**ANIMALS**


Eric Chaline selected 50 animals that he thinks made the greatest impact on human history. The most interesting thing about this book is the manner in which he always brings the reader back to how important the animal was, even if it is as humble as a fruit fly (*Drosophila melanogaster*). He begins each chapter by stating the scientific name, range, phylogenetic class, and size of the animal. Then there is a list of four features, which are common throughout the book: stating whether the animal is edible, used in medicine, of commercial value, and practical.

One of the most interesting choices that Chaline makes is the cow. He goes through how the cow has been used by humans for a very long time, how the cow is revered in India, how the Spanish fight bulls in the arena, and how important the cow was in the creation of the American West. The ending of the chapter is brilliant: “It would be one of the great ironies of human history if cattle were now responsible for the slow decline and ultimate destruction of human civilization through the degradation of the environment” (p. 39). He is referring to the excessive amount of methane produced by cattle, especially those grown in factory farms.

Two organisms that are fascinating – and that one would never think of as having the impact on history that they have – are the cochineal (*Dactylopius coccus*; p. 66) and the spiny dye-murex (*Bolinus brandaris*, p. 26). The cochineal is a small arthropod responsible for the brilliant red dye used on South American fabrics. The murex is a gastropod responsible for the rich purple dyes that were used by royalty. These two dye colors have definitely been very important to history.

Chaline also covers animals that were vitally important, like the seal (*Phoca spp.*, p. 162). Seals were a draw for explorers as they moved across North America, from the west and from the east. Seals have been used by many cultures for clothing (p. 165). Another feature of the book is that the author usually points out a conservation issue or problem faced by the animal. In this case, he brings out the problem of hunting seals for fur. This practice is often brutal and is still going on even today.

Not all of the animals are nice and useful. Chaline talks about the impact of the schistosome (*Schistosoma mansoni*, p. 194). This small worm is responsible for a debilitating disease in humans and is difficult to deal with because it spends different parts of its life cycle in several hosts. It is good to see how practical Chaline is with his entries. He gives a simple solution to the problem of schistosomiasis in that snails can be eradicated fairly easily. He describes the enormous impact the Oriental rat flea (*Xenopsylla cheopis*, p. 204) had on history. This is the organism that killed millions of humans during the plague.

The final animal Chaline deals with is the human (*Homo sapiens*, p. 210). The chapter goes through how new humans are as a species and examines some of the ancient human ancestors (p. 211). There is also a lot of good information on human prehistory, which examines things like the ancient Egyptian society and also touches on ancient peoples from several other continents. Once again, the author always brings things back to the present: “According to many futurologists, humans have already reached the point of no return in terms of climate change and the exhaustion of resources...” (p. 216). However, he says that perhaps humans cannot fix the problems we have caused and simply need to move forward. This is certainly less environmentally friendly than the rest of the book.

This book would be a nice resource for high school teachers, especially for students when they are writing papers on a particular animal. It also is just fun to read. In these days, when books are being replaced or simply ignored, a fun book like this one, with so many interesting facts, might help a student learn to enjoy reading. The reading level is certainly more than appropriate for high school students and perhaps even simple enough for fifth- or sixth-grade students.

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**ECOLOGY**


“Planting trees may be the single most important ecotechnology that we have to put the broken pieces of our planet back together.” With this statement, Jim Robbins explains his purpose in writing this book – to describe the important role that forests play in maintaining and enhancing the biosphere. He does a good job of explaining carbon sequestration and removal of air and water pollutants. He introduces the idea of forest migration as movement primarily north, but does not focus on global warming as the only cause. There is an excellent example of a positive feedback loop using a dying forest that contributes to a warming

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climate because the trees no longer capture carbon dioxide from the atmosphere.

