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CURRICULUM VITAE

M. STEVEN SHACKLEY

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University Professor and Director Emeritus
Archaeological XRF Laboratory
Department of Anthropology
University of California, Berkeley

EDUCATION

Ph.D. in Anthropology, Arizona State University, 1990
Dissertation Title: *Early Hunter-Gatherer Procurement Ranges in the Southwest: Evidence from Obsidian Geochemistry and Lithic Technology*. Committee: Geoffrey A. Clark (chair), C. Vance Haynes (Geosciences/Anthropology, U Arizona), Donald H. Morris, John R. Holloway (Geology/Chemistry, ASU), Charles L. Redman.

M.A. in Anthropology, San Diego State University, 1981.
Thesis title: *Late Prehistoric Exchange Network Analysis in Carrizo Gorge and the Far Southwest* (published by Coyote Press, 1994). Committee: J.W. Ball, L.L. Leach, N.H. Greenwood.

A.B. Anthropology/Geology, San Diego State University (Cum Laude with Distinction in Anthropology) 1979. Phi Beta Kappa, 1980. Senior Paper: *Late Prehistoric Settlement Patterns and Geobiotic Communities in Cuyamaca Rancho State Park, San Diego County California*.

A.S., Liberal Arts, Physical Science emphasis (with Honors) 1977, Grossmont College, La Mesa, California

GRANTS/CONTRACTS, HONORS, AND FELLOWSHIPS

Society for American Archaeology's Award for Excellence in Archaeological Analysis. Awarded at the 76th Annual Meeting of the Society for American Archaeology, Sacramento, California, 1 April 2011.

San Diego State University Tower Society.

Alumnus of the Year, 2006, San Diego State University

The Berkeley Geoarchaeological XRF Laboratory Instrument Maintenance, 2009-2012. National Science Foundation, BCS 0905411, (Archaeometry/Archaeology Program; Renewable Sponsored Laboratory).

The Southwest Archaeological Obsidian Project in the 21st Century. National Science Foundation (Archaeology Program; BCS-0810448), 2008-2009.

The Berkeley Geoarchaeological XRF Laboratory Instrument Maintenance. National Science Foundation, BCS 0716333, (Archaeometry/Archaeology Program; Renewable Sponsored Laboratory). 2007-2008

⁴⁰Ar/³⁹Ar Dating of Geoarchaeological Obsidian Sources in the Mogollon-Datil Volcanic Province, Southwestern New Mexico. Esper-Larsen Foundation Grant, University of California, Berkeley, 2009.

Viewing Serbian Prehistoric International Relationships Via Obsidian Source Characterization Studies. Peter N. Kujachich Endowment in Serbian and Montenegrin Studies, Institute of Slavic, East European, and Eurasian Studies, University of California, Berkeley. Mentoring Marina Milić. 2006-2007.

The Valles Caldera National Preserve, New Mexico Obsidian Study. Stahl Endowment for Archaeological Research Grant. University of California, Berkeley. 2004-2005.

Long Distance Movement of Obsidian during the Middle Stone Age in Ethiopia. *L.S.B. Leakey Foundation Grant.* 2002-2004. PI: with Post-Doctoral Fellow, Agazi Negash and Professor Tim White (Integrative Biology, UCB).

Investigating Obsidian Procurement at Zuni Pueblo, with Todd Howell and Zuni Cultural Resource Enterprise (ZCRE). Grant from the Arizona Archaeological and Historic Society, Tucson. 2002.

Late Preceramic Farmer/Foragers at the Foot of the Mogollon Rim: The McEuen Cave Archaeological Project. *National Science Foundation Grant* BCS-0001395. 2001-2004.

Obsidian Source Provenance, Projectile Point Morphology and Sacaton Phase Hohokam Cultural Identity Agnese Haury Foundation, University of Arizona, grant-in-aid.

Bureau of Land Management, California Office: PI for Web presentation contract to PAHMA for BLM Sites in Inyo County, California, and Churchill County, Nevada.
<http://hearstmuseum.berkeley.edu/blm/introduction.html>

Chancellor's Distance Learning Course Development. University of California, Santa Cruz Chancellor's Grant to Refine the Multi-Media and Distance Learning Course, Southwest Prehistory (Anth 122/196 AB) with Professor Judith Habicht-Mauche, UCSC. For Spring 1999.

National Center for Preservation Technology and Training, National Park Service: *Digitization of Primary Documents Pertaining to the Archaeological Collections from California and Nevada in the Phoebe Hearst Museum of Anthropology.* Co-PI with Rosemary Joyce and Kathleen Butler. Fall 1997-Fall 1998

Obsidian Distribution and Exchange at McEuen Cave, southeastern Arizona. Faculty Stahl Endowment Grant, Archaeological Research Facility, University of California, Berkeley.

Spring 1997 through Spring 1998. Includes field support for graduate student Eduardo Serafin.

The Northern Mexico Archaeological Obsidian Project. Faculty Stahl Endowment Grant, University of California, Berkeley and the Instituto Nacional de Antropología e Historia, Mexico, October 1998.

X-Ray Fluorescence Spectrometry of Obsidian in Western North America: Undergraduate Education and Research. Faculty Stahl Endowment Grant, Archaeological Research Facility, University of California, Berkeley. Spring 1995 through Spring 1996.

Office of Archaeological Studies, Museum of New Mexico. Continuing Obsidian Studies Contract, 1997-present.

Zuni Cultural Resources Enterprise, Pueblo of Zuni, New Mexico. Continuing Obsidian Studies Contract, 1997-2010.

The Northern Mexico Archaeological Obsidian Project. Stahl Endowment Grant, Archaeological Research Facility, University of California, Berkeley. Spring 1994 through Spring 1995.

The Southwest Archaeological Obsidian Project: A Basis for Studies of Human Interaction and Procurement. National Science Foundation, Archaeology Program (DBS-9205506). June 1, 1992 to December 1, 1994.

Obsidian Procurement at Two Classic Period Hohokam Sites in the Eastern Phoenix Valley, El Povoron and Las Fosas. Arizona Archaeological and Historical Society Research Grant, 1994.

Neutron Activation Analysis (NAA) of Archaeological Obsidian from the American Southwest. National Science Foundation: Missouri University Research Reactor Facility Grant-in-Aid. \$9100.00 January 1993.

Sources of Archaeological Obsidian in Northern Mexico: A Pilot Study. Stahl Endowment Grant, Archaeological Research Facility, University of California, Berkeley. \$2158.00 for Spring 1993 through Spring 1994.

Obsidian Artifact Sourcing at the Escalante Ruin Group in Southern Arizona (with Douglas Mitchell). Arizona Archaeological and Historical Society Research Grant, 1992.

Dissertation Research Development Grant, Graduate Student Research Council, Arizona State University 1985-1986.

Achievement Rewards for College Scientists Foundation (ARCS) Fellowship 1984-1985.

Regents Graduate Academic Fellowship, Arizona State University 1983-1987.

Phi Beta Kappa 1980.

Faculty Mentor Awards

1994 Re-Entry Mentor Award, University of California, Berkeley, for Thomas Schreiner, University Medal Winner.

1994 Graduate Student Mentor Award, California State University, Chico, for Blossom Hamusek, Outstanding Thesis Award Winner.

REGIONAL AND TOPICAL SPECIALTIES IN ARCHAEOLOGY

American Southwest and Northern Mexico

Geoarchaeological Science

Archaeological Petrology

X-Ray Fluorescence Spectrometry in Archaeology

Obsidian Studies in Archaeology

Lithic Analysis

Raw Material Studies

Lithic Replication Studies

Hunter-Gatherers

Paleoindian and Archaic Social Processes

Museum Anthropology

ACADEMIC/TEACHING POSTS

2011-present – University Emeritus Professor of Anthropology, University of California, Berkeley.

2011-present – Adjunct Professor, Department of Anthropology, University of New Mexico.

