. 2001. New York: Vintage Books.

The exclamation point says it all!



Wonderful Life: The Burgess Shale and the Nature of History. Stephen Jay Gould. 1989. New York: Norton. Gould manages to turn the story of bugs extinct for a half billion years into a page-turner.

Five Kingdoms: An Illustrated Guide to the Phyla of Life on Earth (3rd ed.). Lynn Margulis and Karlene V. Schwartz. 1998. New York: W.H. Freeman. A dazzling look at the diversity of life.

Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology (1st American ed.). Jacques Monod. 1971. New York: Knopf.

An examination of evolution and its philosophical implications by a Nobel Prize-winning biochemist.

How the Mind Works. Steven Pinker. 1997. New York: Norton.

A tour of the most complex mechanism in the known universe.

The Language Instinct: How the Mind Creates Language. Steven Pinker. 2007. New York: HarperPerennial Modern Classics.

A skillfully written presentation of the idea that human language is a legacy of our evolutionary past and is, in fact, instinctual.

The Insect Societies. Edward O. Wilson 1971. Cambridge, MA: Belknap Press of Harvard University.

A detailed and careful look at what makes insects do what they do.

Genome: The Autobiography of a Species in 23 Chapters. Matt Ridley. 2000. New York: Perennial.

A clever and masterfully written description of the human genome.



Nature Via Nurture: Genes, Experience, and What Makes Us Human. Matt Ridley 2003. New York: HarperCollins.

A description of how genes and the environment interact to make us who we are.

The Lives of a Cell: Notes of a Biology Watcher. Lewis Thomas. 1974. New York: Viking Press.

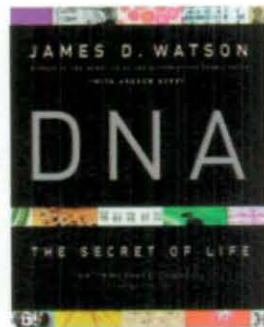
A lyrically written collection of essays that capture the extraordinary mechanisms of life at the cellular level.

The Double Helix: A Personal Account of the Discovery of the Structure of DNA. James Watson and G.S. Stent. 1980. New York: Norton.

Written by one of the scientists who shared the Nobel Prize for elucidating the structure of DNA.

DNA: The Secret of Life. James Watson with Andrew Berry. 2003. New York: Knopf.

A history of genetics from the perspective of one of the field's luminaries.



The Beak of the Finch: A Story of Evolution in Our Time. Jon Weiner. 1994. New York: Knopf.

A story of Darwin's finches and the scientists who observed them continuously for 20 years.

Earth and Space Sciences

The River That Flows Uphill: A Journey From the Big Bang to the Big Brain. William Calvin. 1986. New York: Macmillan.

A reconstructing of life's past in the context of a float trip through the Grand Canyon.

The Whole Shebang: A State-of-the-Universes Report. Timothy Ferris. 1997. New York: Simon and Schuster.

An account of the origins of the universe.



A Brief History of Time (updated and expanded 10th anniversary ed.). Stephen Hawking. 1998. New York: Bantam Books.

A guided exploration of the bizarre nature of time and space from the perspective of modern physics.

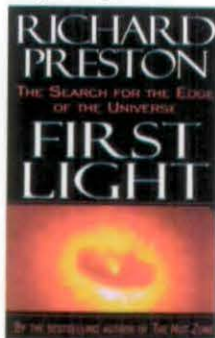
Annals of the Former World (1st ed.). John A. McPhee. 1998. New

York: Farrar, Straus, and Giroux.

A beautifully written account of McPhee's travels across America along I-80 in the company of geologists.

First Light: The Search for the Edge of the Universe (1st rev. ed.). Richard Preston. 1996. New York: Random House.

A look inside the world of professional astronomy.



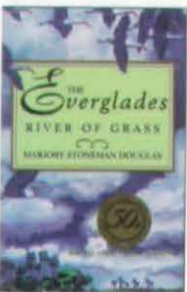
The First Three Minutes: A Modern View of the Origin of the Universe (updated ed.). Steven Weinberg. 1993. New York: Basic Books.

For anyone who's ever wondered where the universe came from.

Ecology

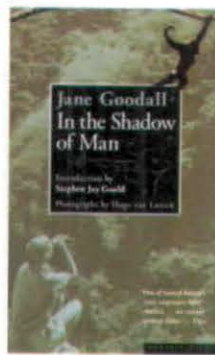
Silent Spring (25th Anniversary ed.). Rachel Carson. 1987. Boston: Houghton Mifflin.

An examination of the effects of pesticides that has become a classic in the environmental movement.



The Everglades: River of Grass (50th anniversary ed.). Marjory Stoneman Douglas. 1997. Sarasota, FL: Pine-apple Press.

Many credit Douglas's work for setting in motion events that would result in the creation of Everglades National Park.



In the Shadow of Man (revised ed.). Jane Goodall. 1998. Boston: Houghton Mifflin.

A description of the extraordinary lives of chimpanzees in the wild.

