

# SAS

Volume 7    Number 3    Winter 1984

## NEWSLETTER

**SOCIETY FOR ARCHAEOLOGICAL SCIENCES**

### NEWS OF THE PROFESSION

---

#### CENTER FOR THE STUDY OF EARLY MAN

---

In 1981 the Center for the Study of Early Man was established as a sub-unit of the Institute for Quaternary Studies at the U. of Maine, Orono. The primary function of the Center is to further the development and dissemination of knowledge about human occupation of the Americas before 10,000 years ago.

The Center has developed a book series called "The Peopling of the Americas". Both popular and scholarly manuscripts pertaining to pre-10,000 B.P. evidence for humans in the Americas will be considered for publication. So far, ten manuscripts are scheduled for publication during the next 2 years. In addition, the newspaper *Mammoth Trumpet* has been initiated to publicize recent news, publications, upcoming conferences and viewpoints on early man research. If you are interested in these publications, and/or being on the Center's mailing list, contact Marcella H. Sorg, Assistant Professor of Quaternary Studies, Inst. for Quaternary Studies, Center for the Study of Early Man, Boardman Hall, U. of Maine, Orono, Maine, 04469.

---

#### ICAZ ANNOUNCES INTERNATIONAL CONFERENCE

---

The Fifth International Conference on Archaeozoology will be held in Bordeaux, France 25-29th August 1986. This conference is sponsored by the International Council for Archaeozoology and is being organized by Pierre Ducos and his French colleagues with the support of local and national French academic, research, cultural, and political bodies. The general theme for the conference is "taking stock of world archaeozoological research". Individual contributions and ideas for symposia should fall within the definition of archaeozoology as "the study of animal remains connected with the settlements of ancient human

groups, thus contributing to the knowledge of those groups." For registration forms write to: Dr. Pierre Ducos, V<sup>e</sup> Conference ICAZ, C.R.E.P., St. Andre de Cruzieres, France.

Previous conferences were held in Budapest (1971), Groningen (1974), Szczecin (1978), and London (1982). The last conference attracted more than 230 researchers from 32 countries including 41 from the USA. The proceedings of the London conference are being published in 4 volumes by British Archaeological Reports (Oxford) under the title "Animals and Archaeology". The first volume, "Hunters and Their Prey", has already appeared (BAR International Series 163, 1983).

The International Council on Archaeozoology was formed in Groningen in 1974 to promote the study of and standards in the study of faunal remains from archaeological sites. Corresponding membership is available to anyone interested in archaeozoological or related research. Write to: Dr. A.T. Clason, Biologisch-Archaeologisch Instituut, Poststraat 6, 9712 ER Groningen, The Netherlands.

---

#### 2ND AUSTRALIAN ARCHAEOOMETRY CONFERENCE, FEBRUARY 1985

---

Due to the success of the first Australian Archaeometry Conference in February 1982, the convenors have begun planning for a second meeting for February 1985.

The conference aims to bring together people working in archaeology, art, and sciences by concentrating on the application of advanced investigative techniques to an understanding of technology, chronology, ageing and preservation processes in cultural materials. Participants should direct their contributions to questions involving art works and artifacts, as well as the cultural insights which such analyses provide. Contributions from the earth sciences in archaeological and environmental research are invited, particularly where the

impact on human groups is suggested. The committee also welcomes contributions from researchers who can outline possible applications of their studies in archaeometry.

The final program will depend on the papers offered, but the following is an outline for prospective participants.

The time scale of Australian prehistory requires the application of dating systems beyond the range of 30,000 years. The last 1000 years is equally in need of sensitive dating systems, both for prehistoric studies and for a broad range of research on museum and gallery collections.

As well as the normal physical and chemical analysis of materials, contributions may be in the field of acquired surface changes and the weathering and preservation of materials at sites or in collections. Authentication studies based on materials analyses are invited.

Studies on the reconstruction of past environments with emphasis on the relevance of these for human occupation of the study area are sought.

Poster sessions will accommodate contributions which concentrate on demonstrations of, e.g.: sample preparation techniques, analytical techniques, conservation methods, monitoring techniques, inspection and prospection instruments, and other devices or instruments with applications in archaeometry. Poster sessions are not a substitute for formal papers, but a specialized venue for a wide range of contributions.

Publication of contributed papers is planned under the joint auspices of the Australian National Gallery and the Dept. of Prehistory, Research School of Pacific Studies, Australian National University.

For further information, contact W. Ambrose, Dept. of Prehistory, Research School of Pacific Studies, Australian National U., PO Box 4, Canberra ACT 2600.