2010-2011 - University Professor (Step VI), NSF Geoarchaeological XRF Laboratory, Department of Anthropology, University of California, Berkeley

2004-2011 - Professor, Department of Anthropology, UC Berkeley. Taught a variety of courses in the department: Seminar in Method and Theory of Lithic Technology - Anth 228; Geoarchaeological Science - Anth C131/EPS C171; Graduate Seminar in Method and Theory - Anth 229; Hunter-Gatherers – Anth 123A; Southwest Prehistory- Anth 122/222, a distance learning course with UCSC; Data Analysis and Computational Methods – Anth 169A; Petrology in Archaeology – Anth 128/228; XRF Laboratory Practicum – Anth 134B; Lithic Technology Practicum – Anth 134B; Field Practice in Archaeological Petrology - Anth 134A; Doctoral advisor, and Directed Studies with individual students on various topics.

1990-2012, Director, Geoarchaeological X-Ray Fluorescence Spectrometry Laboratory, University of California, Berkeley. Managed undergraduate and graduate teaching in geoarchaeology laboratory with a Philips 2400 WXRf spectrometer (EPS Department), and the Thermo Scientific *Quant'X* EDXRF spectrometer, Department of Anthropology.

<http://www.swxrflab.net>

1990-2004 Research Archaeologist, Phoebe Hearst Museum of Anthropology, University of California, Berkeley. Assistant Research Archaeologist (1990-1994, 1.0 FTE), Associate Research Archaeologist (1994-2000, 1.0 FTE), Research Archaeologist (2000-2004, 1.0 FTE).

1999-2004 Adjunct Professor, Department of Anthropology, UC Berkeley

1994-1999 Adjunct Associate Professor, Department of Anthropology, UC Berkeley.

1990-1994 Adjunct Assistant Professor, Department of Anthropology, UC Berkeley.

1990-present Faculty Member, Archaeological Research Facility, University of California, Berkeley.

1989-1990 Adjunct Assistant Professor, Department of Anthropology, San Diego State University.

Graduate Student and Post-Doctoral Committee Membership

2017 Doctoral advisor for Flavio Silva de la Mora, Department of Anthropology, University of California, Berkeley. Thesis: Lithic Communities of Practice and Daily life in the Northwestern Maya Lowlands during the Late Classic (700-850 A.D.)

2016 Doctoral advisor for Di Hu, Department of Anthropology, University of California, Berkeley. Thesis: Labor under the Sun and the Son: Landscapes of Control and Resistance at Inka and Spanish Colonial Pomacocha, Ayacucho, Peru

2014 Doctoral chair for Dr. Bryan Cockrell, Department of Anthropology, University of California, Berkeley. Thesis: *The Metals from the Cenote Sagrado, Chichén Itza as Windows on Technological and Depositional Communities.*

2014 Doctoral chair for Dr. Celeste Henrickson, Department of Anthropology, University of California, Berkeley. Thesis: *The Archaeology of Cueva Santa Rita: A Late Holocene Rockshelter in the Sierra de la Giganta, Baja California Sur, Mexico.*

2006-2014: Outside supervisor for Leah Morgan (Ph.D. 2009), James Watkins (Ph.D. 2010), and Brook Peterson (Ph.D. 2014), Department of Earth and Planetary Sciences, UC, Berkeley.

2010 Dissertation committee for Andrew Roddick: *Communities of Production and Consumption During the Late Formative, Taraco Peninsula, Bolivia*

2005: Dissertation committee member: Jennifer Kahn: *Stratification and Household Communities in Opunohu Valley, Mangia, Oceania.* Department of Anthropology, University of California, Berkeley.

2005: Co-dissertation Chair for Kathleen A. Sterling: *Learning and Apprenticeship in the Magdalenian Midi-Pyrénées.* Department of Anthropology, University of California, Berkeley.

2003: Outside supervisor for dissertation of Martin Jones, University of Auckland, New Zealand: *A Brief History of Time.*

2002-2004: Co-advisor with Tim White, President's post-doctoral fellow, Agazi Negash (Ethiopia), Early and Middle Stone Age Obsidian Studies in the Great Rift Valley, East Africa.

2002: Doctoral Co-Chair for, Dr. Carolyn Dillian: *More than Toolstone: Differential Utilization of Glass Mountain Obsidian.*

2002: Dissertation committee member: Dr. Kathleen Hull: *Culture Contact in Context: A Multiscalar View of Catastrophic Depopulation and Culture Change in Yosemite Valley, California*.

2000: Qualifying Exam and Dissertation Committee Member: Dr. Yumiko Nakanishi, Department of Near Eastern Studies, *Style and Chronological Issues in the Archaeology of the Kushans, Central Asia*.

Master's thesis committee member of Catherine Bullock, Department of Near Eastern Studies, UC, Berkeley: *Towards a Chronology of Sasanian Stamp Sealings: A Statistical Analysis of the Bullae from Qasr-I Abu Nasr, Iran*. Graduated 2000

Spring 1993 Outside member, Master's thesis of Blossom Hamusek, *What X Equals: The Archaeological and Geological Distribution of "Source X" Tuscan Obsidian in Northern California*. Department of Anthropology, California State University, Chico.

Spring 1992 Doctoral Qualifying Committee of Justin Hyland, *Archaeological Context of Prehistoric Mural Sites in Central Baja California, Mexico*. Department of Anthropology, University of California, Berkeley.

Spring 1992 Outside Master's thesis committee member of Andrew Pigniolo, *Piedra del Lumbre "Chert" and Hunter-Gatherer Mobility and Exchange in Southern California*, Department of Anthropology, San Diego State University.

Fall 1990 Doctoral Qualifying Committee of Carolyn Winters, *Olmec Sculpture and Stoneworking*, Department of Anthropology, University of California, Berkeley.

Undergraduate Student Honor's Thesis Committee Membership

2008 *A Comparison of Kumeyaay Tool Materials: An Analysis of Use-Wear with Wood and Stone*. Joelle Morgan, Department of Anthropology, UC Berkeley, Chair.

2007 *Conservation vs. Intensification: 1000 Years of Mussel at a Bay Area Shellmound*. Kevin Sinats, Department of Anthropology, UC Berkeley. Chair, Kent Lightfoot.

2004 *Change and Stasis: A Study of Asian Style Tableware Recovered from the Market Street Chinatown Site, San Jose*. Jun J. Frank. Department of Anthropology, UC Berkeley. Chair, Junko Habu.

2003 *Kashaya in Post-Russian Times: Analysis of Archaeological Materials from a Multi-Occupation Site at Fort Ross, California*. Ingrid Newquist. Department of Anthropology, UC Berkeley. Chair, Kent Lightfoot.

2002 Chair: *Early Grey Wares of the Middle East*. Resha Shenendoa. Department of Anthropology, UC Berkeley.

2002 Chair: *Obsidian Source Provenance in Late Post-Classic/Colonial Honduras*. Antonia Stainbrook. Department of Anthropology, UC Berkeley. Chair.

1998/1999 Chair: *Obsidian Procurement and Distribution at Pecos Pueblo, Northern New Mexico*. Devin White, Department of Anthropology, University of California, Berkeley.

1998/1999 Chair: *Collections Ethics of the Kumeyaay Collection of the Phoebe Hearst Museum of Anthropology*. Rebecca Graf, Department of Anthropology, University of California, Berkeley.

1998 *Obsidian Procurement at CR-372, Central Honduras*. Kenneth McCandless. Department of Anthropology, University of California, Berkeley, Rosemary Joyce, Chair.

1994 *Investigation of Cinnabar Use by the Ancient Maya*. Daniel M. Stauber. Department of Anthropology, University of California, Berkeley, Christine Hastorf, Chair.

Spring 1992 *Variability and Typology of Anasazi Plant Fiber Sandals from the Hazzard Collection in the Lowie Museum of Anthropology*. Jenny Kahn, Department of Anthropology, University of California, Berkeley, Kent Lightfoot, Chair.

Spring 1992 *Acculturation and Ethnic Relationships in the Russian-Aleut Occupation at Fort Ross, California*. Allison Cohen, Department of Anthropology, University of California, Berkeley, Kent Lightfoot, Chair.

SELECTED INVITED LECTURES/VISITORSHIPS

2016 Hohokam Social Identity Unraveled through XRF and the Southwest Archaeological Obsidian Project. Plenary Lecture, 60th Annual Midwest Archaeological Conference, University of Iowa, 8 October 2016.

