

SCIENCE & TECHNOLOGY

APOLLO: The Epic Journey to the Moon.

By David West Reynolds. Harcourt. 272 pp. \$35

Late this year, a sad little anniversary will likely pass without much notice. On December 14, 1972, Eugene Cernan took one last look around the dark lava plains of the Taurus Mountains, near the Littrow Crater. The golf-cart-like lunar rover stood 500 feet away, ready to send Earth live television images of his departure. He gazed down at the plaque on the spider-legged lunar excursion module, which, like the rover, would be left behind: "Here Man completed his first exploration of the Moon/December 1972 A.D./May the spirit of peace in which we came be reflected in the lives of all mankind." Cernan boarded the Command Service Module and, with fellow astronaut Harrison Schmitt, lifted off to begin the journey home. No one has been back since.

If you get a little teary eyed over that vignette, with its simultaneous evocation of enormous achievement (the U.S. space program of 30 years ago) and enormous disappointment (the U.S. space program of today), then you will take a bittersweet pleasure in *Apollo: The Epic Journey to the Moon*. Reynolds describes the Apollo program, which put 12 men on the moon from 1969 to 1972, as "an unprecedented new kind of project for our culture. We must look to the pyramids of Egypt or the cathedrals of Europe to find parallels." Despite the current stagnation—circling the Earth in a shuttle or space station hardly counts as progress—he believes the best is yet to come: "One day, the achievements of Apollo will inspire us to find our astonishing strengths again."

Alongside hundreds of photographs, Reynolds recounts the history of the Apollo project, from the tragic Apollo 1, which caught fire during premission testing in 1967, killing the three astronauts inside, through the successful Apollo-Soyuz Earth-orbiting collaboration of 1975. He provides a fascinating back story, too, including a reputation-burnishing account of Wernher von Braun, the rocket boy turned Nazi munitions maker turned American NASA-meister. The book lovingly reproduces von Braun's sketches for rockets from the 1920s to the 1960s, as well as the see-the-future-now paintings that, in his postwar incarnation as public-relations whiz, he inspired in *Collier's* and other popular magazines.

The author of five books on the *Star Wars* movies, Reynolds naturally emphasizes the fantastical origins of the space program. In *From Earth to the Moon* (1865), Jules Verne posited Florida as a launch site; the pioneering French science-fiction writer knew



Astronaut Edwin E. Aldrin, Jr., on the lunar surface, July 20, 1969.

that Earth's faster rotation near the equator would help a rocket achieve escape velocity. Reynolds rescues from obscurity Fritz Lang's 1929 silent movie *Frau im Mond* (Woman in the moon), which benefited from the technical advice of rocketeering visionary Hermann Oberth. "In some major ways," Reynolds observes, "the look and feel of Apollo began with Fritz Lang and *Frau im Mond*."

The *Star Wars* movies are perhaps the best portal for kids who might grow up to take humanity beyond Apollo, but when the young and curious are ready to move from fiction to fact, they should pick up this book. For everyone else, *Apollo* will make a handsome, informative addition to the coffee table.

—JAMES PINKERTON

TUXEDO PARK:

A Wall Street Tycoon and the Secret Palace of Science That Changed the Course of World War II.

By Jennet Conant. Simon & Schuster. 330 pp. \$26

They don't make rich nerds like they used to. Look at Bill Gates, frittering his life away in trench warfare with the Justice Department instead of using his gazillions to, say, colonize and air-condition Mars. Compare him to Alfred Loomis (1887–1975). Having made a fortune of Gatesian proportions in the electric utilities boom of the 1920s, Loomis got out just before the stock-market crash. He retreated to a castle in the cloistered New York village of Tuxedo Park to pursue his youthful passion for physics. Patron to the finest scientific minds of his generation, he assembled teams of researchers who would help win World War II by developing first radar and then the atomic bomb. And he managed to do it all without attracting the notice of journalists or historians.

Until now. Conant, a former *Newsweek* reporter whose grandfather and great-uncle were Loomis cronies, weaves a skillful account drawn from family correspondence and interviews with the aging remnants of the tycoon's networks. She pierces the protective curtain the publicity-shy Loomis hung about himself, and in the process manages to make him a sympathetic character. Not easy,

considering that she is writing about an investment-banker-turned-physicist, two species popularly supposed to rank with reptiles on the warmth-and-kindness scale.

Certainly Loomis's wife found him chilly. Horrified that he refused to intervene when their three teenage sons announced plans to, variously, cross the Atlantic in a 35-foot boat and scale remote peaks in India, Ellen Loomis stormed at her husband: "Will you still believe in your theories about children if all three of them get killed this summer?" Replied Loomis: "Three is not a sufficient number to prove any scientific theory."

If Loomis's paternal skills were uncertain, there could be no doubting his passion for physics. He spent countless millions of dollars following his whims, often with spectacular results. Fascinated by reports of a French submarine-detection device that killed any fish that swam across its beam, Loomis built a 50,000-watt oscillator and fathered the science of ultrasonics. Puttering around the lab, he designed the nation's first working electroencephalograph, to measure and record a brain's electrical activity.

Nothing, however, surpassed his work with the relatively new fields of microwave technology and small-particle physics. An army weapons researcher during World War I, Loomis understood the military implications well ahead of most scientists (or military men, for that matter). At a time when little government money went into scientific research, Loomis poured his own cash into the work and marshaled additional support from universities and philanthropists. Many of the key men in the development of the atomic bomb—Niels Bohr, Ernest O. Lawrence, Enrico Fermi, Arthur Compton, Vannevar Bush—were members of the Tuxedo Park team of the 1930s. And his research on microwaves was so advanced that in 1940, with London tormented by Nazi bombers and the Roosevelt administration finally awakening to the danger, Loomis was put in charge of the new government radar lab at the Massachusetts Institute of Technology.

For all the significance of Loomis's later work, Conant especially enjoys herself when describing the early years of his Tuxedo Park lab. Like benign Dr. Franksteins, the emi-