---

## RESEARCH NOTES

---

Dr. Graeme Coote (Inst. of Nuclear Sciences, New Zealand) investigates applications of a nuclear microprobe to archaeology, metallurgy, and dental research. Special interests are 1) radial profiles of F and Ca in excavated bones and teeth, with the aim of developing a dating method valid over the range of 1-10<sup>6</sup> years, and 2) depth profiles of Na in obsidian and glass, with the goal of developing a non-destructive dating technique.

Prof. Dr. Esref Deniz (U Ankara, Turkey) is investigating faunal remains from the Acem Hoyuk excavations in Turkey. He is also analyzing the fauna from the Roman and Byzantine periods of the Kaunos excavation.

Marylene Patou (Museum National d'Histoire Naturelle, Paris, France) is studying hunting and butchering techniques used in the Paleolithic and Neolithic periods in order to explore the relationships between humans and animals.

David S. Reese conducted faunal research in Jordan with ASORs Shell Fellowship from June to mid Oct. He will be in Greece with the Jacob Hirsch Fellowship of the American School of Classical Studies at Athens (54 Souidias Street, Athens 140, Greece) from late Oct. to June.

Dr. I.R. Selimkhanov (Inst. of History, Baku, USSR) continues his historico-analytical investigations on the problems of ancient metals and metallurgy.

SAS Newsletter

Volume 7

Number 3

1984

Published quarterly by the Society for Archaeological Sciences. Distributed to members of the Society with membership, \$7.50 per year, \$5.00 per year for students, \$10.00 institutional membership, \$150.00 life membership. ISSN 0739-0637.

Editor: Suzanne P. De Atley

Deadline for receipt of material for publication is as follows:

Fall issue: August 30; Winter issue: November 30; Spring issue: February 28; Summer issue: May 30

Mail copy to:

Suzanne De Atley, Anthropology-Archaeology Program, Room 20D-105, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.

SAS Executive Officers, 1983-84:

President: George Rapp, Jr.

Past President: John Weymouth

Vice-Pres./Pres.-Elect: Rainer Berger

Consulars: Curt Beck, Foss Leach, Robert Maddin, Daniel Wolfman

Administration:

General Secretary: R.E. Taylor

Associate General Secretary: 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, California 92521.

Secretary-Treasurer: Thomas Riley

Asst. Sec.-Treas./Sec.-Treas.-Elect: Barbara Luedtke

Gary C. Wessen (Kirkland, Washington) is working with several aspects of the shellfish data from the Ozette archaeological site: seasonality and size class selection in harvesting, temporal changes in collection, and the manufacture of tools from the valves of Mytilus californianus. He is also compiling data on general trends in cultural shellfish collections for the entire Northwest Coast area. This review emphasizes the range of fauna exploited and apparent temporal changes in collection.

---

#### NEWS OF ARCHAOMETALLURGY

---

"Kyoto Metal: An Exhibition of Contemporary Japanese Art Metal Work" is at the Museum of History and Industry in Seattle Jan. 18-March 10. The 50 works include examples of shibuichi, shakuda, and other traditional Japanese alloys. The catalogue is available for \$6 from Harlan Butt, Art Dept., North Texas State U., Denton, TX 76203.

The 19th annual conference of the Historical Metallurgy Society was held Sept. 16-18 in Southampton. It included a visit to the site of Cort's Funtley Forge where the group was welcomed by the present owners, the Pilchers. The Society unveiled a plaque commemorating Cort's development of puddling iron there in 1783. Comparison of the site with the 3 large contemporary watercolors on exhibit at the meeting revealed considerable artistic license. Maj. Cort of the British Army Engineers gave 1 of the papers at the meeting. Prof. Robert Gordon (Kline Geology Lab., Yale U., Box 6666, New Haven, CT) spoke on precolumbian bronze tools from Manchu Pinchu collected by the Yale Peruvian expedition of 1912. Douglas Braid (27 Circle Gardens, London SW19 35X) addressed the mechanisms resulting in bog ore in "The possible sources of early iron produced by iron bacteria". Martha Goodway presented evidence from analyses of 18th century harpsichord wires and from documentary sources that high phosphorus iron was selected for making wire, though the presence of phosphorus was not suspected until 1784. The special fining process for wire stock was credited with reducing the carbon to negligible amounts so that the phosphorus had only the beneficial effect of strengthening the iron.

