Science & Technology

FOX TALBOT AND THE INVENTION OF PHOTOGRAPHY
by Gail Buckland
Godine, 1980
216 pp. $50

FOX TALBOT: Photographer
by Robert Lassam
Kent State Univ., 1981
90 pp. $22.50 cloth, $9.95 paper

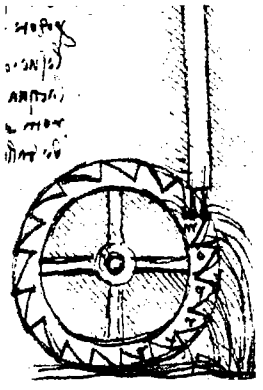
William Henry Fox Talbot (1800–77) was an accomplished scientist, mathematician, folklorist, etymologist, and Orientalist who also found time to serve in Britain's House of Commons. In 1833, Talbot got the idea that the camera obscura's "fleeting images" might be made to "imprint themselves durably." The following year, he treated plain writing paper with various salts and silver nitrate and came up with what he called a "photogenic drawing" (what we now call a "negative"). He next discovered that if transparent paper was used, the first picture could serve to produce a second on which light and shadow would be reversed, i.e., a "positive"; a single negative, he figured, could produce multiple positives. Still not satisfied, Talbot invented, among other things, primitive methods of photocopying and halftone reproduction. Talbot was so busy that he did not present his discoveries to London's Royal Institution until January 25, 1839—two weeks after Louis-Jacques-Mandé Daguerre had announced his quite different process in Paris. Buckland, former curator of the Royal Photographic Society of Great Britain, recounts the whole story, with ample illustrations, and provides extensive excerpts from Talbot's writings. Lassam, curator of England's Fox Talbot Museum, has written a brief biographical introduction to some 65 full-page reproductions of the world's first photographs —Talbot's grainy still lifes, snapshots of early Victorians posed at work and play, and elegant close-ups of leaves and plants.

THE COMING OF THE AGE OF IRON
edited by Theodore A. Wertime and James D. Muhly
Yale, 1981
555 pp. $22.50

Iron was first used, for ornament, as early as 3000 B.C., probably in northern Turkey. But the Iron Age did not truly dawn until 2,000 years later, when the precious metal was discovered in abundance in the Middle East and began to replace bronze in weapons and tools, notes Wertime, a Smithsonian anthropologist. In these 14 often-technical essays,

historians, archaeologists, anthropologists, and metallurgists discuss facets of iron lore ranging from political events that hastened the switch from bronze to iron to the mechanics of smelting. Iron's introduction into daily life in Europe, Asia, and Africa "was far too complicated a process to have a direct influence on the known events of history," observes archaeologist Anthony M. Snodgrass. But the metal has played a supporting role in our own civilization. At the start of the Industrial Revolution, yearly world production of iron and steel was a half-million tons; by 1970, it exceeded a billion tons.

LEONARDO THE SCIENTIST
by Carlo Zammattio et al.
McGraw-Hill, 1981
192 pp. $9.95



Madrid Codex I.

While observing the "power" of water falling from different heights, Leonardo da Vinci (1452–1519) deduced and illustrated the principles of modern hydrodynamics that Daniel Bernoulli did not formally develop until 1738. In this brief survey of Leonardo's scientific notebooks, Zammattio, an engineer from Trieste, analyzes the artist's intricate designs (never executed) for such schemes as a navigable seaway linking Florence with the distant Mediterranean. Vincian scholar Augusto Marinoni traces the fate of the notebooks themselves—with their fully evolved treatises, haphazard jottings, and sketches—as they passed among owners in nine European countries and the United States. Marinoni also discusses a design—probably a student's copy of Leonardo's original drawing—for a chain-driven bicycle, an idea that went unrealized until the late 19th century. Anna Maria Brizio, an art historian at the University of Milan, supplies a collection of Leonardo's aphorisms on hydraulics, birds in flight, human anatomy, and other diversions. Leonardo studied nature, writes Marinoni, "like a pupil who wants to discover the secrets of the master."