SAS
Volume 5 Number 3 Winter 1982
NEWSLETTER
SOCIETY FOR ARCHAEOLOGICAL SCIENCES

CURRENT RESEARCH

CURRENT GEOPHYSICAL FIELDWORK

Geophysical and aerial surveys are providing an increasing capability for aiding archaeological fieldwork. It is valuable for the co-workers in this discipline to be able to locate ongoing work with specific techniques or in certain regions. The Newsletter could provide a forum for announcing these current surveys, and we invite you to participate.

An upcoming issue of the Newsletter will describe this year's surveys. Surveys will be listed for sites anywhere in the world. Techniques to be considered include reconnaissance aerial photography, thermography, and airborne radar, geophysical surveys such as resistivity and magnetic, geochemical exploration, and all related techniques. Some areas of exploration could be included, but are somewhat different: soil studies, botanical exploration, and satellite photography. Techniques like surveying, photogrammetry, and archaeomagnetic dating are somewhat removed from the geophysical and aerial reconnaissance focus, and would be less suitable for this particular section of current fieldwork.

Each contribution must be short, only a few sentences long. A possible format would be:

Site name, location, period or culture
Technique employed
Area surveyed: length, number of measurements, area, measurement spacing
Results
Survey by and for

Please send your contributions or questions to: John Weymouth, Dept. of Physics and Astronomy, University of Nebraska, Lincoln, Nebraska 68588, Telephone (402) 472-2775, or to Bruce Bevan, Geosight, P.O. Box 135, Pitman, New Jersey 08071, Telephone (609) 589-9294.

RESEARCH NOTES

John B. Carlson (Center for Archaeoastronomy, University of Maryland) studies Native American astronomical systems.

James I. Ebert (Remote Sensing Division, National Park Service, Albuquerque) is interested in natural factors affecting archaeological visibility and recovery; remote sensing measurement of environmental diversity for prediction of archaeological site distributions; and the development of remote sensing based methods for measurement of past and present playa lake levels.

J. Evans (North East London Polytechnic, U.K.) is analyzing organic residues, particularly in pottery, and would like to exchange ideas with people following similar research.

Donald Lee Johnson, (Dept. of Geography, University of Illinois, Urbana) is involved in soil geomorphic studies in a number of areas. These include: North Channel Islands and selected portions of Ventura and Santa Barbara counties, California; Kimmswick, Feler and Sohn sites in Missouri; Deer Creek and Rodgers' Shelter in Missouri; and portions of Egypt and the Sudan. His other research includes soil mixing of archaeological materials.

Robert F. Marscher (Field Museum of Natural History, Chicago) has been involved in analyzing asphalt, a viscous mix of bitumen with solid matter such as sand or limestone. X-ray diffraction can be used to determine the sand and limestone content. Other properties (specific gravity, softening point, and sulfur content) of the bitumen can be examined once it has been separated from the solid matter. It is also possible to fingerprint bitumens from archaeological sources using gas chromatography. In collaboration with Henry Wright (University of Michigan), Marschner has examined the early use of asphalt in the ancient Middle East. It served as a cement or glue, a coating or sealant, structural material, matrix and adherent for mosaics, and possibly even as a medicine. Apparently, once it was found to be useful, bitumen was traded over intermediate distances. Sixty samples were analyzed. The older samples were from upland sites in the Zagros Mountains of Iran and Iraq. Farukhabad, a site near an asphalt seep known as Ain Gir, may have been a center for the preparation of asphalt for shipment. In large Mesopotamian cities (e.g. Ninevah, Babylon), asphalt was used in great quantities, but it came from a different source than that found in the uplands. Bitumen was also used in the Indus River Valley, but the source of the material found there is uncertain.

Milla Y. Ohel (University of Haifa, Israel) is studying the Acheulean occupation of the Yiron Plateau, Upper Galilee, Israel.

Henry P. Schwarcz (Dept. of Geology, McMaster University, Ontario, Canada) determines the age of occupation of prehistoric archaeological sites in the Old World by uranium series dating of travertine (cave deposited stalagmitic layers; spring deposited tufa). Principally, he is measuring the Th-230/U-234 ratio in travertines which, together with the U-234/U-238 ratio, allows him to determine the age in the range from 1000 to 4.5×10^5 years B.P. The samples must contain 0.1 ppm uranium or more and be free of detrital contaminants.