2013 XRF, Lithic Technology, and The Southwest Archeological Obsidian Project: Rewriting Preclassic Hohokam Prehistory. Chancellor's Professional Development Series Lecture, Department of Geological Science, University of Hawai'i, Hilo.

2011 *What Hath Obsidian Studies Wrought in Southwest Archaeology?* Center for Desert Archaeology Café Lectures, Arizona Humanities Council. Tucson, Arizona.

2009 2009 Distinguished College Lecture: Ishi, Stone Tools, and Cultural Identity in Native California. Porterville College, Porterville, California.

2008 2008 Arts and Letters Distinguished Alumnus/Friends of Anthropology Lecture, San Diego State University: *Archaeological Petrology in a 21st Century Archaeology: Nearly Beyond Ceramics*.

2007 Keynote Address: Archaeological Petrology, X-ray Fluorescence Spectrometry, and Obsidian Studies in a 21st Century Geoarchaeology. Geological Society of America Annual Meeting, Denver, Colorado.

2007 Nearly Beyond Ceramics: Archaeological Petrology In a 21st Century Southwest Archaeology. NSF-IGERT Lecture, Department of Anthropology, University of Arizona, Tucson.

2005 Visiting Professor, Department of Earth and Planetary Sciences, University of New Mexico, Albuquerque. Fall Semester 2005

2004 Older Than You Thought: 4000 Year Old Maize and Squash in the U.S. Southwest. Invited Lecture, Department of Anthropological Science, Stanford University.

- 2002 Archaeometry, Lithic Technology and Revising Prehistory: The Southwest Archaeological Obsidian Project. Mamie Kleberg Endowment Invited Lecturer, Department of Anthropology, University of Nevada, Reno.
- 2002 Symbol, Style, Cultural Identity and the Pre-Classic Hohokam: New Directions from Materials Science and Lithic Technology. Andrew Mellon Foundation Lecture, Stanford University.
- 1999 The Southwest Archaeological Obsidian Project: Inferences for Archaeological Geology, Group Interaction and Ethnic Identity. Institute of Archaeology, University College, London.
- 1999 Non-Destructive Energy-Dispersive XRF and the Southwest Archaeological Obsidian Project. Departmental Seminar, Department of Materials Science and Engineering, UC, Berkeley.
- 1997 Gamma Rays, X-Rays and Stone Tools: The State of Archaeometry and Stone in the '90s. Archaeometry Colloquium, Department of Anthropology, University of Arizona March 10, 1997.
- 1997 New Concepts of Social Process in the Archaic through Hohokam Periods of the Southern Southwest: Inferences from the Southwest Archaeological Obsidian Project. Presented to the Arizona Archaeological and Historical Society, June 16, 1997.
- 1997 The Late Archaic/Early Agriculture Transition in the Southwest: Hope from McEuen Cave, Arizona. Archaeological Research Facility, University of California, Berkeley.
- 1996 The Southwest Archaeological Obsidian Project After 10 Years. *Emil Haury Memorial Lecture Series*. Arizona State Museum, University of Arizona.
- 1995 Ishi Was Not Necessarily the Last Yahi: Inferences from Lithic Technology, Ethnohistory. Stanford University Archaeological Fellowship Lecture.
- 1991 The Lowie Museum and Archaeological Research: History and Potential. Department Forum Lecture, Department of Sociology/Anthropology, California State University, Bakersfield.
- 1991 Ishi: Lithic Technology and the Yahi Yana. Department Forum Lecture, Department of Anthropology, California State University, Chico.

SCHOLARLY EDITORSHIP

2005-2013, Associate Editor, *Geoarchaeology*, Wiley-Interscience, New York.

Editor Emeritus, *Archaeometry*, Oxford University/Blackwell Publishing. 2000-2006

1991-1993 Associate Editor, *International Association for Obsidian Studies Newsletter*.

PROFESSIONAL COMMITTEE/ORGANIZATION WORK

2005-2008, National Science Foundation, Archaeometry Panel

1992-2000, Vice President for Intersociety Relations, *Society for Archaeological Sciences*.

Program Committee, Society for American Archaeology 61st Annual Meeting, New Orleans 1996.

President (1993-1994), *International Association for Obsidian Studies*, Vice President 1992-1993.

Selected Campus/University Committee Work

2008, Acting Chair, Department of Anthropology, University of California, Berkeley.

2005-2010, Faculty Advisor for Graduate Student Instructor Affairs, Department of Anthropology, UCB.

2005-2011, Ad Hoc Academic Senate Committee for the Restoration and Seismic Upgrade of the Hearst Gym Complex, University of California, Berkeley. Catherine Koshland, Vice-Provost for Academic Planning and Facilities, Chair.

2004-2005, UC Mexus-CONACYT Board Member (granting body for UC and Mexico's CONACYT).

1995-2004, *Classics in California Anthropology* Publications Committee, Phoebe Hearst Museum of Anthropology

1997-2006, Chair, Equipment (originally Computer) Committee, Archaeological Research Facility, University of California, Berkeley.

Chair (1994-1995), Advisory Committee, Archaeological Research Facility, University of California, Berkeley.

1993-1994 Member, International Search Committee, Director, Phoebe Hearst Museum of Anthropology.

1992-1993 Chair, Search Committee, NAGPRA Staff Search. Phoebe Hearst Museum of Anthropology.

1992-1993 Hearst Museum Capital Campaign Program Committee Member.

1992-1994 Ad Hoc NAGPRA Repatriation Committee, Office of Research and Graduate Studies.

Selected Public Presentations and Service

2001 *Ishi the Last Yahi*. NPR's Living on Earth Show. Interviewed in response to my American Anthropologist paper on Ishi's stone tool technology and his ambiguous cultural affiliation.

- 2000 Scientific American Frontiers, with Alan Alda “Life’s Really Big Questions,” PBS show hosted by Alan Alda – interviewed expert on “Hand Made Humans”, <http://www.pbs.org/saf/1103/resources/resources-2.htm>.
- 1999 *The 12th Century American Southwest*. KQED (San Francisco NPR). Radio talk interview with Michael Krasny (host), Judith Habicht-Mauche (UCSC), and Steve Lekson (CU).

MUSEUM AND COLLECTIONS RESEARCH

Administration and Curation

1990-2004 Research Archaeologist, Phoebe Hearst Museum of Anthropology. Advisory responsibility for the administration and direction of curation and research in the archaeological collections including funding, contracts, personnel, public outreach and student participation.

1997-2004 Instituted and direct the Southwest Archaeology Project, a graduate and undergraduate student re-housing and re-curation of the U.S. Southwest and Mexican Northwest collections. Part of ongoing research and preparation for major exhibit that was to be exhibited in Fall 2006: *Pothunters, Geographers, and Archaeologists: 100 Years of Southwest Archaeology at Berkeley*.

1991-1997 Instituted and directed the California Archaeology Project, a student intern (over 50 students) project re-housing and curating the extensive California archaeological collections. Includes the direction of a Graduate Student Researcher (GSR) and undergraduate anthropology majors in semester long projects rehousing the collection with campus and off-campus funding.

1992-1996 Organized and directed the creation of the original museum web site and finding guide for the Archaeological Archives in the Phoebe Hearst Museum of Anthropology.

Museum Research Projects

Kumeyaay Ceramics, Technology, and Social Process. Long term research project in collaboration with Steven Lucas-Pfingst (Kumeyaay) focused on ceramic technology and the relationship of the Kumeyaay to the greater American Southwest. Included a major exhibit on ceramic technology using museum collections and a volume in the *Classics in California Anthropology* series published by University of California Press (2004).

Ishi Lithic Technology Project: Technological and ethnohistoric analysis of Ishi's stone tool technology, and proto-historic archaeological collections in the upper Sacramento Valley. Includes a redesign of the permanent Ishi exhibit in the main gallery based on the results, and publication in *American Anthropologist*.

Northern Mexico Archaeological Obsidian Project: Geochemical analysis of the Donald Brand, Richard Brooks, and Charles DiPeso archaeological obsidian recovered from Chihuahua, Sonora, and Durango. This includes grant proposals with INAH to explore probable source localities in the Sierra Madre Occidental of Sonora and Chihuahua.

