

Book Reviews

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EVOLUTION

The Beak of the Finch, A Story of Evolution in Our Time. 1994. By Jonathan Weiner. Alfred A. Knopf (201 East Fiftieth St., New York, NY 10022). 332 pp. Cloth \$25.



This book should be titled something like THE BEST NON-TEXTBOOK BOOK ON MODERN EVOLUTIONARY THEORY or NEO-DARWINIAN THINKING FOR EVEN THE MOST SCIENTIFICALLY-ILLITERATE READER. I started this book thinking I would have a little entertaining reading about Peter and Rosemary Grant's ongoing 20-year study of the Galapagos finches that every biologist knows were crucial in Charles Darwin's development of his theory of evolution by natural selection. I thought I would simply be substituting my regular bedtime science fiction for a moderately entertaining scientific travelogue. Boy, was I wrong!

I have yet to encounter a more enjoyable, readable, informative book about modern evolutionary thinking and the many biologists, in addition to the Grants, who are currently engaged in evolutionary research. This textbook is clearly no dry treatment of evolution. What Weiner does is de-

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scribe the Grants' and their students' long-term study of the Galapagos finches to illustrate and explain almost every aspect of Darwinian theory. Weiner discusses natural and sexual selection, hybridization, the principle of divergence and character displacement, adaptive landscapes, gradualism and the evolution of complex organs, the role of isolation in speciation, and the definition of species.

When treating each of these evolutionary concepts and others, Weiner moves from Darwin's original writings and thoughts (including vignettes about the importance of different incidents in his life) to 20th-century scholars who have been both critical and supportive of Darwin. He then goes to the details of the many specific finch studies that the Grants and their students have produced that bear on the concept. Weiner also writes of studies of song sparrows, crossbill finches, and stickleback fish in British Columbia; guppies in Trinidad; fruitflies in Hawaii; and gray moths from across the southern U.S., to mention just a few. Weiner's descriptions of these studies and the thinking of the biologists responsible for them convey the vitality of evolutionary research today. They also provide multiple real-life models of scientists at work in the field and in the laboratory to which students can relate.

The Grants have demonstrated that it is indeed possible to study the dynamics of evolutionary processes at work in the modern world and, perhaps more importantly, within the lifetimes of scientists. This is no trivial achievement; it is a significant improvement over the predominantly theoretical and hypothetical study of evolution that dominated the field in the early part of this century. Weiner's achievement is no less impressive from a teacher's perspective. He has written an exceedingly entertaining, informative and accessible book about evolutionary thinking. High school biology teachers and students: Read this book! You will enjoy it immensely

(and learn a lot of evolutionary biology in the process).

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BIOGRAPHY

Epitaph for a Desert Anarchist. 1994. By James Bishop Jr. Atheneum Pubs. (597 Fifth Avenue, New York, NY 10017). 254 pp. Hardback \$22.



Edward Abbey has been described as a curmudgeon, an anarchist, a hero, a provocateur, a rebel. In his relationships and his public behaviors he displayed both passion and paradox, yet he has become a charismatic figure and an icon in the search for personal freedom and in the pursuit to preserve the wilderness. Opposites attract, and this green Appalachian boy, born and raised in the verdant rural rolling hills of Pennsylvania, later developed a fierce love affair with the parched sculpture that marks time's imprint on the Southwest.

I first became acquainted with Abbey through his captivating essays in *Desert Solitaire* and later through his reputation as the author of *The Monkey Wrench Gang*. Though Abbey has frequently been listed as an environmentalist, or as a naturalist and social critic, James Bishop reveals him to have been a disciplined writer who complied with his conviction that the role of the writer obliges him/her to be a "critic of his own country, his own government, his own culture." Towards this objective, Abbey authored 21 books. Concerned with the shrinking natural world and the intrusion of technology in our lives, his anguished outcries depicting the suppression of personal freedom by progressive technocracy, and its subsequent contamination and erosion of the natural world, remain part of his legacy. Abbey, as an individual and as a writer, impressed the American public with

his concern for maintaining and respecting inner and outer space on nature's terms.

Although in *Epitaph for a Desert Anarchist*, James Bishop Jr. looks at Abbey and his impact on the American conscience through his writings, the memoir is colored with anecdotes collected by his family and friends. While the author emphasizes that the book is not an "academic study" of Abbey's works, the chapters pursue and portray the man and his philosophy through his publications.