Prudence M. Rice (Department of Anthropology, University of Florida) has just received research grants from the National Science Foundation and the University of Florida for a provenience study of obsidian artifacts from the Maya Lowlands of El Peten, Guatemala. The obsidians were recovered in excavations carried out by the Central Peten Historical Ecology Project directed by D.S. Rice (Chicago) and P.M. Rice, an ecological and archaeological research project focused on Maya settlement and socio-political development around six lakes in Central Peten. This lake area had a long history of Maya occupation, from the Middle Preclassic (ca. 1000 B.C.) up to the time of Spanish contact, thus providing an excellent setting for investigation of trade and local distribution patterns of a non-local good. Of particular interest are obsidians from the Middle Preclassic and Postclassic, two periods that have been underrepresented in previous Lowland obsidian compositional studies. The chemical analyses — X-ray fluorescence and neutron activation analysis — will be carried out at the Lawrence Berkeley Laboratory, University of California, with the collaboration of Frank Asaro.

SAS NEWSLETTER **Volume 5 Number 2 Winter 1982**

Published quarterly by the Society for Archaeological Sciences. Distributed to the members of the Society with membership, $7.50 per year, $5.00 per year for students.

EDITOR: S.P. De Atley, Anthropology/Archaeology Program, Massachusetts Institute of Technology, Cambridge, MA 02139

ASSOCIATE EDITORS: David McJunkin, Christine Prior

For inquiries concerning change in addresses, information from membership records, and other business affairs, contact: Office of the General Secretary, SAS, Radiocarbon Laboratory, Department of Anthropology, University of California, Riverside, CA 92521.

MEETING NOTES

American Society of Photogrammetry

The symposium "Photogrammetric Measurement and Monitoring of Cultural Resources: Technical Possibilities and Management Needs," will take place at the meetings of the American Society of Photogrammetry on March 16 and 18, 1982 in Denver. It will deal with terrestrial and aerial photogrammetry applied to the monitoring of the structural and other qualities of historic and prehistoric structures and sites. The need for such a symposium springs from more than the possible contributions of photogrammetry in documenting change in structues, as this has been demonstrated in the past. The central question addressed will be, rather, "What do we need to measure," from the manager's as well as the architect/engineer's point of view. Some change in any structure or site is inevitable, and some sort of changes may be significant in altering the stability or historical value of the resource while other changes may not. Discussions will center about cultural resources for which the National Park Service is responsible, and they will consider the total range of such resources and the impacts to which they are susceptible. The format of the meeting will include approximately ten speakers and additional panel discussants. For more information contact: Jim Ebert, 3100 Ninth St. NW. Albuquerque, New Mexico 87107.

7th Symposium of Archaeological Chemistry

The Archaeological Chemistry subdivision of the American Chemical Society will sponsor a two day symposium during the National ACS meeting in Kansas City, September 12-17, 1982. Talks will be welcome on any subject concerning the application of chemical methods to archaeological subjects. These may include elemental or molecular analysis, dating techniques, and prospection based on chemistry. Accepted papers will be included in a new volume of the ACS Symposium Series, **Archaeological Chemistry III.** Completed manuscripts must be in the hands of the symposium chairman by the time of the meeting. For further information, please contact Dr. Joseph B. Lambert, Department of Chemistry, Northwestern University, Evanston, IL 60201. The deadline for submission of ACS abstracts is 1 May 1982.

First Australian Conference on Archaeometry

The First Australian Conference on Archaeometry will meet from February 15-18, 1982 at the Australian Museum, Sydney, New South Wales. The guest lecturer will be Dr. Stuart Fleming, Scientific Director, University of Pennsylvania Museum, Philadelphia, Pennsylvania. The program includes sessions on analysis and source characterization, geoarchaeological techniques, radiocarbon and thermoluminescent dating, paleomagnetism, and conservation. Futher details can be obtained by writing to the Conference Secretary, Dr. Peter Duerden, AAECRE, Sutherland, NSW 2232, Australia.

Symposium on Stable Isotopic and Elemental Composition

There will be a symposium on Stable Isotopic and Elemental Composition, Nutrition, and Human Adaptation to be held during the XIth International Congress of Anthropological and Ethnological Sciences, Quebec City, Quebec and Vancouver, B.C. from August 14-25, 1983. Please contact M. Pamela Bumsted, Department of Geosciences, University of Arizona, Tucson, AZ 85721 for further information.

Professor Dr. I.R. Selimkhanov (Baku, USSR) uses qualitative spectral and chemical analyses in his research on the history of metals and metallurgy in the ancient and medieval worlds. He is particularly interested in the problem of an arsenical copper age or period in some regions. He would like to cooperate or correspond with others working in the history of tin in ancient bronze metallurgy. Address: Institute for History of Academy of Sciences, Azerbaijan SSR, BAKU, USSR.