Southwest Archaeological Obsidian Project: Analysis of archaeological obsidian in Coconino Plateau contexts in the Hearst Museum collection.

Exhibit Curation (catalogs listed under publications)

2002 *Sites of Discovery: Art and Archaeology in 19th-Century Photographs of the American Southwest*. Co-curated with Kathleen L. Butler. Bancroft Library, University of California, Berkeley, May 7-July 31, 2002.

1999 *Obsidian: Jewels of the Archaeological Record*. Co-curated with James Bayman, a permanent exhibit at Casa Grande Ruins National Monument, Casa Grande, Arizona. Funded by a grant from the Southwest Parks and Monuments Association.

1998 *Kumeyaay Pottery, Mobility, and the American Southwest in Native California*. A visual representation of the upcoming volume: *The Early Ethnography of the Kumeyaay*. In *Classics in California Anthropology*, Phoebe Hearst Museum of Anthropology, University of California, Berkeley. Exhibit featured February 28, 1998-January 31, 1999.

1994 *Little Black Rocks in the Desert: Prehistoric Obsidian in the American Southwest*. An exhibit documenting 10 years of field and laboratory research on archaeological obsidian in the American Southwest. Phoebe Hearst Museum of Anthropology, University of California, March 14-September 1, 1994.

1992 *Ishi's Stone Tool Technology*. An exhibit depicting the stages of lithic production and relationship between Ishi's arrowpoint technology and the late prehistoric and protohistoric Yahi/Yana. Phoebe Hearst Museum of Anthropology, University of California.

1991 *Tipai Mobility and Ceramics*. An exhibit depicting hunter-gatherer storage and ceramic vessels in southeastern California and northern Baja California. Lowie Museum of Anthropology, UC, Berkeley (April 23 to August 15, 1991).

1989 *Stone Tool Production at Soda Springs*. A permanent exhibit depicting the production of Late Archaic period (Elko Corner-notched) projectile points at Soda Springs, Mojave Desert, California. Desert Studies Consortium, Soda Springs, San Bernardino, California.

1986 *Sources of Archaeological Obsidian in the American Southwest*. Designed exhibit depicting doctoral research in the Museum of Anthropology, Arizona State University, October 1986 through January 1987.

1986 *Picacho: A Hunting and Gathering Lifeway*. Museum of Anthropology, Arizona State University. Assembled and coordinated lithic technology portion of exhibit. Sponsored by the Bureau of Reclamation and the Office of Cultural Resource Management, Arizona State University.

1982 *Ethnogeology in San Diego Prehistory*. Created and coordinated traveling exhibit on the uses of stone raw materials by Archaic and later hunter-gathers in San Diego County. Exhibit circulated within the San Diego City and County Libraries.

ARCHAEOLOGICAL RESEARCH PROJECT DIRECTION AND CONSULTATION

1990-present Director, Berkeley Archaeological XRF Laboratory. Direct external, museum, faculty and student projects in archaeological geochemistry focusing mainly on obsidian studies of the Americas <<http://www.swxrflab.net/>>.

1996-present Project Co-Director, *Investigations at McEuen Cave, Arizona: Early Agriculture and Bow Technology*. Continuing research and excavation of rockshelter in the BLM Fishhook Wilderness, Gila Mountains, Arizona. Funded by National Science Foundation, the Stahl Endowment for Archaeological Research, and the U.S. Department of the Interior.

1998-present Northwest Mexico Archaeological Obsidian Project. Direct long-term areal survey of northeastern Sonora and northern Chihuahua sources of archaeological obsidian. Cooperative project between my lab, INAH, Mexico, the Cerro Juanaqueña project of the University of Texas, San Antonio, the El Paso Archaeological Society, and the University of Montana.

1998 *Central Honduras Archaeological Obsidian Project*. Field and lab consultant for the discovery, field geological mapping, collection, and analytical studies of archaeological sources of obsidian in Honduras. Funded by a grant from the Wenner-Gren Foundation to Rosemary Joyce.

1993-1997 Co-PI with Eric Ritter, and obsidian analyst for *Investigations of Adaptation and Change among Prehistoric Cultures in the Bahía de los Angeles, Baja California Norte*. Survey project under INAH permit in this littoral region of Baja California.

1993-94 Obsidian Production and Distribution, Proyecto Arte Rupestre, Baja California Sur, Instituto Nacional de Antropología e Historia (INAH), Mexico. Field and laboratory consultant for the survey, mapping, and characterization of the Valle del Azufre (Tres Virgenes volcanic field) obsidian source, Baja California Sur.

1988-1990 Senior Archaeologist with Brian Mooney Associates, 9903-B Businesspark Ave., San Diego, CA 92131. Responsible for all aspects of archaeological project direction and implementation in California and the Desert West.

1988-1989 Flaked Lithic and Statistical Analysis Consultant for Dames & Moore. East Cronise Lake Data Recovery Project, Mojave Desert, California.

1987-1988 Staff Archaeologist with Dames & Moore Inc. 9665 Chesapeake Dr. # 360, San Diego, CA 92123. Responsible for the management and direction of US Sprint Survey and Data Recovery Projects in California, Oregon, and Nevada.

1985-1987 Performed an archaeological obsidian x-ray fluorescence project in the Departments of Chemistry and Anthropology. This included the compilation of an obsidian source data library for the Greater Southwest (Arizona, New Mexico, Chihuahua, Sonora and Baja California) as well as routine analysis of archaeological obsidian from research and CRM projects.

1986 Research Associate with Sylvia Gaines: Main Frame IBM Graphics and Mapping Software for Archaeology, Department of Anthropology, Arizona State University.

1986 Research Associate with Glen E. Rice: Sources of Hohokam Classic Period Obsidian. Department of Anthropology, Arizona State University.

1984-1985 Research Associate/Lithic Consultant: Picacho Reservoir Archaic Project, Tucson Aqueduct Segment of the Central Arizona Project. Office of Cultural Resource Management, Department of Anthropology, Arizona State University.

1982-1983 Staff Archaeologist/Principal Investigator for the Mountain Springs to Sand Hills portion of APS/SDG&E Southwest Powerlink Excavation and Data Recovery Project, Imperial County, California. Wirth Environmental, Division of Dames and Moore, San Diego.

1981-1982 Senior Archaeologist/Principal Investigator for the Southwest Powerlink Survey Project, Imperial County, California. Cultural Systems Research, Inc. Lowell Bean, President.

1979-1981 Associate Archaeologist, Cultural Resource Management Center, Department of Anthropology, San Diego State University.

1980 Excavation Crew Supervisor, 4SDi799, Caltrans/San Diego State University.

1980 Laboratory Supervisor, 4SDi799, Caltrans/San Diego State University.

1980 Crew Supervisor (Associate Archaeologist) U. S. Forest Service Laguna Mountain Recreation Area Cultural Resource Survey, San Diego County, California. Archaeological Systems Management, San Diego.

1980 Crew Member, Knowth Neolithic Tomb excavations and Wood Quay Viking Settlement excavations, Ireland. Office of Public Works and University College, Dublin, Ireland.

1979 Director of regional survey sample in Cuyamaca Rancho State Park, San Diego County, California.

PUBLICATIONS

Books and Monographs

2011 **Shackley, M.S. (Ed.)** *X-Ray Fluorescence Spectrometry (XRF) in Geoarchaeology*. Springer, New York.

With major contributory chapters:

- Preface and Acknowledgements
- X-Ray Fluorescence Spectrometry in a 21st Century Archaeology, pp. 1-6.
- An Introduction to X-Ray Fluorescence Spectrometry for Archaeologists, pp. 7-44.
- M.K. Davis, T.L. Jackson, **M.S. Shackley**, T. Teague, and J.H. Hampel, Factors Affecting the Energy-Dispersive X-Ray Fluorescence Analysis of Archaeological Obsidian, with a new introduction by M.S. Shackley, pp. 45-64.
- Glossary, pp. 207-226.

2005 **Shackley, M.S.** *OBSIDIAN: Geology and Archaeology in the North American Southwest*. University of Arizona Press, Tucson.