The colloquium organized by Prof. Miriam Balmuth (Classics & Archaeology, Eaton Hall, Tufts, Medford, MA 02155) on Sardinia in the Mediterranean Sept. 23-25 included a session on metallurgy in which Ronald Tylecote and John Merkel were invited speakers. The general conclusion that Sardinia was among the important sources of copper in the early Med-

iterranean was reinforced by John Dayton's lead isotope plot. It placed such objects as the 8 Hagia Triada ox hide ingots published by Gale in 1983 in the same field as ores from Sardinia published by Dayton, Barnes and Gramlich in 1978.

The MASCA symposium at the University Museum, Philadelphia, Nov. 5, was on Current Research at Six Sites of the American Northeast: From Indians to Industry. Helen Schenk (MASCA) presented the results of her reexamination of the finery site at Valley Forge, which yielded iron at every stage of the refining process. The samples were studied metallographically and chemically. Edward Rutsh (Historic Conservation & Interpretation Inc., Box 111, RD3, Newton NJ 07860) reported on an archaeological survey of the Long Pond Ironworks site in the n. New Jersey highlands, where remains include the colonial furnace and furnaces built by Peter Cooper's son and son-in-law in the 19th century.

A symposium on microstructure in honor of Cyril Stanley Smith was held in Philadelphia on his 80th birthday, Oct. 4. It was sponsored by The American Society for Metals, The Metallurgical Society of AIME, and the National Bureau of Standards. There was a lack of archaeometallurgy in the program. However, Benoit B. Mandelbrot, the inventor of "fractals" was among the speakers. The day was followed by a dinner and festivities at the University Museum.

Robert Maddin's retirement from the U. of Pennsylvania was celebrated by a symposium organized by Tamara Stech on Dec. 9-10 at the Lab. for Research on the Structure of Matter. Glass (R. Brill, Corning Museum), ceramics (W.D. Kingery, MIT) and stone (E.V. Sayre, Brookhaven) were included as well as metal. David Gaskell (Purdue) dealt with the thermodynamics of smelting; other speakers were Cyril Stanley Smith (MIT), William Ros-tocker (U. Ill.), and G.C. Farrington (Penn).

Future meetings include Industrial Heritage '84, June 8-14. For information write Lowell Heritage State Park, 25 Shattuck St., Lowell 01852. A call for papers for a symposium on The Industrial Archaeology of the American Iron Industry, held as part of the 1984 annual Society for Industrial Archaeology meeting, June 14-18, has been issued by Eric DeLony (Principal Architect, Historic American Engineering Record, National Park Service, 10216 Lorraine Ave., Silver Spring, MD 20901) and by Edward Rutsh (address above).

Send news and announcements to Martha Goodway, Conservation-Analytical Lab., Museum Support Center, Smithsonian Inst., Washington DC 20560. Telephone: (202)287-3733.

**RECENT GEOPHYSICAL SURVEYS OF ARCHAEOLOGICAL SITES**

**YEAR: 1980**

**SURVEYS DONE BY:** Terry Gibson, Anthro. Dept., U. of Alberta, Edmonton, Alta.

**Site:** Caribou Island, Bonneville, Alta.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode).

**Area:** 1000 square m. at 1 m. interval.

**Results:** Search for prehistoric hearths: location of numerous anomalies which proved to be primarily geological in origin. Archaeological component very tenuous & may not have contained remnants of burn features.

**Survey for:** Boreal Inst. for Northern Studies, Edmonton, Alta.

**Site:** Munsungun Lake Locality, n. Maine.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode).

**Area:** 5000 square m. at 1 m. interval.

**Results:** Location of a number of prehistoric hearths & delineation of areas of intensive human occupation on paleoindian sites.

**Survey for:** Dept. Quaternary Studies, U. of Maine, Orono, Maine (Dr. R. Bonnichenen, project director).

**Site:** Dickey-Lincoln Locality, n. Maine (G. Nicholas, field supervisor).

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station.

**Area:** 1200 square m. at 1 m. interval.

**Results:** Location of several prehistoric hearths & areas of intensive human activity on 2 paleoindian archaeological sites.

**Survey for:** Dept. of Quaternary Studies, U. of Maine, sponsored by U.S. Army Corps of Engineers.

**Site:** Timlin Site, Cobleskill, New York

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station.

**Area:** 400 square m. at 1 m. interval.

**Results:** Location of 1 possible hearth; interpretation of results complicated by subsurface geological deposits and uncertainty of the archaeological deposit.

