

TUCSON'S MOVERS AND SHAKERS

Science and Medicine

Tucson's movers and shakers in science and medicine include an archeologist, a planetary scientist, a heart transplant surgeon, and a pioneer in integrative medicine. **Emil Haury** was a preeminent archeologist and anthropologist who accumulated the evidence that provides much of our understanding of southwestern prehistory. **Michael J. Drake**, a "world-class scientist" in extraterrestrial geology, was director of UA's lunar and planetary projects, and was instrumental in several successful NASA space missions. While at UA, **Jack Copeland** performed Arizona's first heart transplant and later pioneered the use of artificial hearts to temporarily "bridge a patient to heart transplant." **Andrew Weil** is a medical pioneer in treating both the mind and body for a healthy life.

Emil Haury (1904-1992) was born in Newton, Kansas, educated in Kansas through two years of college, then transferred to UA where he earned a Bachelor's degree in archeology in 1927 and a Masters in 1928, and later a PhD from Harvard University in 1934.

Haury began his archeological field work in the late 1920s, exploring prehistoric ruins in northern Arizona and Mexico, and in 1930 became the assistant director of the Gila Pueblo Archeological Foundation in Globe, working for Harold Gladwin. With Gladwin's support, Haury was instrumental in identifying and defining the Hohokam culture in Arizona and the Mogollon culture in New Mexico, which flourished around A.D. 1000 and earlier. Haury also became a key figure in developing tree-ring dating that enabled construction of event timelines for prehistoric sites. In the 1940s and 1950s Haury excavated numerous ancient (circa 9,000 B.C.) Paleoindian Mammoth Kill Sites in Arizona and New Mexico.

In 1937 Haury returned to UA to head the Department of Anthropology and a year later became the Director of the Arizona State Museum, holding both posts until 1964.

The National Academy of Sciences summarized Emil Haury's contributions, "... a perceptive researcher and a master teacher, a skilled administrator ... He surveyed more [greater Southwest landscapes], excavated more sites in it, observed more details of its prehistory, and gained a more sensitive perspective of its problems than any of his contemporaries."

Michael Drake (1946-2011) was born in Bristol, England, graduated with a degree in geology from Victoria University in Manchester, and received a PhD in 1972 from the University of Oregon. After postdoctoral studies at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, he joined the faculty of UA's Planetary Sciences Department in 1973 as an assistant professor.

In 1994 he became the head of the Department of Planetary Sciences and the Director of the Lunar and Planetary Laboratory (LPL), serving until his death in 2011. Under Drake's leadership, LPL grew from a small group of geologists and astronomers into a "powerhouse of research into the solar system."

Drake played a key role in a number of high-profile space projects that garnered international attention for LPL and UA. Those include the Cassini mission to explore Saturn, the Gamma-Ray

Spectrometer onboard NASA's [Mars](#) Odyssey Orbiter, the HiRISE camera onboard NASA's Mars Reconnaissance Orbiter, and the Phoenix Mars Lander. He had over 100 peer-reviewed scientific papers published in his career.

Drake was principal investigator of the most ambitious UA planetary science project to date – the NASA mission to retrieve a sample of an asteroid and return it to earth to study the origins of life – to be launched in 2016.

Jack Copeland (1942-) was born in Roanoke, Virginia, earned a medical degree from Stanford in 1969, did his internship and residency at the University Hospital in San Diego, served with the National Heart and Lung Association at Bethesda, Maryland, and then returned to Stanford where he became chief resident of general surgery.

UA hired Copeland from Stanford in 1977 to head UA's cardiovascular and thoracic surgery program. "Pushing the frontiers of research and new techniques," Copeland and his team performed Arizona's first heart transplant in 1979 and the first successful bridge to heart transplant with a total artificial heart in 1985. Copeland also became a leader in heart valve surgery and coronary bypass surgery. In 33 years at UA, he performed more than 10,000 open-heart operations, including more than 850 heart transplants and over 350 implantations of artificial hearts.

In 2001 Copeland, along with two colleagues, formed SynCardia Systems, Inc. to take over ownership of artificial heart technology from the UA. The company is prospering today and experiencing record implants of artificial hearts.

Copeland left UA in 2010 to "try new things that would benefit patients" at UCSD Cardiovascular Center and Children's Hospital in San Diego.

Andrew Weil (1942-) was born in Philadelphia, received an A.B. degree in botany from Harvard in 1964 and an M.D. from Harvard Medical School in 1968, completed a medical internship at Mt. Zion Hospital in San Francisco, and worked a year with the National Institute of Mental Health. Then, as a Fellow of the Institute of Current World Affairs, Weil traveled widely in North and South America and Africa, collecting information on drug use in other cultures, medicinal plants, and alternative methods of treating disease. From 1971-84 he was on the research staff of the Harvard Botanical Museum and conducted investigations of medicinal and psychoactive plants.

In 1994 Weil founded the Arizona Center for Integrative Medicine at UA's Health Sciences Center where he continues as director today. Weil espouses the combination of traditional medicine with alternative therapies such as omega-3 fatty acids, vitamin D, herbal remedies, meditation and other "spiritual" strategies. Nutrition, exercise, and stress reduction are emphasized. The Center is training doctors and nurse practitioners in this body-mind-spirit philosophy.

Weil has become an internationally-recognized expert for his views on leading a healthy lifestyle, his philosophy of healthy aging, and his critique of the future of medicine and healthcare. He has written 11 books, with sales of approximately 10 million copies.

Selected Sources and Information: “Emil Walter Haury, Biographical Memoirs,” National Academy of Sciences; “Regents Professor Michael J. Drake, 1946-2011,” www.arizona.edu; “Man in the News: A Dedicated Heart Surgeon,” *New York Times*, 1985; “Andrew Weil: Arizona Center of Integrative Medicine,” www.arizona.edu.