2004 **Shackley, M.S. (Ed.)** *The Early Ethnography of the Kumeyaay: E.W. Gifford, Leslie Spier, and T.T. Waterman*. **Classics in California Anthropology**, Phoebe Hearst

Museum of Anthropology. University of California Press. With Steven Lucas-Pfingst, Kumeyaay, Lucas Ranch.

- 1998 **Shackley, M.S. (Ed.)** *Archaeological Obsidian Studies: Method and Theory*. Advances in Archaeological and Museum Sciences 3, Springer/Plenum Publishing Corporation, New York.

With Major Contributory Chapters

- **Shackley, M.S.** *Current Issues and Future Directions in Archaeological Volcanic Glass Studies: An Introduction*, pp. 1-14.
- **Shackley, M.S.**, *Intrasource Chemical Variability and Secondary Depositional Processes in Sources of Archaeological Obsidian: Lessons from the American Southwest*, pp. 83-102.
- K. Davis, T. Jackson, **M.S. Shackley**, T. Teague, and J. Hampel: *Factors Affecting the Energy-Dispersive X-Ray Fluorescence Analysis of Archaeological Obsidian*, pp. 159-180.

- 1986 F.E. Bayham, D.H. Morris, and **M.S. Shackley** (Eds.): *Prehistoric Hunter-Gatherers of South Central Arizona: The Picacho Reservoir Archaic Project*. Anthropological Field Studies 13. Arizona State University, Tempe.

With Major Contributory Chapters

- *Mobility and Lithic Technology at the Picacho Reservoir Archaic Complex*, pp. 109-158.
- *Obsidian Geochemistry and Lithic Technology: Inferences for Archaic Hunter-Gatherer Procurement Ranges*, pp. 171-190.
- F.E. Bayham and **M.S. Shackley**: *Regional Patterns of Foraging and Mobility: Incongruous Expectations from the Archaeofaunal and Lithic Evidence*, pp. 359-382.

- 1984 *Archaeological Investigations in the Western Colorado Desert: A Socioecological Approach* (3 volumes). Volume 1 published by Coyote Press, Salinas, California.

- 1981 *Late Prehistoric Exchange Network Analysis in Carrizo Gorge and the Far Southwest*. Coyote Press, Salinas, California. ISBN 1-55567-016-4.

Peer Reviewed Journal Articles and Contributed Essays to Edited Volumes

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- 1987 Book Review: "Production and Exchange of Stone Tools: Prehistoric Obsidian in the Aegean". **ROBIN TORRENCE**. Cambridge University Press. *American Anthropologist* 89(2):461-462.
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Selected Edited Volumes/Published Technical Works

- 2018 A major, minor, and trace element x-ray fluorescence (XRF) analysis of copper nuggets and artifacts from two sites on White Sands Missile Range, southern New Mexico. In A. Kurota, E. Sternberg, and R. Dello-Russo (Eds.), *Archaeology of White Sands Missile Range*, pp. 55-1-55-10. Prepared for Department of the Army, U.S. Army Garrison White Sands, New Mexico.
- 2018 Source provenance of obsidian artifacts from White Sands Missile Range, southern New Mexico. In A. Kurota, E. Sternberg, and R. Dello-Russo (Eds.), *Archaeology of White Sands Missile Range*, pp. 50-1-50-8. Prepared for Department of the Army, U.S. Army Garrison White Sands, New Mexico.
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- 2001 An Energy Dispersive X-Ray Fluorescence (EDXRF) Analysis of Obsidian Artifacts from the Grewe Site, Central Arizona. In *The Grewe Archaeological Research Project, Volume 2: Material Culture*, edited by D.B. Craig, pp. 649-656. Anthropological Papers 99-1. Northland Research, Tempe, Arizona.

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- 1999 with R.A. Joyce, K. McCandless, and R. Sheptak: Resultados Preliminares de una Investigación con EDXRF de Obsidiana de Puerto Escondido. Yaxkin. Journal of the Insitituto Hondureño de Antropolgía e Historia, Tegucigalpa.
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- 1994 Sources of Obsidian at Pueblo Grande: An Energy-Dispersive X-Ray Fluorescence Analysis. In *The Pueblo Grande Project, Volume 4: Material Culture*, edited by M.S. Foster, pp. 416-432. Soil Systems Publications in Archaeology 20, Phoenix.
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- 1994 with Arleyn W. Simon and Peter H. McCartney: Lithic Assemblage Analysis. In *Archaeology of the Salado in the Livingston Area of Tonto Basin: Roosevelt Platform Mound Study*, edited by D. Jacobs, pp. 739-760. Anthropological Field Studies 32, Arizona State University.
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- 1993 X-Ray Fluorescence Analysis (XRF) of Obsidian Artifacts from Shelltown, South-Central Arizona. In *Shelltown and the Hind Site: A Study of Two Hohokam Craftsman Communities in Southwestern Arizona*, edited by W.S. Marmaduke and R.J. Martyneec, Appendix A. Northland Research, Inc., Flagstaff.
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- 1980 An Annotated Bibliography of Archaeological Reports Relative to San Diego County. *Cultural Resource Management Center Publication No.1*, Department of Anthropology, San Diego State University. With Fred Kidder.

SELECTED LABORATORY TECHNICAL REPORTS (2006-2018; usually 20-30 per year) Many more available at escholarship.org, University of California open access site.

- 2018 Source provenance of archaeological obsidian from Mesa Grande (AZ U:9:25 ASM), Mesa Arizona. Report prepared for Arizona Museum of Natural History, Mesa, Arizona.
- 2018 Source provenance of volcanic rock artifacts from the Robert Weber Collection, Socorro County, New Mexico. Report prepared for Chris Merriman, Department of Anthropology, University of New Mexico, Albuquerque.
- 2018 X-ray fluorescence (XRF) analysis of major, minor, and trace elements of native copper nodules, copper bells, and fetishes from a number of sites from Pithouse through Classic Mimbres of Southern New Mexico. Report prepared for Gila National Forest, Truth or Consequences, New Mexico.
- 2018 Source provenance of archaeological obsidian from archaeological sites along the Rio Santa Maria, central Chihuahua, Mexico. Report prepared for Escuela Antropología e Historia del Norte de México, Chihuahua, Chihuahua, México.
- 2018 X-ray fluorescence (XRF) analysis of major, minor, and trace elements of metal artifacts from Sevilleta Pueblo (LA 774), central New Mexico. Report prepared for Dr. Michael Bletzer, Albuquerque.
- 2017 Source provenance of obsidian artifacts from Crystal Cave, (39LA504) western South Dakota. Report prepared for Dr. Rick Weathermon, Department of Anthropology, University of Wyoming, Laramie.
- 2017 Source provenance of obsidian artifacts from Cabeza Prieta Wildlife Refuge, southwestern Arizona. Report prepared for U.S. Fish and Wildlife Service, Ajo, Arizona.
- 2016 Source provenance of obsidian artifacts from later period sites, Chaco Culture National Historical Park, New Mexico. Report prepared for Jeremy Moss, Pecos National Historical Park, New Mexico.
- 2010 Source Provenance of Obsidian Artifacts from YAV-3, Yavapai-Prescott Indian Tribal Land, Prescott, Arizona. Report prepared for the Yavapai-Prescott Indian Tribe, Prescott, Arizona.
- 2010 Source Provenance of Obsidian Artifacts From Pottery Mound (LA 416), Middle Rio Grande Valley, New Mexico. Report prepared for Dave Phillips, Maxwell Museum of Anthropology, University of New Mexico.