**Survey for:** Anthro. Dept., U. of Alberta, Edmonton, Alta. (Dr. A. Bryan, Project director).

**Site:** Fort Selkirk Historic Site, Yukon Territory.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode).

**Area:** 500 square m. at 1 m. interval.

**Results:** Location of building wall remains, fired areas, trash middens.

**Survey for:** Yukon Territorial Gov't., Whitehorse, Y.T.

**Site:** Forty Mile Historic Site, Yukon Territory.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode).

**Area:** 600 square m. at 1 m. interval.

**Results:** Location of several trash pits & middens close to walls of extant buildings; interpretation complicated by presence of metal in buildings.

**Survey for:** Yukon Territorial Gov't., Whitehorse, Y.T.

**YEAR: 1981**

**SURVEYS DONE BY:** Terry Gibson, Anthro. Dept., U. of Alberta, Edmonton, Alta.

**Site:** Brandon House & nearby historic sites in Souris Mouth locality, s. Manitoba.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode) & verified by

coring & metal detector prior to excavation.

**Area:** 3000 square m. at 1 m. interval.

**Results:** Location of trash midden areas, building remains, cellar pits on site of fur trade posts.

**Survey for:** Manitoba Dept. of Cultural Affairs & Historical Resources, Winnipeg, Man. (S. Hamilton, field supervisor).

**Site:** Delorme House, Winnipeg, Manitoba.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station.

**Area:** 800 square m. at 1 m. interval.

**Results:** Location of several shallowly buried trash middens; survey accuracy hampered by presence of nearby power lines & intrusive metal on site.

**Survey for:** Manitoba Dept. of Cultural Affairs & Historical Resources, Winnipeg, Man. (D. McLeod, field supervisor).

**Site:** Child's Lake Site, w.-central Manitoba.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode).

**Area:** 1000 square m. at 1 m. interval.

**Results:** Search for prehistoric hearths & pottery clusters; location of several buried pot sherds clusters.

**Survey for:** Manitoba Dept. of Cultural Affairs & Historical Resources, Winnipeg, Man. (P. Badertscher, field supervisor).

**Site:** Investigator Beach (Mercy Bay), Banks Island, Northwest Territory.

**Technique:** Single sensor proton magnetometer, readings obtained at 2 sensor heights per station.

**Area:** 1000 square m. at 1 m. interval.

**Results:** Location of a number of metal clusters interpreted to be Copper Inuit iron reduction areas on site of European ship's stores cache. Survey hampered by severe magnetic storms.

**Survey for:** Copper Inuit Archaeological Project, Anthro. Dept., U. of Alberta, Edmonton, Alta. (Dr. C. Hickey, project director).

**YEAR: 1982**

**SURVEYS DONE BY:** Bruce Bevan, Geosight, Pitman, N.J.

**Site:** Gannagaro State Historic Site, Victor, N.Y., 17th c. Seneca.

**Techniques:** Ground-penetrating radar and proton magnetometer. **Area:** 1.4 acres, 5 ft. spacing with 2 1/2 ft. resurvey of anomalies.

**Results:** Excavation reveals that radar anomalies were caused by natural features; source of magnetic anomalies may be natural or cultural.

**Survey for:** Charles Fisher, N.Y. State Office of Parks, Recreation & Historic Preservation.

**Site:** Maurice Stephens Farm, Valley Forge, PA., 19th c.

**Techniques:** Ground-penetrating radar, proton magnetometer.

**Area:** 0.09 acres.

**Results:** Located deep fill & possibly a hearth but could not detect prior refilled excavations or buried gravel path.

**Survey for:** Brooke Blades, National Park Service, Mid-Atlantic Regional Office.

**Site:** Willow Creek, Blue Earth Valley, Minn., 10-19th c. Oneota.

**Techniques:** Resistivity, magnetics, and radar.

**Area:** 0.25 hectare, 1 m. spacing.

**Results:** Resistivity anomalies; radar not suitable because of conductive soil.

**Survey for:** Orrin Shane, Science Museum of Minnesota.

**SURVEY DONE BY:** James I. Eberl, Branch of Remote Sensing, National Park Service.

**Site:** Seedskaadee Cultural Resources Assessment Project (predictive modeling of site locations & characteristics in 93,000 ha. area in Green River Basin of s.w. Wyoming).

**Technique:** Visual photointerpretation of aerial photographs & Landsat Multispectral Scanner data, digital analysis of Land-

sat MSS data for environmental & surface geomorphological stratification of study area; on-site survey of approx. 0.8% probabilistic sample of area to test efficiency of stratification, conclusions of prediction.