Clay Singer (CSUN Archaeological Research Center, Northridge, Ca.) is working with R. Edberg to identify, characterize and source local lithic materials that occur in archaeological contexts from the Santa Monica Mountains and vicinity (the region including Grimes Canyon fused shales, basalts, andesites and other igneous rocks, as well as local cherts and chalcedonic silicates). Some local metamorphics (slates) are also under investigation. Current emphasis is on pinpointing sources or source areas as closely as possible. Geochemical fingerprinting is contemplated for some materials in the future (e.g. fused shale from the three sources thus far identified).

Bruce Velde and Liliane-Chantal Courtois of the Lab. de Geologie, CNRS Ecole Normale Superieure, Paris, France, are involved in microprobe analysis of ceramics and glasses, as well as petrographic, X-ray diffraction and DTA studies of ancient Near East ceramic technology (Iraq, Syria, Cyprus, Israel).

NEWS OF THE PROFESSION

B.Sc. in Archaeological Sciences

North East London Polytechnic offers a four year part-time degree in Archaeological Sciences. The course has been designed for students with the Extra-Mural Diploma in Archaeology of London University, or other reasonable archaeological background. No previous mathematical or scientific training is necessary.

The course is intended to give archaeologists a comprehensive grounding in the scientific methods that are of greatest practical importance to them. It enables the archaeologists to appreciate the scientific potential of a site and to carry out a relatively wide range of analyses themselves.

Program:

1st Year: Introductory and refresher courses in mathematics, physics, chemistry, and biology. Suitably qualified students may be exempted from all or part of this section.

2nd Year: Review of the materials with which the archaeologist is concerned. Statistics and computing. Field archaeological sciences, including topographic surveying (including photogrammetry), geophysical prospection methods, etc.

3rd Year: Dating techniques. Chemical and physical analysis. Environmental and economic pre-history.

4th Year: An extended essay; and two advanced courses chosen from chemical and physical analysis, environmental and economic prehistory, museum studies and field conservation.

For further information and application forms, write to: B.Sc. Arch. Sci. Course Tutor, Department of Chemistry, N.E. London Polytechnic, Romford Road, Stratford, E15 4LZ U.K.
Submitted by J. Evans, North East London Polytechnic, U.K.

Cooperation Request:

Milla Y. Ohel (Univ. of Haifa, Israel) needs the services of a microwear analyst; he has limited funds. If you are interested, write to him at the Department of Sociology and Anthropology, University of Haifa, Haifa, 31999, Israel.

Session at the SHA Meeting on Geophysical Exploration

The 1982 conference of the Society for Historical Archaeology was held in Philadelphia during January 7-10. One session, titled "The Capabilities of Geophysical Surveys," investigated the advantages and limitations of magnetic, resistivity, electromagnetic, self-potential, ground-penetrating radar, and chemical surveys. Papers were presented by Brooke Blades, Jeffrey Kenyon, Randall Mason, Susan Sherwood, Melburn Thurman, and John Weymouth. The session organizers were Helen Schenck (MASCA, Univ. of Penn. Museum) and Bruce Bevan (Geosight).

RECENT PUBLICATIONS

Hominid Sites: Their Geologic Settings edited by George Rapp, Jr. and Carl F. Vondra. Westview Press 1981. Frederick A. Praeger, Publisher.

In recent years, archaeological geologists have joined the anthropologists and paleontologists in efforts to broaden the search for early man—defining the environmental parameters of both a habitat capable of sustaining human development and the geological conditions conducive to the preservation of faunal and artifactual remains, thus helping to ascertain more productive places to search for early hominid sites.

The authors of this book provide detailed accounts of several of these efforts in archaeological geology. Showing how geochronology, sedimentology, petrology, pedology, palynology, geophysics, zooarchaeology, and related studies have expanded our knowledge of hominid development, they cover work at many of the better-known sites, as well as at a potential hominid site in the Philippines.

CONTENTS:

Introduction — G. Rapp, Jr. Paleoenvironment of the Laetolil Beds, Northern Tanzania — Richard L. Hay. Lithofacies and Environments of Bed I, Olduvai Gorge, Tanzania — Richard L. Hay. Hominid Habitats in the Rift Valley: Part I — Howard J. White, Danile R. Bruggraf, Jr., Russel B. Bainbridge, jr., and C.F. Vondra; Part II — D.R. Burggraf, Jr., J.J. White, Hal J. Frank, and C.F. Vondra. Environments in the Lower Omo Basin from One to Four Million Years Ago — Francis H. Brown. Geology and Paleogeography of the Hadar Hominid Site, Ethiopia — James L. Aronson and Maurice Taieb. Paleoenvironments of the Siwalik Group, Pakistan and India— Gary D. Johnson, Pamela H. Rey, R.H. Ardrey, Charles F. Visser, Neil D. Opdyke, and R.A. Kahn Tahirkheli Plio-Pleistocene Geology of Northern Luzon, Philippines — C.F. Vondra, Mark E. Mathisen, D.R. Burggraf, Jr., and Erik P. Kvale.