- 2010 Source Provenance of Obsidian Artifacts From the Late Classic Sites of Chevlon, Homol'ovi I And Homol'ovi II In Northern, Arizona. Report prepared for Arizona State Museum.
- 2010 Source Provenance of Obsidian Artifacts from Late Classic Contexts in the El Morro Basin, Western New Mexico and Eastern Arizona. Report prepared for Matt Peeples, School of Human Evolution and Social Change, Arizona State University.
- 2009 Source Provenance of Obsidian Artifacts from Stone Axe Pueblo (AZ Q:2:22 ASM) and Black Axe Pueblo (AZ Q:01:320 ASM), Petrified Forest National Park, Northern Arizona. Report prepared for Petrified Forest National Monument and The Center for Desert Archaeology, Tucson.
- 2008 Source provenance of obsidian artifacts from archaeological sites south of Ajo, Arizona. For the Bureau of Land Management, Phoenix, Arizona.
- 2008 Source provenance of obsidian artifacts from Mezmaiskaya Cave, Caucasus Mountains, Russia. Report prepared for St. Petersburg University, Russia.
- 2007 Source provenance of obsidian artifacts from the Kutoyis/Two Medicine Site, Glacier County, Blackfeet Indian Reservation, Montana. For University of Arizona and Blackfeet Nation.
- 2007 Source provenance of obsidian artifacts from the Classic Mimbres Site of Old Town, southwestern New Mexico. For University of Oklahoma.
- 2007 An energy-dispersive x-ray fluorescence analysis of source clays and ceramics from Santa Rita B, Northern Peru. For Florida State University.
- 2006 Source provenance of obsidian artifacts from the Wind Mountain Site, southwestern New Mexico. Prepared for B. Schriever (grad student), U of Oklahoma, and the Amerind Foundation, Arizona.
- 2006 Source provenance of obsidian artifacts from sites near Puerto Peñasco, Sonora, Mexico. Prepared for J. Mabry, Center for Desert Archaeology, Tucson.
- 2006 Source provenance of obsidian artifacts from various contexts on the Gila River Indian Community Land, Central Arizona. Prepared for the Gila River Indian Community, Sacaton, Arizona.

CONFERENCE PAPERS/POSTERS/WORKSHOPS

Joseph Birkman, Bruce B. Huckell, and **M. Steven Shackley**

2018 San Jose Revisited: The Typology, Morphometrics, and Geochemistry of early Middle Archaic Occupation in West-Central, New Mexico. Poster presented at *The Archaic in New Mexico* conference, New Mexico Archaeological Council, Albuquerque, New Mexico, November 10, 2018.

Ryan, Stacy L., **M. Steven Shackley**, and Allen Denoyer

2018 Raw Material Selection and Obsidian Procurement and Use at a Salado Site in the Upper Gila. Poster presented at the 7th Natural History of the Gila Symposium, Silver City, New Mexico, February 22-24, 2018.

Shackley, M.S., L.E. Morgan, and D.G. Pyle

2016 Elemental, isotopic, and geochronological variability in Mogollon-Datil Volcanic Province archaeological obsidian: solving issues of inter-source discrimination. Poster presented at the Annual Meeting of the Geological Society of America, Denver, Colorado. *GSA Abstracts with programs*, 47(7).

Shackley, M.S.

2015 Elemental and isotopic variability in Mogollon-Datil Volcanic Province obsidian, western New Mexico: issues in XRF analysis. Poster presented at the Society for American Archaeology, Annual Meeting, San Francisco.

Dolan, S. G., M. R. Miller, **M. S. Shackley**, and J. R. Ferguson

2015 An Update and New Insights into Obsidian Procurement in the Jornada Region. Paper presented at the 17th Biennial Jornada Mogollon Conference, El Paso, Texas, October 9–10.

Shackley, M.S.

2014 Elemental and isotopic variability in Mogollon-Datil Volcanic Province obsidian, western New Mexico: issues in XRF analysis. Poster presented at the 40th International Symposium on Archaeometry, Los Angeles.

Sternberg, R., **M.S. Shackley**, J.M. Feinberg, A. Steffen, A. Freeman, A. Gregovich, C. Hackett, M. Harrison, Z. Osborne, A. Pollen, M. Regier, K. Roth, R. Samuels

2014 Geochemical characterization of georeferenced obsidian samples from four source areas in New Mexico. Paper presented at the 40th International Symposium on Archaeometry, Los Angeles

Roth, K., R.S. Sternberg, **M.S. Shackley**, J. Feinberg, and J. Rahl

2013 Geochemical variability of obsidian in western New Mexico with laboratory-based PXRF. Poster presented in the session Celebrating Advances in Archaeological Geology: Past, Present and Future, at the 125th Annual Meeting of the Geological Society of America, Denver Colorado.

Shackley, M.S.

2013 The Secondary Distribution of Archaeological Obsidian in Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Paleoamerican Procurement and the Age of Sediments. Poster presented at the Paleoamerican Odyssey Conference, Santa Fe, New Mexico, October, 2013.

Shackley, M.S.

2013 Discussant Paper: The Good, Bad, and Not So Ugly in 21st Century XRF Spectrometry. In session: *XRF Methods for the Geochemical Characterization of Archaeological Materials: Precision, Accuracy, Limits of Detection*. Society for American Archaeology, 78th Annual Meeting, Honolulu, Hawaii.

Shackley, M.S.

2012 The Secondary Distribution of Archaeological Obsidian in Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Prehistoric Procurement and the Age of Sediments. Poster presentation at the Society for American Archaeology, Annual Meeting, Memphis, Tennessee.

Clark, J., **M.S. Shackley**, J.B. Hill, and W.R. Haas, Jr.

2012 Long Distance Obsidian Circulation in the late Pre-Contact Southwest: Deviating from Distance-Decay. Paper presented at the Society for American Archaeology, Annual Meeting, Memphis, Tennessee.

Harper, N., and **M.S. Shackley**

2012 Obsidian Diversity at Big Springs (26CK948, 26CK949), Las Vegas, Nevada. Paper presented at the Society for American Archaeology, Annual Meeting, Memphis, Tennessee.

Haas, W.R., J.J. Clark, B.J. Mills, L. Borck, B. Hill, D. Huntley, M. Peeples, S.C. Ryan, **M.S. Shackley**, and M. A. Trowbridge

2012 The SWSN Database: Late Prehispanic Artifact Distributions in the Western U.S. Southwest. Poster presented at the 13 biennial Southwest Symposium, Albuquerque, New Mexico.

Shackley, M.S.

2011 Obsidian Provenance Studies in the North American Southwest: Provenance Triumph and Archaeological Success. Paper presented in the symposium The Cutting Edge: The State of Play in World Obsidian Studies, at the 76th Annual Meeting of the Society for American Archaeology, Sacramento.

Clark, J., **M.S. Shackley**, R. Jones, and S. Ryan

2011 Through Volcanic Glass: Measuring the Impact of Ancestral Puebloan Immigration on the Hohokam World. Paper presented in the symposium New Perspectives on the Hohokam, at the 76th Annual Meeting of the Society for American Archaeology, Sacramento

Shackley, M.S.

2010 Beyond Magnetism: A Short History of Obsidian Provenance Studies and Magnetic Personalities. Invited paper, Symposium: Magnetism of Glassy Materials, American Geophysical Union, San Francisco, California.

Sternberg, R.S., S. Gilder, P.R. Renne, and **M.S. Shackley**

2010 Magnetic Properties of Obsidians from the Southwestern U.S. Poster presentation Symposium: Magnetism of Glassy Materials, American Geophysical Union, San Francisco, California.

Doyel, David E., and **M.S. Shackley**

2010 Late Formative Period Exchange Systems in the Phoenix Basin. Paper presented at The Symposium on the Application of Archaeological Science in Arizona, Arizona Archaeological Council, Tucson, Arizona.

Shackley, M.S.

2010 The Secondary Distribution of Archaeological Obsidian in the Rio Grande Quaternary Sediments, Jemez Mountains to San Antonito, New Mexico: Inferences for Prehistoric Procurement and the Age of Sediments. Poster presentation, 38th International Symposium on Archaeometry, Tampa, Florida.

Shackley, M.S. (Keynote Address)

2009 The Geoarchaeology of Obsidian Provenance Studies: Past, Present, and Future. In *Obsidian from Magma to Artifact: Geological and Archaeological Perspectives*. Geological Society of America Annual Meeting, Portland, Oregon.

Nazaroff, A., and **M.S. Shackley**

2009 Testing the Size Dimension Limitation of Portable XRF Instrumentation for Obsidian Provenance. Poster presentation, Geological Society of America Annual Meeting, Portland, Oregon.

Shackley, M.S., and C. Henrickson

2009 From The Unknown To Known: The State Of Obsidian Source Provenance Studies In Baja California. In Symposium: *The Emerging Archaeology of Baja California: Challenging Paradigms of Isolation and Marginality*. Society for American Archaeology, Atlanta, Georgia.