Results: Preliminary results using previously discovered archaeological site data indicate geomorphological (surface dynamics) stratification most informative in predicting site occurrences (e.g. where archaeologists see sites with surface integrity).

SURVEYS DONE BY: Bruno Frohlich, Smithsonian Inst., & Christopher J. Albert, Geneva, N.Y.

Site: Qualat al Bahrain, Bahrain.

Technique: Electromagnetic induction meter, Geonics EM-31.

Area: 9 traverses at 1 m., 1896 points.

Results: Identification of major wall structures & graves.

Site: Madinat Hamad, Bahrain.

Technique: Geonics EM-31.

Area: 1 traverse at 1 m. & 1 square, 542 points.

Results: Identification & location of burial chambers inside burial mounds.

Site: Saar el-Jisr, Bahrain.

Technique: Geonics EM-31.

Area: 4 traverses at 1 m. & 1 square, 6428 points.

Results: Test excavation still to be completed.

Site: Al-Hajjar, Bahrain.

Technique: Geonics EM-31.

Area: 2 traverses at 2 m. & 2 squares, 1807 points.

Results: Identification of possible Hellenistic & Early Bronze Age burials.

Site: El-Duraz, Bahrain.

Technique: Geonics EM-31.

Area: 3 traverses at 2 m., 340 points.

Results: Excavations still to be carried out.

Site: Failaka Island, Kuwait.

Technique: Geonics EM-31.

Area: 12 traverses at 2 m. & 2 squares, 3198 points.

Results: Identification of areas with man-made structures (mud brick structures & pits). Cores were taken in selected places to verify changes in the geological layering sequences suggested by the EM-31. Identification of possible burial structures on southern/central Failaka. Some excavation still to be carried out.

Site: Ain Ghazal, Jordan.

Technique: Geonics EM-31.

Area: 5 traverses at 5 m. & 1 square, 972 points.

Results: Test excavations to be carried out in summer of 1983.

Site: Wassim, Egypt.

Technique: Geonics EM-31.

Area: 1 square, 234 points.

Results: Negative, too many modern structures altered readings.

Site: Fustat, Egypt.

Technique: Geonics EM-31.

Area: 3 traverses at 2 m., 408 points.

Results: None.

Site: Bahnassi, Egypt.

Technique: Geonics EM-31.

Area: 1 traverse at 2 m., 282 points.

Results: Negative in identification of below the ground tombs.

Site: Al-Lejjun, Jordan.

Technique: Geonics EM-31.

Area: 8 traverses at 2 m. & 2 squares, 4046 points.

Results: Negative, no Roman graves were found in selected areas.

SURVEYS DONE BY: Terry Gibson, Anthro. Dept., U. of Alberta, Edmonton, Alta.

Site: Souris Mouth Locality, s. Manitoba.

Technique: Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode) & verified by coring & metal detector prior to excavation.

Area: 3500 square m. at 1 m. interval.

Results: Continued assessment of Brandon House & other nearby fur trade post sites: location of cellar remains, middens, burning areas, chimney & foundation remnants.

Survey for: Manitoba Dept. of Cultural Affairs & Historical Resources, Winnipeg, Man. (S. Hamilton, field supervisor).

Site: Francois-Finlay & Grant & McLeod fur trade posts, Nipawin, Sask. (O. Klimko, field supervisor).

Technique: Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode) & verified by coring & metal detector prior to excavation.

Area: 5000 square m. at 1 m. interval.

Results: Delineation of buried chimney & foundation remnants, trash pits & middens, burning areas, cellar pits.

Survey for: Nipawin Reservoir Heritage Project (Dr. D. Meyer, project director), conducted by Saskatchewan Research Council, Saskatoon, Sask.; sponsored by Saskatchewan Power Corp., Regina, Sask.

Site: Bushfield West & Bushfield East prehistoric sites, Nipawin, Sask. (T. Gibson, D. Slater, field supervisors).

Technique: Single sensor proton magnetometer, readings obtained at 2 sensor heights per station. Magnetic anomalies resurveyed at 50 cm. interval (dual reading mode) & verified by coring & metal detector prior to excavation.

Area: 1200 square m. at 1 m. interval.

Results: Bushfield West: location of hearths, pottery clusters, buried pits. Magnetic data from Bushfield East await archaeological testing.

Survey for: Nipawin Reservoir Heritage Project (Dr. D. Meyer, Project director), conducted by Saskatchewan Research Council, Saskatoon, Sask. & sponsored by Saskatchewan Power Corp., Regina, Sask.