Note: References listed here are reproduced as submitted. When communicating recent publication information, please be sure your citations are complete.

Ebert, James I. 1981. Remote Sensing of Geomorphological Factors Affecting the Visibility of Archaeological Materials. In *Technical Papers of the American Society of Photogrammetry,* 47th Annual Meeting.

——— 1981. Remote Sensing in Archaeology, Cultural Resources Treatment, and Anthropology: The USA in 1977. *Aerial Archaeology* vol. 5 Norfolk, England.

Evans, J. and L. Biek. 1979. Soil Analyses. in *Chelmsford Excavations II,* edited by P. Drury. CBA Research Report 26.

——— and J. Hedges in press. Analysis of Contents of Pottery from Stock (Essex). *Proceedings of the Prehistoric Society.*

Johnson, Donald Lee. 1980. Problems in the Land Vertebrate Zoogeography of Certain Islands and the Swimming Powers of Elephants. *Journal of Biogeography* 7:383-389.

——— 1980. Clovis Strategies of Hunting Mammoth *(Mammuthus columbi). Candadian Journal of Anthropology* 1:23-33. With P. Kawano and E. Ekker.

——— 1980. Tectonic Geomorphology and Earthquake Hazard, North Flank, Central Ventura Basin, California. Final Technical Report for the U.S. Geological Survey (open file report). 167 pp. With E.A. Keller, M.N. Clark, and T.K. Rockwell.

——— 1980. The California Coastal Region: Its late Pleistocene and Holocene Climate and Function as an Ice Age Refugium. In *Early Native Americans,* ed. by D.L. Browman. The World Anthropology Series. The Hague: Mouton Co. pp 99-118.

——— 1980. A Geographer's Perspective on Zoogeography. *The Zoogeographer* 1(1):6.

Koehler, Crolyn G. 1978. Evidence Around the Mediterranean for Corinthian Export of Wine and Oil. In *Beneath the Waters of Time: The Proceedings of the Ninth Conference on Underwater Archaeology.* J. Barto Arnold, III, ed. Texas Antiquities Committee Publication No. 6, Austin, Texas.

——— 1979. Transport Amphoras as Evidence for Trade. *Arch. News* VIII 2/3.

Marschner, Robert F. and Henry T. Wright. 1978. Asphalts from Middle Eastern Archaeological Sites. *Advances in Chemistry* 171:150.

——— L.J. Duffy, and H.T. Wright. 1978. Asphalts from Ancient Townsites in Southwest Iran. *Paleorient* 4:97.

Ohel, Milla Y. and G. Bruder. 1980. Upper Dishon Basin Project: First Season 1979. *Israel Exploration Journal* 30:34-51.

——— 1981. Spatial Management of Hominid Groups at Olduvai: A Preliminary Exercise. *Palaeoecology of Africa* 13.

Rice, P. 1981. Evolution of Specialized Pottery Production: A Trial Model. *Curent Anthropology.* vol. 22(3):219-140.

Schwarcz, H.P. 1979. Datation absolue des restes humains de la Chaise-Vouthon (Charente). *C.R. Acad. Sci. Paris* 288:1155-1177.

——— 1980. Absolute Dating of Archaeological Sites by Uranium Series Dating of Travertines. *Archaeometry* 22:3-24.

Selimkhanov, Isa R. 1979. A Note Upon Knowledge of Metals and Their Transmutation. in *The History of Arabic Science.* Abstract of Section Paper in the Second International Symposium for the History of Arabic Science. University of Aleppo.

——— 1980. Metals and Alloys of Antiquity. *General History of Chemistry,* Vol. I. Moscow, Publ. House Nauka (in Russian).

——— 1981. Reflection to the Study of Problems of the History of Metals and Metallurgy of Seljuc Perion. In *Junction of Sciences.* Proceedings of the I. International Congress on the History of Turkish-Islamic Science and Technology. Istanbul.

SAS

SOCIETY FOR ARCHAEOLOGICAL SCIENCES

Radiocarbon Laboratory, Department of Anthropology
University of California, Riverside, California 92521