Known for his commitment to environmental protection, Abbey served as a seasonal ranger for 17 years. Written in the late 60s, the essays of *Desert Solitaire* recount his experiences with the natural life at Arches National Monument in Utah and the insensitive human invaders. Motorized tourists, completely unaware of the terrain, the indigenous life, or the requirements to survive in the desert, crept out to mark their existence and to demonstrate their domination over the landscape. Fearful of the consequences to the sacred lands caused by an onslaught of industrial tourists, Abbey was one of the first to delineate three possible solutions for saving our national heritage. His suggestions were simple:

1. Outlaw cars within the national parks—wilderness areas, which, like cathedrals, must be respected as such.
2. Build no new roads in national parks.
3. Put park rangers back to work as naturalists.

Like many sages who speak before the paradigm shifts, his remedies were ridiculed. With time the first two of his suggestions are being implemented, but unfortunately in the meanwhile, the role of the ranger has become bureaucratized and militarized. This past spring I visited Arches and the north rim of the Grand Canyon, areas once renowned for their solitude and isolation, but these areas are now infested with commercial ghettos that cater to the air-conditioned comfort and gluttony of the city denizen.

In his novel, *The Monkey Wrench Gang*, Abbey portrayed a bunch of civilized misfits who take on the sisyphian task of "battling the forces of environmental havoc." Enraged at the natural destruction caused by the construction of the Glen Canyon dam, designed to provide cheap electrical power for places like Las Vegas, Los

Angeles, San Diego, and other Southwest cities, Abbey's gang sought to resuscitate the natural vigor of the Colorado River by amputating this artificial implant. The book served as a manual for environmental activists whose practices Abbey approved, yet he himself did not engage in such exercises.

Published in 1956, *The Brave Cowboy* represents the free spirit of the Old West in the form of the hero who practices his individual morality that conflicts with rigid bureaucratic rulings. Fighting the encroachment of industrial conformism, the hero is eventually physically overpowered by technology, yet his spirit survives. The film "Lonely Are the Brave" with Kirk Douglas was based on this book and it remains one of the most moving and haunting films I have ever viewed, portraying the clash of the human spirit against the amoral constraints of the powerful state.

Abbey as a writer, like Escher the artist, was fascinated by the paradoxes inherent in life. Unlike Escher, Abbey displayed many of the basic contradictions that make us human and his behavior as a curmudgeon made him either much loved or hated. Abbey provoked his audiences and his rebellious remarks were often said for effect. As a contemporary writer, Abbey deserves accolades as one who raised the public's "consciousness about the importance of individual responsibility and taking action, and about the value of all living things."

This is a book that celebrates a man who "represented the best of the American dream" and salutes him "for his humanism in trying to shock readers into recognizing their actual place in nature." Abbey's story deserves to be read by students who should be reminded that we are all part of nature and that in working to preserve the natural world, we also work to insure our own spiritual and physical survival. We need to be reminded of the personal integrity represented by the spirit of Edward Abbey, just as we need a buzzard to shake us out of inertial conformity. Even now, many of his admirers see Abbey in the resurrected form of the vulture he so admired, watching the show below as he soars in the sky.

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THE MIND

Receptors. 1994. By Richard M. Restak. Bantam Books, Inc. (666 Fifth Avenue, New York, NY 10019). 228 pp. Hardback \$23.95.



Written by a practicing neurologist who displays an irrepressible curiosity about the brain along with a passionate desire to communicate his enthusiasm to the general reader, **Receptors** proves to be a very stimulating and readable book covering what is currently being discovered in the molecular world of neurotransmitters and receptors. In his preceding book, **The Brain Has a Mind of Its Own**, the author attempted to describe the workings of the anatomical brain; in this latest publication he probes the inner actions of our central computer by attempting to focus at the submicroscopic level.

In a series of 16 chapters, each written in essay form, the reader is introduced to the newer ways of thinking about brain mechanics, its manifestation in what we term the ruling mind, and finally the exposure of cerebral manipulations through our moods, emotions and behaviors. Bypassing the anatomical mappings and ignoring electrical readings to interpret the brain, neuropsychiatrists now concentrate on the chemical interactions at the molecular level that appear to drive thoughts and emotions. The four chemical types of neurotransmitters are described—from simple amino acids, the monoamines, and acetylcholine, to a heterogeneous cluster of various endorphins, nitric oxides, and lettered substances—along with their actions and locations in the brain.

Each chapter begins with a historical review of what is known about mind altering drugs and is further enriched with clinical sketches of the actions of these drugs which are classified as Euphoricants, Phantasticants, Inebriants, Hypnotics, and Excitants. For example, extracts made from the plant henbane have been used in different circumstances to achieve different outcomes, it can be applied to induce prophetic powers or to eliminate adversaries, "Both Hamlet's father and the Roman emperor Claudius were killed by surreptitiously supplied henbane." The chemical LSD is described along with its relationship to the psychotic component found in ergot plant fungus. Modern psychopharmacology is said to have been opened by the serendipitous discovery of the