SURVEYS DONE BY: Rob Huggins, Spectrum Geophysics

Site: Central Washington Archaeological Project, Grand Coulee Dam, Washington.

Technique: Proton magnetometer.

Area: .4 ha.

Results: Located several house pits, areas of ash, organics & fire cracked rock.

Survey for: Jim Chatters, Central Washington U. & Lawr Salo, US Army Corps of Engineers, Seattle Dist.

Site: Dolores Archaeological Project, Dolores Colorado.

Technique: Proton magnetometer.

Area: 3.2 ha.

Results: Located pit structures, rooms, pits, hearths, room blocks, middens & activity areas.

Survey for: Al Kane & Dave Breternitz, Dolores Archaeological Project.

Site: Black Mesa Archaeological Project, Black Mesa, Arizona.

Technique: Proton magnetometer.

Area: .72 ha.

Results: Located pit structures; crews still in field at time of writing.

Survey for: G. Gummerman, S. Powell, D. Nichols & K. Smiley, Southern Illinois U.

Site: Croxton Site, Tukuto Lake, Alaska.

Technique: Proton magnetometer.

Area: .1 ha.

Results: Located concentrations of fire cracked rock, possible pits?

Survey for: P. Bowers, BLM & USGS.

SURVEY DONE BY: John Weymouth, U. of Nebraska.

Site: Pike-Pawnee or Hill Site (25WT1), Nebraska.

Technique: Two 1/4 nT proton magnetometers in the difference

mode, repeatability at 0.5 nT, data entered into microcomputer on-site.  
Area: 0.60 ha (1.5 acres) on a 1 m. grid.  
Results: At least 3 cultural areas verified with soil probe, at least 15 significant isolated anomalies, possibly pits. No excavation as yet.  
Survey for: Nebraska State Historical Society.

YEAR: 1983

SURVEYS DONE BY: John E. Ehrenhard & William P. Athens, Southeast Archaeological Center, National Park Service.

Site: Fort Donelson National Historic Site, TN  
Technique: Probe resistivity meter, Gossen Geohm 3.  
Area: 625 measurements at a spacing of 1 m.  
Results: Location of recent cultural features in vicinity of Superintendent's quarters & portions of a buried stone wall within national cemetery.  
Survey for: Southeast Archeological Center, Tallahassee, FL.

Site: Fort Raleigh National Historic Site, NC.  
Technique: Proton magnetometer, Geometrics 856 & 866; probe resistivity meter, Gossen Geohm 3.  
Area: 10,170 readings (5,085/technique) at a spacing of 1 m.  
Results: Identification of anomalies that with limited archeological testing have produced data which may be attributed to the 1587 English colony of Sir Walter Raleigh. Additional studies in progress. All readings entered into CYBER 760 &

output depicted in graphic form.  
Survey for: Southeast Archeological Center, Tallahassee, FL.

SURVEYS DONE BY: John E. Ehrenhard & Robert Taylor, Southeast Archeological Center, National Park Service.

Site: Everglades National Park, FL.  
Technique: Photointerpretation of 1:80000 color IR aerial photos.

Area: Approximately 300,000 acres.  
Results: Unqualified success in identification of prehistoric sites using vegetative anomalies. 150 archeological sites found during the second season of a 5 year cultural resource inventory of the 1,200,000 acre park.  
Survey for: Southeast Archeological Center.

SURVEY DONE BY: George R. Fischer, Southeast Archeological Center, National Park Service.

Site: Legare Anchorage Shipwreck (BISC-UW-20).  
Technique: Proton magnetometer.  
Area: 2500 square m.  
Results: Fine-grained survey of magnetic anomalies on the British frigate HMS Fowey (1748).  
Survey for: Biscayne National Park.

Submitted by J. Weymouth, U. of Nebraska, & Bruce Bevan, Geosight.

## RECENT PUBLICATIONS

### LITHICS

Patou, M., 1983. L'industrie lithique sur éclat dans les collections néolithiques creusoises du Musée de Guéret (Creuse). *Mémoires de la Société des Sciences naturelles et Archéologiques de la Creuse*, No. 150. With M. Guilbaud.

Takacs-Biro, C., 1982. Amorphous and microcrystalline materials in archaeology. *Nuclear Instruments and Methods*, 199:263-267.

### METALS

Selimkhanov, I.R., 1982. Arsenical copper. In *Works and Investigations at Baku*, by H.H. Coghlan, *Historical Metallurgy*, 16(2):50-57. London, Metal Society.

