

JONATHAN O. DAVIS¹
1948–1990

Jonathan Ogden Davis was killed in an automobile accident on December 15, 1990, at the age of 42. The passing of Jonathan's knowledge and understanding is a serious loss to geoarchaeology and Quaternary stratigraphy of the Great Basin and western North America.

Jonathan was born on April 15, 1948, in Boston, Massachusetts, to Beth Ogden Davis and E. Mott Davis. His roots in archaeology and earth science are deep; he was the great grandson of William Morris Davis, the father of geomorphology; his father and aunt (Hester A. Davis) are archaeologists, and his mother, trained as an anthropologist, is an editor of archaeological publications. Growing up in academic communities of the University of Nebraska and University of Texas at Austin (UTA), where his father taught, he spent many summers in the field as a child. An undergraduate at UTA between 1965 and 1969, Jonathan was a campus radical and member of Texas Cavers, a wild and (literally, at the time) woolly bunch of spelunkers who explored and mapped caves throughout Texas and Mexico. Concentrating in geology while also taking enough anthropology for a major, Jonathan graduated from UTA cum laude in 1969 with a B.A. in geology.

While at UTA, Jonathan spent summers on geological field trips and archaeological projects, including a summer on the Wallisville Reservoir Project under Richard Ambler and Lawrence Aten, and a season working for Dave Dibble on the Amistad Reservoir Project. Dibble later entered the newly formed Quaternary Studies program of the Department of Anthropology at Washington State University (WSU); largely on Dibble's recommendation, Jonathan was offered a job there in 1969 as Roald Fryxell's assistant. In 1969 and 1971, Jonathan worked at Marmes Rockshelter with

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Fryxell, and served on the Cariguela (Mousterian) Project in Spain, directed by Fryxell and Henry Irwin; he was appointed lecturer in anthropology at WSU between 1971 and 1974. Jonathan entered graduate studies at the University of Idaho (UI) in the Department of Geology, receiving his M.S. in geology in 1974, and his Ph.D. in 1977. His Master's thesis, *Computer-Assisted Three-Dimensional Modelling in Geology*, demonstrated an interest in computers and a knack for programming that continued throughout his career. His Ph.D. dissertation, *Quaternary Tephrochronology of Lake Lahontan, Nevada and California*, supervised by Robert Jones, established a chronostratigraphic framework for the western Great Basin that remains an invaluable research tool for archaeology and Quaternary studies to the present day.

I met Jonathan while a graduate student at WSU; in 1971 I enlisted his help with the Nevada Archaeological Field School at Steamboat Hot Springs near Reno, sponsored by the Nevada State Museum (NSM) and Nevada Archeological Survey (NAS), University of Nevada (UNR). Codirecting the field school in 1971 and 1972 was the start of our 10-year active collaboration, and Jonathan's introduction to the Great Basin. The field school was also where he met his first wife, Gail Townsend, with whom he worked on several NAS projects in the 1970s. Their work on Lake Tahoe shoreline geomorphology strongly suggested an extended mid-Holocene drought, an hypothesis further supported by Susan Lindstrom's recent research on ancient drowned trees in Tahoe. The early 1970s were a busy time for Jonathan; as he continued his duties at WSU, went to school, conducted the research for his dissertation, and worked at NAS as time allowed, he also began to consult on other projects, working with Mary Rusco at Trego Hot Springs, Tom Layton at Last Supper Cave, and Ruthann Knudson on the Red Smoke Project at UI.

In 1975 he joined NAS as staff archaeologist-geologist (he was helping to invent geoarchaeology, but didn't know it yet). Jonathan was principal investigator or co-principal investigator on all the major NAS projects of the 1970s (surveys of Fallen Leaf Lake, Black Rock Range and Gund Ranch, as well as excavations along the Tahoe Reach of the Truckee River, along the U.S. 395 corridor from Bordertown to Hallelujah Junction, at Onion Reservoir, the Glendale site, and the Railroad Valley Bar site). Jonathan also participated in all phases of the Valmy Power Plant project (Treaty Hill) on the Humboldt River, working with me (NAS), Mary Rusco (NSM), and Don Fowler (Desert Research Institute). Measurement of ancient meander scars in the flood plain at Valmy suggested to Jonathan that the Pleistocene Humboldt River had about 10 times the discharge of the modern stream. Some of Jonathan's most important geoarchaeological work through NAS was as geological consultant on the interdisciplinary teams assembled by David Hurst Thomas (American Museum of Natural History), teasing out the stratigraphy and geomorphic processes operating in Gatecliff Shelter, and Hidden Cave, in Nevada. In 1978, while still at NAS, Jonathan was appointed geologist and visiting scientist with the U.S. Geological Survey (USGS), Branch of Environmental Geology, Menlo Park, California, leading to his tephra and stratigraphic studies with Andrei Sarna-Wojcicki (USGS), Ken Verosub (UC Davis), Sam Valastro (UT), and Rob Negrini (California State-Bakersfield).