The Mountain Gorilla: Ecology and Behavior. George B. Schaller. 1963. Chicago: University of Chicago Press.

One of the first scientific descriptions of the social and ecological aspects of mountain gorillas based on Schaller's 20-month field observation.

General Science

A Short History of Nearly Everything. Bill Bryson. 2003. New York: Broadway Books.

A witty, wide-ranging introduction to general science.

Guns, Germs, and Steel: The Fates of Human Societies. Jared Diamond. 2005. New York: Norton.

A sweeping account of the influence of geography and ecology on the history of civilization.

Surely You're Joking, Mr. Feynman!: Adventures of a Curious Character (1st paperback ed.). Richard Feynman, and R. Leighton, and E. Hutching. 1997. New York: Norton.

The charming autobiography of an orthogonal thinker.

Intuition. Allegra Goodman. 2006. New York: Dial Press. An intimate fictional look at the inner workings of a modern research laboratory.

Ever Since Darwin: Reflections in Natural History. Stephen Jay Gould. 1977. New York: Norton.

A fascinating, illuminating and thought-provoking collection of essays about the natural world by one of science's best writers.

The Structure of Scientific Revolutions (3rd ed.). Thomas Kuhn. 1996. Chicago: University of Chicago Press. An analysis of how new scientific ideas replace old ones.

Powers of Ten: A Book About the Relative Sizes of Things in the Universe and the Effect of Adding Another Zero. Phylis and Phillip Morrison. 1983. San Francisco: W.H. Freeman.

A visual study of the relative sizes of things from quarks to superclusters.

The Logic of Scientific Discovery. Karl Popper. 2002. New York: Routledge.

An analysis of the processes of scientific discovery.

Stiff: The Curious Lives of Human Cadavers. Mary Roach. 2004. New York: Norton.

A thoroughly engrossing look at what happens to our bodies after we die.



Science for All Americans. James Rutherford and Andrew Ahlgren. 1990. New York: Oxford University Press.

A guide for science education reform as well as an impressive attempt to explain what you need to know to be considered scientifically literate.

Cosmos. Carl Sagan. 1980. New York: Random House. The companion to the acclaimed public television series chronicling the discoveries of science.

Fermats Last Theorem. Simon Singh. 2007. U.K.: HarperCollins.

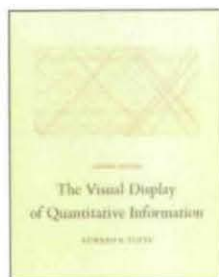
A fascinating and accessible look into the world of mathematics.

What Is Life? The Physical Aspect of the Living Cell. Erwin Schrödinger. 1945. New York: The Macmillan Company.

An examination of the shared boundaries of physics, chemistry, and biology.

The Visual Display of Quantitative Information (2nd ed.). Edward Tufte. 2001. Cheshire, CT: Graphics Press.

A guide for presenting and understanding complex information via images.



A Fish Caught in Time: The Search for the Coelacanth. Samantha Weinberg. 2000. New York: HarperCollins.

The captivating story of the discovery of a living fossil, the coelacanth, off the coast of West Africa.

Pointing From the Grave: A True Story of Murder and DNA. Samantha Weinberg. 2003. New York: Miramax Books/Hyperion.

A gripping and true murder-mystery that illustrates how genetics is used in forensic criminology.

Naturalist. Edward O. Wilson. 2006. Washington, DC: Island Press/Shearwater Books.

A revealing autobiography that also illustrates much about how science is done.

Connecting to the Standards

This article relates to the following *National Science Education Standards* (NRC 1996).

Professional Development Standards

Standard A:

Professional development for teachers of science requires learning essential science content through the perspectives and methods of inquiry.

Standard C:

Professional development for teachers of science requires building understanding and ability for lifelong learning.

On Human Nature (25th anniversary ed.). Edward O. Wilson. 2004. Cambridge, MA: Harvard University Press. A Pulitzer Prize-winning account of what biology can tell us about human societies.

Physics and Chemistry

Relativity: The Special and the General Theory. Albert Einstein. 1961. New York: Bonanza Books.

Written for the general audience by the man himself.

Six Easy Pieces. Essentials of Physics, Explained by Its Most Brilliant Teacher. Richard Feynman, and R.B. Leighton and M.L. Sands, eds. 1995. Reading, MA: Addison-Wesley. Six of the easiest chapters on physics taken from Feynman's celebrated Lectures on Physics collection.

Genius: The Life and Science of Richard Feynman. James Gleick. 1992. New York: Pantheon Books.

The fascinating story of the man behind the persona.

The Nature of the Chemical Bond and the Structure of Molecules and Crystals: An Introduction to Modern Structural Chemistry (3rd ed.). Linus Pauling. 1960. Ithaca, NY: Cornell University Press.

A remarkable approach to understanding matter using a relatively small number of core ideas.

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Reference

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academy Press.

Internet Resources

Books Every Science Writer Should Read

http://web.mit.edu/knight-science/resources/science_books.html

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