-----, 1983. The problem of tin of Southeast Asia and its use in Ancient Transcaucasia. *Pacific Science Assn.*, 15th Congress. Abstracts. Dunedin, U. of Otago, pp. 209-210.

### DATING

Coote, G. & S. Holdaway, 1982. Radial profiles of fluorine in archaeological bone and teeth: a review of recent developments. In *Archaeometry: An Australasian Perspective*, Australian Nat'l. U. Press: Canberra.

Coote, G. & P. Nistor, 1982. Depth profiles of sodium in obsidian by the resonant nuclear reaction method: a potential dating tech-

nique. In *Archaeometry: An Australasian Perspective*, Australian Nat'l. U. Press: Canberra.

Takacs-Biro, C., 1982. Hydration rates of the Carpathian Obsidians. *INQUA XI In Quaternary Studies in Hungary 1982*, pp. 135-144.

### PHOTOGRAMMETRY/REMOTE SENSING

Ebert, J.I., 1982. *Archaeology and Anthropology Committee, 1981. Photogrammetric Engineering and Remote Sensing*, XLVIII(7): 1195-1196. Falls Church, VA: American Society of Photogrammetry.

-----, 1981. *The Archaeology and Anthropology Committee of the American Society of Photogrammetry. Aerial Archaeology* 6:3-4. Norfolk, England: The Aerial Archaeology Foundation.

Ebert, J.I., & G.N. Brown, 1982. Remote sensing in the NPR-A cultural resources assessment. In *Slogging, Humping, and Mucking Through the NPR-A: An Archeological Interlude*, Appendix B, C.W. Davis, D.C. Linck, K.M. Schoenberger, & H.M. Shields, eds. Fairbanks: Anthropology & Historical Preservation Cooperative Park Studies Unit, U. Alaska, Occasional Papers No. 25.

Lyons, T.R., & J.I. Ebert, 1982. Photogrammetric measurement and monitoring of historic and prehistoric structures. In *Conservation of Historic Stone Buildings*, pp. 242-271. Report, Committee on Conservation of

Historic Stone Buildings & Monuments, National Research Council. Washington, DC: National Academy Press.

- , 1982. Early man in the Estancia Basin. In *Albuquerque Country II: New Mexico Geological Society 33rd Annual Field Conference, November 4-6, 1982*, pp. 15-16. Albuquerque, N.M.: N.M. Geolog. Soc.
- Lyons, T.R., J.I. Ebert, D. Dederich, D. Drager, S. Moraine, A. Budge, M. Inglis, & T. Talmon, 1982. *Cultural Resources Remote Sensing: A Curriculum for Cultural Resource Managers, Planners, and Field Personnel*. Prepared by Remote Sensing Division, National Park Service & Technology Applications Center, NASA, for USGS EROS Program.

---

### FAUNAL REMAINS

---

- Clark, G.R., & M. Wilson, 1981. The Ayers-Frazier bison trap (24PE30): a late Middle Period bison kill in the lower Yellowstone River. *Archaeology in Montana* 22(1):23-77.
- Crabtree, Pam Jean, 1982. *Patterns of Anglo-Saxon Animal Economy: An Analysis of the Animal Bone Remains from the Early Saxon Site of West Stow, Suffolk*. Ph.D. dissertation, U. of PA.
- Davis, E.L., E. Jefferson, & C.R. McKinney, 1981. Man-made flakes with a dated mammoth tooth at China Lake, California. *Anthropolog. Jour. Can.* 19.
- Deniz, E., 1982. Archaeobiological studies on the Early Bronze Age and Chalcolithic materials from Kurucay Höyük excavations (Burdur). *Anadolu Arast.* IX:103-128, Istanbul.
- , 1982. Anthropobiological studies on a skeleton found with an iron hook at the Kadeköy excavations. *Ank. Univ. Tip. Fak. Mec.* 25:751-756.
- Gilbert, B.M. *Mammalian Osteology*. Order from: B. Miles Gilbert, 709 Kearney, Laramie, WY 82070.
- Lundelius, E., Jr. Late Pleistocene and Holocene mammals from Northern Mexico and their implications for archaeological research. In *Papers on the Prehistory of Northeastern Mexico and Adjacent Texas*, J.F. Epstein, T.R. Hester, & C. Graves, eds. Spec. Dept. A, U. Texas, San Antonio, Center for Archaeological Research.
- Lundelius, E., Jr., L.S. Land, & S. Valastro, 1980. Isotopic ecology of deer bones. *Palaeogeog., Palaeoclim., Palaeoec.* 32:143-151.
- Lundelius, E., Jr., & W.D. Turnbull, 1981. The mammalian fauna of Madiera Cave, West-

ern Australia. Part IV. *Fieldiana; Geology, New Series* 6:1-72.

