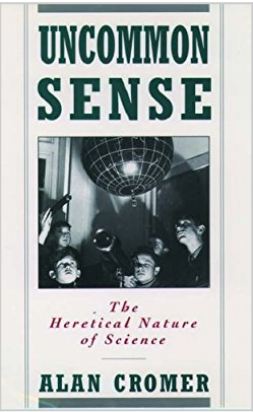

Uncommon Sense: The Heretical Nature of Science

By Alan Cromer

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Most people believe that science arose as a natural end-product of our innate intelligence and curiosity, as an inevitable stage in human intellectual development. But physicist and educator Alan Cromer disputes this belief. Cromer argues that science is not the natural unfolding of human potential, but the invention of a particular culture, Greece, in a particular historical period. Indeed, far from being natural, scientific thinking goes so far against the grain of conventional human thought that if it hadn't been discovered in Greece, it might not have been discovered at all.
In *Uncommon Sense*, Alan Cromer develops the argument that science represents a radically new and different way of thinking. Using Piaget's stages of intellectual development, he shows that conventional thinking remains mired in subjective, "egocentric" ways of looking at the world--most people even today still believe in astrology, ESP, UFOs, ghosts and other paranormal phenomena--a mode of thought that science has outgrown. He provides a fascinating explanation of why science began in Greece, contrasting the Greek practice of debate to the Judaic reliance on prophets for acquiring knowledge. Other factors, such as a maritime economy and wandering scholars (both of which prevented parochialism) and an essentially literary religion not dominated by priests, also promoted in Greece an objective, analytical way of thinking not found elsewhere in the ancient world. He examines India and China and explains why science could not develop in either country. In China, for instance, astronomy served only the state, and the private study of astronomy was forbidden. Cromer also provides a perceptive account of science in Renaissance Europe and of figures such as Copernicus, Galileo, and Newton. Along the way, Cromer touches on many intriguing topics, arguing, for instance, that much of science is essential complete; there are no new elements yet to be discovered. He debunks the vaunted SETI (Search for Extraterrestrial Intelligence) project, which costs taxpayers millions each year, showing that physical limits--such as the melting point of metal--put an absolute limit on the speed of space travel, making trips to even the nearest star all but impossible. Finally, Cromer discusses the deplorable state of science education in America and suggests several provocative innovations to improve high school education, including a radical proposal to give all students an intensive eighth and ninth year program, eliminating the last two years of high school.

Uncommon Sense is an illuminating look at science, filled with provocative observations. Whether challenging Thomas Kuhn's theory of scientific revolutions, or extolling the virtues of Euclid's *Elements*, Alan Cromer is always insightful, outspoken, and refreshingly original.

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Editorial Review

From Publishers Weekly
Science is "heretical," according to Northeastern University physics professor Cromer, because its essence--objectivity--defies primitive human egocentrism. He suggests that objectivity is a very uncommon kind of thinking that evolved only in ancient Greece. Many countries established astrological systems, he points out, but only Greece produced solid geometry and number theory. Cromer nails his thesis against the doors of what he perceives as the current orthodoxies of New Age romanticism, political correctness and multiculturalism, reiterating his view that the core of scientifc thinking was a uniquely Western discovery and not a natural development latent in all evolving civilizations. He believes that this "uncommon sense" is easily overwhelmed by the persistent infantile appeal of such "magical" explanations of our observed world as UFOs, the paranormal and crystal channelings. Cromer and colleagues have conceived a science curriculum called SEED (Science Education Experiments & Demonstrations) for students and teachers in the middle school grades which is worthy of consideration by all educators. Illustrations.

From Kirkus Reviews
Cromer (Physics/Northeastern) advances several agendas in this provocative, polemical work. For starters, he asserts that science isn't an inevitable development in advanced cultures. Rather, he sees most people at most times stuck in the egocentric/magical world that Piaget described as central to the early developmental stages of childhood. Had it not been for the Greeks--with their democratic penchant for dialogue and debate--and the brilliance of Euclid, Archimedes, et al. (but not Aristotle), we might still be animists or dependent on religious prophets for our cosmology and cosmogony. The author contends that it was the rebirth of Greek science in the Renaissance, combined with the age of exploration and the invention of movable type, that created today's world dominated by science and technology. We've arrived at a stage where we can talk about the completeness of science and, based on probabilities and calculations, Cromer concludes that there's no point in seeking extraterrestrial intelligence or dreaming of intergalactic travel. Moreover, if we're to improve the world, we'd better do something about our schools: Instead of making them substitutes for home, as well as vehicles for social policies, we need to incorporate dynamic hands-on science programs, pouring our resources into the eighth and ninth grades and eliminating the last two years of high school. Wow. Clearly he who credits the Greeks for the spirit of debate will himself invite debate. What of the history of technology...mathematics...inductive proofs...the (Indian) invention of zero? As for the completeness of science, that's what they said in 1900...and said again in the early days of the genetic code. Overall, then, a generous helping of hubris here--but not without redeeming insights on good and bad science, as well as examples of Cromer's own work in reforming middle-school science curricula. (Nineteen line drawings) --

Review
"Brilliant...makes a powerful argument for the superiority of the scientific process."--Anchorage Daily News

"Cromer's sprightly montage outlines selected landmarks in human evolution and the history of the sciences, repeatedly demonstrating the difficulty humans have separating egocentric thinking from reality: witness tenacious belief in astrology, ESP, and UFOs. Cromer ranges among philosophies
Greek, Judaic, Hindu, Babylonian, and Chinese, but always concentrates on the uniqueness of the scientific revolution--and the constant threat to it of educational inadequacy. A concise communicator, Cromer is easy on the eyes, harder on the brain."--Booklist

"Cromer nails his thesis against the doors of what he perceives as the current orthodoxies of New Age romanticism, political correctness and multiculturalism, reiterating his view that the core of scientific thinking was a uniquely Western discovery and not a natural development latent in all evolving civilizations. He believes that this 'uncommon sense' is easily overwhelmed by the persistent infantile appeal of such 'magical' explanations of our observed world as UFOs, the paranormal and crystal channelings. Cromer and colleagues have conceived a science curriculum called SEED (Science Education Experiments and Demonstrations) for students and teachers in the middle school grades which is worthy of consideration by all educators."--Publishers Weekly

"An excellent book. It is refreshing when a scientist has the courage to declare that there is an outside world, independent of human minds, mathematically structured, and that science is cumulative, always building on past results rather than a series of upheavals such as Thomas Kuhn maintains."--Martin Gardner, author of Gardner's Whys and Wherefores and Fractal Music, Hypercards and More

"A fascinating and innovative interpretation of the scientific enterprise which I found both instructive and enjoyable."--Paul Kurtz, author of Eupraxophy and In Defense of Secular Humanism

Users Review

From reader reviews:

David Hedges:

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Donald Dickens:

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