Woven throughout the book is the unique story of David Milarch. In 1987, while going through alcohol withdrawal, Milarch says he died and went to heaven, where he was given a task to complete by “light beings” that spoke to him. He returned as a man driven with purpose: to clone the “champion” of every tree species in the country. A champion tree is the one tree of each species with the highest combined score of height, crown size, and diameter at breast height. The assumption is that champion trees are genetically superior and cloning them will increase the genetic fitness of future forests. As Milarch says, “This stump is back from the dead, same as I am. We’re both playing the same role. It’s a resurrection. This is where we ask the world to help heal itself.” Jim Robbins hopes for a future world where appropriate forest infrastructure is considered when building any new development and believes that “David Milarch, with the help of the Archangel Ancient Tree Archive, is well under way on his quixotic campaign to protect the genetics of the old-growth trees and to create supergroves that will perpetuate the genetics around the world.”

Most chapters focus on the description of one tree species. The story of the 2,200 year-old Mother of the Forest giant sequoia tree that was stripped of all of its bark in 1854, killing the tree, and then reassembled for viewing by crowds in London and New York City, is presented as a sad moment in our history, but as a result, ecotourism to see the giant sequoias increased and the remaining trees were saved from being chopped down. There is a well-told story of the discovery of a deciduous redwood tree in China that was thought to be extinct. Dr. Ralph Chaney, paleobotanist at UC Berkeley, named it the “dawn redwood” and brought trees back to California in 1948. There are other powerful tree stories – the cloning of a 5000-year-old bristlecone, planting a Wye Oak clone at Mount Vernon on Arbor Day and planting red ash clones for a living memorial to victims of the 9/11 terrorist attacks at the Pentagon. The Man Who Planted Trees is a quick, easy read and introduces the reader to many important ecological concepts – ecotechnology, carbon sequestration, cloning, biophilia, forest migration, and phytoremediation. The science is well explained and at a general science level. The only part I found difficult to read was the “Great Unknowns” chapter, which lacked data to support some of the cause-and-effect relationships that Robbins is trying to establish. A single study or anecdotal story is not enough.

This book could easily be used in a college-level course in biology or ecology. I am adding it to my reading list for high school AP biology students. One of the chapters on the redwoods would work well in a high school biology class to introduce the idea of biophilia or ecotechnology, and would stimulate some great discussions.

If you are interested in the human connection to nature, read Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder by Richard Louv (2008). If you are interested in the history and climbing of the redwoods, try The Wild Trees: A Story Time is running out! Advance Conference Registration ends on October 15th. Register at www.NABT2012.org.

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FORENSIC SCIENCE


Most forensic textbooks allot one chapter to the history of fingerprints. Beavan offers an in-depth tour through the history of fingerprints – including major and minor cases – making the history of fingerprints read like a mystery novel. He relates the intrigues and egos of key individuals, specifically the conspiracy between Francis Galton and William Herschel to deny credit to Henry Faulds for his contributions to fingerprint science. Even though the intrigues are not necessary from a historical perspective, they certainly breathe life into what some would consider a dry topic.

The book is not intended to be an academic work. Rather, it was written to be a nonfiction work relating the changes in the criminal justice system of Europe – and later America – that led to the need for a way to easily and accurately identify criminals. Following a series of important criminal cases, the United Kingdom adopted fingerprints as a means of identification and, a few years later, so did America.

The U.K. has a bloody history of dealing with criminals, including hanging and other torturous methods. Because a dead criminal cannot commit another crime, recidivism rates were low. But death is final, so judges would mete out merciful sentences, such as a period of imprisonment, for minor criminals. This led to the creation of prisons. Because criminals were being released back into society, rather than being buried, society became aware of the repeat offender. Parliament decreed that repeat offenders should be given harsher punishments, but police did not have a reliable means of identifying criminals. Repeat offenders could change their name to avoid harsher sentences.

For the next 20 years, several men struggled to devise a reliable system for identification. Alfonse Bertillion applied anthropological techniques for describing populations to the description of criminals. Although this later proved to be a flawed technique, it achieved initial success. The use of eyewitness testimony proved the fallibility of someone’s ability to distinguish between two people who look similar. Adolf Beck, a wealthy copper-mine owner, was convicted of robbery by eyewitness testimony. After he served five years in jail, it was later determined that someone else, who looked similar, was guilty. Fingerprints can distinguish between two people who look alike – even twins.

Time is running out!

Advance Conference Registration ends on October 15th.