Shackley, M.S.

2009 Discussant: Provenance and Archaeology: A Review. In the Society for Archaeological Science and International Association for Obsidian Studies Sponsored Symposium, *Provenance Studies in Archaeology*. Society for American Archaeology, Atlanta, Georgia.

Arakawa, F., A. Duff, C. Ward, J. Moss, J. Kantner, and **M.S. Shackley**

2008 Obsidian Procurement Patterns in the Chaco Era. Poster presented at the Southwest Symposium, Tempe, Arizona.

2007 **Shackley, M.S.** Keynote Address: *Archaeological Petrology, X-ray Fluorescence Spectrometry, and Obsidian Studies in a 21st Century Geoarchaeology*. Geological Society of America Annual Meeting, Denver, Colorado.

2007 Marina Milić, **M. S. Shackley**, and Boban Tripković
Viewing Serbian Prehistoric Long-Distance Relations via Obsidian Sourcing Studies. Paper presented at the Annual Meeting of the American Institute of Archaeology, Chicago.

Shackley, M.S

2007 Discussant: *The Allure of the Exotic*. Sponsored symposium, Society for American Archaeology Annual Meeting, Austin, Texas.

2007 C.M. Snyder, A.I. Duff, J. Kantner, **M.S. Shackley**
Obsidian Sourcing Analysis from Three Chacoan Great House Communities in Western New Mexico. Poster presented at the Society for American Archaeology, Annual Meeting, Austin, Texas.

2006 Morgan, L.E., J. Watkins, P.R. Renne, M. Manga, **M.S. Shackley**, M.C. Martin
High-Resolution Synchrotron-Source FTIR measurements of hydration rinds on volcanic glasses as applied to archaeology, *Eos Trans. American Geophysical Union*, 87(52), Fall Meet. Suppl., Abstract V31D-0626.

2006 Carolyn Dillian, **M.S. Shackley**
Mid-Atlantic Super-Long Distance Obsidian Exchange. Paper presented at the 71st Annual Meeting of the Society for American Archaeology, San Juan, Puerto Rico.

2005 **Shackley, M.S.**, Paleoindian Basalt and Obsidian Sources in the North American Southwest: A Preliminary Model of Late Paleoindian Territoriality. Paper presented in the Symposium on Archaeological Geology, Geological Society of America, Annual Meeting, Salt Lake City, Utah.

2005 T. Carter, S. Delerue, G. Poupeau, **M.S. Shackley**, N.J.G. Pearce
Cappadocian Obsidians from Early Neolithic Çatalhöyük: Revisiting Provenance Studies. Poster presented at Archéométré 2005, Colloquium Groupe de Méthodes Pluridisciplinaires Contribuant à l'Archéologie se déroulera à l'Institut National des Sciences et Techniques Nucléaires (INSTN, Saclay), 19-22 April, 2005.

2005 **Shackley, M.S.**, Chair and Organizer: Symposium, *Fourth Millennium B.P. Adoption of Domesticated Maize and Squash in the North American Southwest: The Assemblage from McEuen Cave, Southeastern Arizona*. The 70th Annual Meeting of the Society for American Archaeology, Salt Lake City, Utah.

- 2005 **Shackley, M.S.**, Chronometry and Geochemistry at McEuen Cave: The Radiocarbon and Obsidian Geochemical Data. Paper presented in the Symposium, *Fourth Millennium B.P. Adoption of Domesticated Maize and Squash in the North American Southwest: The Assemblage from McEuen Cave, Southeastern Arizona*. Presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City, Utah.
- 2005 B. Vierra, **M.S. Shackley**, and M. Jodry
Late Paleoindian and Early Archaic Foragers of the Northern Rio Grande. Paper presented in the Symposium, *From Paleoindian to Archaic – Views on a Transition*. The 70th Annual Meeting of the Society for American Archaeology, Salt Lake City, Utah.
- 2005 C. D. Dillian, **M.S. Shackley**, and C.A. Bello
Crossing the Delaware: Documenting Super-Long Distance Obsidian Exchange in New Jersey. Paper presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City, Utah.
- 2004 R.M. Wegener, B.A. Bradley, K.L. Blake, **M.S. Shackley**
Prehistoric Lithic Traditions and Obsidian Procurement Patterns in West-Central New Mexico. Paper presented at the 69th Annual Meeting of the Society for American Archaeology, Montreal, Canada.
- 2002 K.L. Butler and **M.S. Shackley**
Sites of Discovery: Art and Archaeology in 19th-Century Photographs of Southwest Archaeological Sites. Poster presented at the Annual Pecos Conference, Pecos National Historic Park, New Mexico.
- 2002 **Shackley, M.S.**, Use of Three-Dimensional Laser Scanning at McEuen Cave, Southeastern Arizona. Multi-Media Presentation with J. Holmlund, B. Huckell, L. Huckell, J. Nicoli, and E. Brennan at the 67th Annual Meeting of the Society for American Archaeology, Denver, Colorado.
- 2001 Butler, K.L., and **Shackley, M.S.**, Sites of Discovery: The Creation of Public Knowledge About the American Southwest in 19th Century America, with Kathleen Butler. Poster presentation at the Annual Meeting of the American Studies Association, Washington, DC.
- 2001 **M.S. Shackley**, Lisa W. Huckell, and Bruce B. Huckell
The 2001 Excavations at McEuen Cave (AZ W:13:6 ASM), Southeastern, Arizona. Paper presented at the Pecos Conference, Flagstaff, Arizona, 10 August 2001.

- 2001 **M.S. Shackley** and James Bayman
Obsidian Source Provenance, Projectile Point Morphology and Sacaton Phase Hohokam Cultural Identity. Paper presented in the symposium *A Snaketown Retrospective* at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.
- 2000 **Shackley, M.S.**, Organizer and Chair for the SAA Sponsored Forum: *The Adoption of the Bow and Arrow in North America: Chronology, Technology, and Social Process*. Presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia, Pennsylvania, 8 April 2000.
- 2000 **Shackley, M.S.**, The Southwest Archaeological Obsidian Project in The Northern Region. Workshop presented at the 73rd Pecos Conference, Dolores, Colorado.
- 1999 **Shackley, M.S.** and Carolyn Dillian: Thermal and Environmental Effects on Obsidian Geochemistry: Experimental and Archaeological Evidence. Paper presented in the Symposium: *The Effects of Fire/Heat on Obsidian* at the 33rd Annual Meeting of the Society for California Archaeology, Sacramento, 24 April 1999.
- 1999 **Shackley, M.S.**, Ninety-nine Bottles of Beer on the Wall: The Evolution of American Beer Containers as a Reflection of Industry, Transportation, and the Settling of the West. Paper presented in the symposium, *Before Miller Time: The Role of Beer Production and Consumption in the Americas, 1770-1930*, at the 1999 Annual Meeting of the Society for Historical Archaeology, Salt Lake City, Utah.
- 1998 **Shackley, M.S.**, Precision Versus Accuracy in the XRF Analysis of Archaeological Obsidian: Some Lessons for Archaeometry and Archaeology. Paper presented at the 31st International Symposium on Archaeometry, Budapest, Hungary.
- 1998 **Shackley, M.S.**, Archaeologists, Archaeometrists, and the Notion of Obsidian in Prehistory. Paper presented in the invited symposium *From Glass to Ceramics: Archaeometry in Archaeological and Technological Studies* at the 63rd Annual Meeting of the Society for American Archaeology, Seattle.
- 1998 P.D. LeTourneau, T.Baker, and **M.S. Shackley**: Folsom Period Obsidian Use in New Mexico. Paper presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle.
- 1998 **Shackley, M.S.**, What is (XRF) X-Ray Fluorescence Spectrometry? Presented in the Workshop: *Obsidian Hydration I: Fundamentals of Dating and Sourcing*. The 63rd Annual Meeting of the Society for American Archaeology, Seattle.