When the Nevada Archeological Survey folded its tent at the beginning of 1980, Jonathan accepted an appointment as assistant research professor in the Social Sciences Center (SSC) of the Desert Research Institute (DRI), Reno. As he had done at NAS, Jonathan participated in SSC projects as geoarchaeologist, working with center director Cynthia Irwin-Williams on projects such as the nature of the mysterious pebble mounds of the Carson Sink, with Lonnie Pippin on his ongoing archaeological studies at the Nevada Test Site, and on the MX Archaeological Research Design Project (1981). He later led projects at the proposed Yucca Mountain Nuclear Waste Site in Southern Nevada to establish past precipitation and vegetation there, and to investigate deposition and alteration along a problematic fault. Other work in the 1980s included tracing the depth and extent of the downwind ash fall from the explosive 1980 Mount St. Helens eruption, and studying the extensive Pleistocene-Holocene tephra deposits at Summer Lake, Oregon. Jonathan's collaboration with Mary Rusco (NSM) on the Rye Patch Reservoir project (1983) was important to his further understanding of the Humboldt River and its role in the Lahontan system. His geologic map of the Rye Patch Reservoir South Quadrangle remains the only published detailed depiction of Quaternary sediments in Nevada at that scale.

Jonathan was frequently urged by his archaeological colleagues to create synthetic models of western Great Basin Holocene paleoclimate and stratigraphy. His scientific conservatism made him reluctant, however, to present a tentative and sketchy framework that might be carelessly cited and eventually reified. Nevertheless, in 1982, he published the first modern synthesis of lacustrine and paleoclimatic history of the entire Lahontan system. Roger Morrison's seminal studies of Lahontan geomorphology and stratigraphy in the Carson Sink were highly regarded by Jonathan; he and Roger became friends. In 1984, they together guided a field trip through the Lahontan system; their notes and guidebook for the excursion are valuable and interesting resources.

In addition to his research, Jonathan contributed importantly to the DRI program. During troubled times in the 1980s, Jonathan's scientific leadership for the younger scientists in the SSC kept the organization from disintegrating. Jonathan's vision and organizational ability were instrumental in changing the focus of the Social Sciences Center and recasting it as the present Quaternary Sciences Center. His deft touch in writing proposals was used to help secure a large competitive research grant from NSF that provided the means to affect the transformation. Dale Ritter, present Quaternary Sciences Director, says that Jonathan was discovering in himself a considerable talent for long-range planning. Jonathan once confided to me that he had been considering a possible switch to administration, but thought he probably would stick with research. At the time of his death, Jonathan was a full research professor serving as an administrative fellow in the office of DRI President James Taranik, working on a strategic plan for DRI's future research programs.

Jonathan was frequently dismayed by what he regarded as the poor training of archaeologists in geomorphology, stratigraphy, and pedology, and in his younger days, loved to bait archaeological colleagues with the radical creed that "Archaeology is Geology or it is nothing!" By this he meant what is now recognized as a truism: that if one fails to understand the processes by which the archaeological record is formed, its interpretation is inherently flawed. Jonathan also reminded us that "If you want to find old stuff, you have to look in old dirt!" suggesting that archaeologists should know how to recognize "old dirt." In any case, his work largely defined geoarchaeology as it is now practiced in the Great Basin, demonstrating the value of attention to stratigraphy and geomorphology in an interdisciplinary framework.

Jonathan participated in a number of archaeological field schools while at NAS; starting in 1978, he taught Quaternary geomorphology and stratigraphy in the Department of Geology at UNR, and continued to do so for several years after joining DRI. He was fond of telling people that he never took geomorphology himself, ascribing his facility to genetics. In truth, he had a fine and unique understanding of landscapes and the processes through which they were formed. He could not only "read" a landscape, but could often tell a story about it with such clarity and intensity that it seemed to magically reveal its secrets to the listener. Christopher Raven tells of a visit Jonathan made as geological consultant to an excavation at site on a river terrace in the Sierra Nevada foothills, where he was unacquainted with the field director or crew members. He showed up, and without saying anything, walked around the site looking at side walls for quite some time, then announced he was going to walk upstream and take a look around. After he left, the crew began to mutter—who did this guy think he was? When he returned, he sat down and laid out the terrace history of the river, placing the site in its proper chronological order, estimating its age, describing the formation of soils, pointing out overbank deposits and telling what had happened to it since abandonment. The crew looked on agape, as suddenly, the context of their work became clear to them for the first time.