- Patou, M., 1980. La faune de la grotte de Felines-Termenès (Aude). Résultats préliminaires et étude détaillée des restes d'*Equus Hydruntinus*. *L'Anthropologie*, 84(4). With Vera Eisenmann.
- , 1981. Etude de la fracturation des os long de mammifères; élaboration d'un lexique et d'une fiche type. *Bull. de la S.P.F.*
- Reese, D.S.; 1982. The molluscs from Bronze Age to Post Geometric Asine in the Argolid, Greece. In *Asine II. Results of the Excavations East of the Acropolis 1970-1974*, Soren Dietz, ed. Fasc 1. Stockholm.
- , 1982. Marine and fresh-water molluscs from the epipaleolithic site of Hayonim Terrace, Western Galilee, Northern Israel, and other East Mediterranean sites. *Paleorient* 8. Paris.
- , 1982. Marine and fresh-water molluscs from Castellazzo di Poggioreale, Belice Valley, Western Sicily. *Sicilia Archeologica*, XV. Palermo.
- , Marine invertebrates. In *Quseir al-Qadim 1980 Preliminary Report*, D.S. Whitcomb & J.H. Johnson, eds. Cairo. pp. 379-384.
- , 1981. Recent and fossil shells from Tomb XVIII, Gypsades Cemetery, Knossos, Crete. *Annual of the British School at Athens*. 77.
- , 1981. Faunal remains from Three Cisterns (1977.1, 1977.2, 1977.3). In *Excavations at Carthage 1977 Conducted by the University of Michigan*, J.H. Humphrey, ed. VI:191-258. Ann Arbor.
- , 1981. Finfish and shellfish in Mediterranean archaeology. *Old World Archaeology Newsletter* 5(2):8-10.
- , 1980. Industrial exploitation of Murex shells: purple-dye and lime production at Sidi Khrebish, Benghazi (Berenice). *Libyan Studies*, pp. 79-93. London.
- Ripinsky, M., 1982. Pleistocene camel distribution in the Old World. *Antiquity* 56:48-50.

---

### SHELL MIDDEN AS CULTURAL DEPOSITS: A CASE STUDY FROM OZETTE

---

Abstract of the dissertation by Gary Charles Wessen, Ph.D., Washington State U. 1982.

Consideration of the methodologies and underlying theoretical assumptions of shell midden analysis has demonstrated important limitations inherent in traditional procedures, and has led to the development of a new ana-

lytical approach capable of significantly expanding the range of cultural conditions which can be investigated with shellfish remains: Traditional procedures which employ minimal sampling and consider shell middens to be either homogeneous or amorphous in structure are here seen as producing data sets which are vague, simplistic, and poorly suited to the investigation of cultural behavior. Methodological elements of the new approach include: extensive sample collection, detailed sample description, an explicit model of relevant cultural behaviors, and an analytical process which examines specific aspects of suspected behaviors utilizing testable attributes of recovered shellfish materials. This approach allows the investigation of culturally meaningful synchronic variation in shell content within shell midden sites; predictable patterns can then be shown to exist in both the character and distribution of shellfish remains in these deposits.

Analysis of detailed taxonomic, morphological, and contextual characterization of more than 300,000 pieces of shell associated with

the late prehistoric Ozette houses reveals an invertebrate inventory of 90 species. Shellfish represent food residues, decorative items, manufacturing materials, fish baits, medicinals, and shells inadvertently or fortuitously transported into the site. Major shellfish food resources included bivalves, chitons, crabs, and octopus. Collection strategies were diverse, sophisticated, and occasionally geared to the ecological circumstances of particular species. Patterns of shellfish collection, utilization, and disposal varied significantly among site occupants, and were related to the relative social standing and familial affiliation of individual nuclear families and households. In House 1, where relationships among nuclear families are most apparent, the nuclear family area in the northeast corner contains greater diversity of shellfish remains, higher concentration of food residues, most of the decorative and exotic mollusc remains, and very little processing residue. This differential distribution of shellfish materials suggests that individuals of highest status lived in this portion of the house.

**SAS**

**SOCIETY FOR ARCHAEOLOGICAL SCIENCES**

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

ADDRESS CORRECTION REQUESTED

Non-Profit Org.  
U. S. POSTAGE

**PAID**

Permit No. 131  
Riverside, Calif.