- 1998 Myles R. Miller, and **M.S. Shackley**: New Interpretations of Obsidian Procurement and Movement in the Jornada Mogollon Region of West Texas, Southern New Mexico and Northern Chihuahua. Paper presented at the symposium Recent Advances in Geochemical Compositional Analysis and Sourcing in West Texas. Annual Meetings of the Texas Archaeological Society, Waco.
- 1997 **Shackley, M.S.**, Southwest Archaeological Obsidian Studies: Lessons from the Past and Ideas for the Future. Workshop chaired at the 70th Annual Pecos Conference, Chaco National Cultural Center, Chaco Canyon, New Mexico.
- 1997 **M.S. Shackley** and B.B. Huckell: Field Report for McEuen Cave (AZ W:13:6 ASM). Paper presented at the 70th Annual Pecos Conference, Chaco National Cultural Center, Chaco Canyon, New Mexico.
- 1997 Arleyn Simon, Glen Rice, and **M.S. Shackley**
Trade Items at Salado Platform Mounds: Ritual or Managerial Control? Paper presented at the 62nd Annual Meeting of the Society for American Archaeology, Nashville.
- 1996 **M.S. Shackley** and Bruce Huckell
Workshop on Southwest Archaic Projectile Point Typology. Conference on the Archaic Prehistory of the North American Southwest, University of New Mexico, Albuquerque.
- 1996 Michael Glascock, Yaroslav Kuzmin, **M.S. Shackley**, and Andrei Tabarev
Geochemical Characterization of Archaeological Obsidian from the Russian Far East: A Pilot Study. Poster presented at the 30th International Symposium on Archaeometry, University of Illinois, Urbana-Champaign.
- 1996 **Shackley, M.S.**, Elko or San Pedro?: Some Thoughts on Great Basin Versus Southwest Projectile Point Morphology and the Identification of Ethnic Group Boundaries. Paper presented in the symposium, *Archaic Cultures of the Southern Deserts of the American West*. Society for American Archaeology 61st Annual Meeting, New Orleans, Louisiana.
- 1996 James Bayman and **M.S. Shackley**: Obsidian Studies at the Casa Grande/Grewe Site Complex, South-Central Arizona. Paper presented at the Society for American Archaeology 61st Annual Meeting, New Orleans, Louisiana.
- 1996 **Shackley, M.S.**, Co-Moderator for Luncheon Workshop: *Compositional Studies and Geochemistry*. Society for American Archaeology 61st Annual Meeting, New Orleans, Louisiana.

- 1996 **Shackley, M.S.**, Geology, Geochemistry, and Prehistoric Distribution of Archaeological Obsidian Sources from the Papaguería. Paper presented at the Western Papaguería Cultural Resources Workshop, National Training Center, Phoenix, Arizona.
- 1995 **Shackley, M.S.**, Archaeological Consequence of the Chemical Variability and Secondary Deposition of Mule Creek Obsidian, New Mexico. Paper presented at the 68th Annual Pecos Conference, Mimbres, New Mexico.
- 1994 **Shackley, M.S.**, International Workshop on Field and Laboratory Standards in Obsidian Geochemistry (Organizer and Moderator). International Association for Obsidian Studies, and Society for American Archaeology Annual Meetings, Anaheim, California.
- 1993 **Shackley, M.S.**, Gamma Rays, X-Rays, Stone Tools and the "Sourcing" Myth: Are We Missing the Point? Paper presented in the symposium *Archaeological Science: Past Achievements/Future Directions*, at the 58th Annual Meeting of the Society for American Archaeology, St. Louis, Missouri.
- 1992 **Shackley, M.S.**, Range and Mobility in the Early Hunter-Gatherer Southwest. Paper presented in the symposium *Settlement and Subsistence in the Late Archaic and Early Ceramic Periods of the Southern Southwest* at the 57th Annual Meeting of the Society for American Archaeology, Pittsburgh.
- 1992 Peterson, J., Mitchell, D., **Shackley, M.S.**, Modeling Patterns of Lithic Procurement and Production: Regional and Intrasite Applications of Obsidian XRF Data from Pueblo Grande, Arizona. Paper presented at the 57th Annual Meeting of the Society for American Archaeology, Pittsburgh.
- 1992 **Shackley, M.S.**, and J. Hampel, Surface Effects in the Energy Dispersive X-Ray Fluorescence (EDXRF) Analysis of Archaeological Obsidians. Poster presentation in the session *Ancient Technology and Provenance on Nonmetals* at the 28th International Symposium on Archaeometry, Los Angeles.
- 1992 J. Peterson, D. Mitchell, and **M.S. Shackley**: Obsidian X-Ray Fluorescence Data from Pueblo Grande, AZ: Modeling Social and Economic Patterns in Lithic Procurement. Paper presented at the 28th International Symposium on Archaeometry, Los Angeles.
- 1991 **Shackley, M.S.**, Projectile Point Technology of Ishi and the Yahi-Yana: Inferences for Hunter-Gatherer Style and Ethnicity. Paper presented in the Session *Researching Symbolism, Style, and Ritual* at the 56th Annual Meeting of the Society of American Archaeology, New Orleans.
- 1990 **Shackley, M.S.**, Early Hunter-Gatherer Procurement Ranges and Mobility in the Southwest: Evidence from Obsidian Geochemistry and Lithic Technology. Poster presentation in Poster Session: Advances in Hydration Analysis and Chemical Characterization. Society for American Archaeology 55th Annual Meeting, Las Vegas.
- 1988 **Shackley, M.S.**, Session Chair, *Lithic Studies*. Society for American Archaeology 53rd Annual Meeting, Phoenix.

- 1988 **Shackley, M.S.**, Obsidian Studies in the Southwest: Geochemical and Archaeological Problems. Paper Presented at the 53rd Annual Meeting of the Society for American Archaeology, Phoenix.
- 1987 **Shackley, M.S.**, Sources of Archaeological Obsidian in the Southwest: Geochemical and Archaeological Problems. Paper Presented at the Conference on Trace Element Geochemistry of Obsidian With Applications to Anthropology. Annual Symposium on Southwestern Geology and Paleontology, Flagstaff, Arizona.
- 1987 Todd Boswick and **M.S. Shackley**: Settlement Strategies and Lithic Technology: An Examination of Variability in Hunter-Gatherer and Agriculturist's Chipped Stone Assemblages in the Sonoran Desert. Paper Presented at the 1987 Hohokam Symposium, Arizona State University, Tempe.
- 1986 M. Marzke and **M.S. Shackley**
Tool Use and the Evolution of the Hominid Hand. Paper Presented at the Annual Meeting of the American Society for Physical Anthropology, Albuquerque.
- 1986 **Shackley, M.S.**, Diachronic and Spatial Variability in Obsidian Procurement in the American Southwest: A Trace Element Exploration of Southwest Obsidian Sources. Presented at the 51st Annual Meeting of the Society for American Archaeology, New Orleans.
- 1985 **Shackley, M.S.**, Lithic Raw Material Procurement and Hunter-Gatherer Mobility Strategies in the Southwest Archaic. Presented at the 50th Annual Meeting of the Society for American Archaeology, Denver.
- 1983 **Shackley, M.S.**, Late Prehistoric Agave Resource Procurement and a Broad Spectrum Subsistence Economy in the Mountain Springs Area, Western Imperial County, California. Presented at the Annual Meeting of the Society for California Archaeology, San Diego.
- 1982 **Shackley, M.S.**, Environment and Behavior: *Agave deserti* Procurement in the In-kopah Gorge Area, San Diego and Imperial Counties, California. Presented at the Annual Meeting of the Society for California Archaeology, Sacramento.
- 1981 **Shackley, M.S.**, An Inland Early Milling Site (4SDI6153) in San Diego County: Cultural and Environmental Interpretations. Session Chair, Archaeology of San Diego County. Presented at the Annual Meeting of the Southwestern Anthropological Association, Santa Barbara.

PROFESSIONAL AFFILIATIONS

Arizona Archaeological Council

Arizona Archaeological and Historical Society (Life Member)

Geological Society of America (Archaeological Geology Division)

International Association for Obsidian Studies, Life Member (past President)

New Mexico Archaeological Council

New Mexico Geological Society (Life Member)

Phi Beta Kappa (inducted 1980)

Society for American Archaeology

Society for Archaeological Sciences, Life Member (past Vice-President)

Society for California Archaeology