Andrei Sarna-Wojcicki (Jonathan's collaborator in tephra studies for many years) suggests that Jonathan's most significant contribution was his development of a chronostratigraphic framework for the late Quaternary of the western Great Basin, in particular, the Lahontan Basin (Sarna-Wojcicki and Davis 1991:116). This work serves to correlate such diverse phenomena as lake stands and recessions, human occupation, and climatic change over a wide region, and will remain to be added to, rather than superceded. Such meticulous and wide-ranging fact gathering, continually supplemented by his extensive archaeological experience in western Nevada and eastern California, gave Jonathan a better understanding of the basin of ancient Lake Lahontan than anyone since I. C. Russell. But I believe the work showing his brilliance and gift of insight was his site-formation model for Gatecliff Shelter (Davis 1983). The layer-cake, fine graded-bed stratigraphy in this moun-

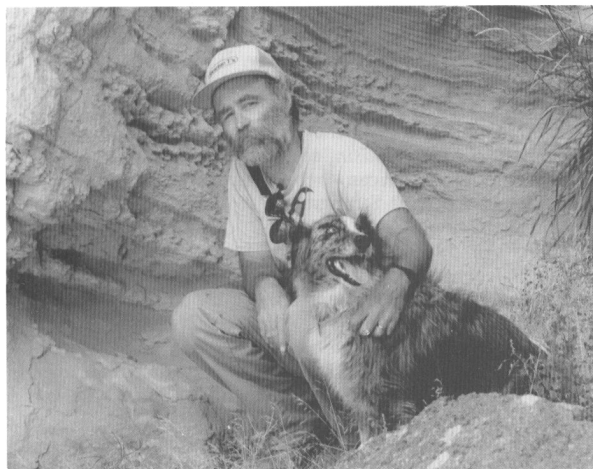
tain rockshelter was problematic until Jonathan happened to observe a storm-caused debris flow across Highway 50 at Eastgate, Nevada. The flow was typically unsorted on its way down the steep slope above the highway, but dropped its coarse bed load at the change in slope where it crossed the road, while a surge of muddy water continued to the creek several hundred meters beyond, leaving a layer of fine sediment similar to the strata in the Gatecliff deposits. Scaling up this phenomenon to fit the Mill Canyon setting of Gatecliff, Jonathan showed that most of the graded beds could be explained as muddy water sloshed into the shelter by debris flows. Moreover, his model referred to paleoclimatic variation by relating the occurrence of such events to the frequency and intensity of summer monsoonal thunderstorms.

Jonathan was a member of several professional societies, including the American Association for the Advancement of Science, Geological Society of America, Society for Archaeological Sciences, Society of Professional Archeologists (SOPA), and Society for American Archaeology (SAA); he served on the SAA Fryxell Medal Committee (1983–1984), the Executive Board of SOPA (1987–1989), and was elected second vice chairman of the Archaeological Geology Division of GSA (1990). Jonathan was also active in state and avocational associations, serving as president of Am-Arcs of Nevada (1977) and secretary of the Nevada Archaeological Association (1981–1984).

Jonathan lived with his geologist wife, Sandra L. Powers, in Silver City, Nevada; both loved the desert west, particularly, all the high, wide, and empty places of the Great Basin. Jonathan and Sandy liked to take field trips with professional colleagues, and to ski, and ride road and mountain bikes with their friends and neighbors. Jonathan learned to fly both powered planes and gliders; at one time, he owned his own sail plane, earning a U.S. Silver Soaring Badge with Altitude Diamond. He was an active participant in community life in Silver City. He was an adult leader in the 4-H Junior Ski program for several years, served on the town board, and volunteered funds and countless hours of his time to help his neighbors keep open-pit mining out of the town. During the combined National Historic Preservation Week and Nevada Archaeological Awareness Week of 1991, Jonathan was posthumously recognized by Nevada Governor Bob Miller for his contributions to the preservation of Silver City and for his important work on the nature of the prehistoric environment of the Great Basin.

Scholarship funds have been established in Jonathan's name at the Department of Geology and Geological Engineering, University of Idaho, Moscow, and Quaternary Sciences Center, Desert Research Institute, University of Nevada, Reno. The latter is to support field research of a graduate student working on the Quaternary geology of the Great Basin or surrounding areas.

ROBERT G. ELSTON



Jonathan and Tanya at Snow Creek, Black Rock Range, Nevada, November 1990 (courtesy Desert Research Institute; Martha Hemphill, photographer).

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NOTE

¹ The lead photograph was taken in December 1990 at the Desert Research Institute, and appears courtesy Instructional Media Services, University of Nevada–Reno.