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SOCIETY FOR ARCHAEOLOGICAL SCIENCES

Archaeological Research Unit, Radiocarbon Laboratory, Department of Anthropology
University of California, Riverside — Riverside, California 92512

NEWS OF THE PROFESSION

COASTAL ARCHAEOLOGY

A session on coastal archaeology will be included in the Commission on the Coastal Environment field symposium to be held in Japan in conjunction with the 1980 International Geophysical Union Congress.

The Commission is presently carrying out a world-wide program on five projects, one of which concerns coastal sites of scientific interest. Within the context of this particular project there will be an effort to delineate the location, the relationship of occupants and habitat, and the succession of geomorphic features of significant archaeological sites along the world's coasts. The aim is to gain scientific recognition, and eventual preservation and management of these sites.

Anyone interested in participating in the meeting should contact the convenor of the session for further details. Write to Dr. M.L. Schwartz, Department of Geology, Western Washington University, Bellingham, WA 98225, USA.

REPORT ON THE SIXTH ARCHAEOLOGICAL CHEMISTRY SYMPOSIUM

The Sixth Archaeological Chemistry Symposium sponsored by the ACS was held in Chicago on August 31 and September 1, 1977. Papers were presented in four areas: general, organic materials, ceramics, and metals. A discussion was held concerning affiliation with some scientific society, and it was decided to join the Division of the History of Chemistry in the American Chemical Society. The necessary paperwork has been started. This move will provide a basis for forming several task forces: (1) data reporting, storage, and retrieval; (2) specimen handling and sampling; (3) identification of sources of standards and synthesis of new standards; (4) round-robin test program to ensure inter-laboratory agreement in the analysis of archaeological objects; (5) investigation of funding sources (Joseph Lambert). Anyone interested in working on one of the above task forces should write Dr. Giles Carter, Chemistry Department, Eastern Michigan University, Ypsilanti, Michigan 48197, or Dr. Joseph Lambert, Chemistry Department, Northwestern University, Evanston, Illinois 60201.

Another task is assembly of a directory of archaeological chemists in the United States and Canada along with their research interests. The archaeological chemists desire a close liaison with SAS, particularly with respect to information, meetings, and publications. The proceedings of the ACS symposium are being prepared for publication as an "Advances In Chemistry Series" volume. *Reported by Dr. Giles Carter.*

EFFECTIVE USE OF ANALYTICAL DATA IN ARCHAEOLOGY

Dr. Garman Harbottle and Dr. Edward V. Sayre of the Brookhaven National Laboratory have provided the following communication:

With the increasing use of chemical analysis of archaeological artifacts as a tool for the determination of provenience and the study of ancient trade routes and cultural contacts, the archaeometrist has come face-to-face with a series of problems of a purely technical nature which nonetheless constitute a significant limitation to his effective utilization of the laboratory data. We refer to difficulties, often mentioned in the literature but almost never attacked by practical measures, in the utilization of data generated in a particular laboratory by scientists from other laboratories. The same kind of problem also arises when, for example, an archaeologist wishes to combine data generated in several research centers. In the early days of archaeometry this lack of intercomparability of data carried less penalty, since each laboratory in effect had self-contained areas of study, and all that was required was consistency within the body of data generated locally. But now we find a very large degree of temporal and geographical overlap appearing in the areas of study of projects undertaken in the different laboratories, and the problem of making all the data available for use by all the research workers becomes an urgent matter.

Recognizing the need to attack this problem of more effective utilization of analytical data in archaeology, we at Brookhaven National Laboratory wish to announce a one-day conference at this laboratory on Tuesday January 3, 1978. The reason for this slightly strange date is to permit coordination with the annual meeting of the American Institute of Archaeology in Atlanta, Georgia (December 28 to 30, 1977) and thereby to accommodate a group of archaeologists and archaeometrists from Europe, including members of the P.A.C.T. Study Group, who will be attending the A.I.A. meeting.

We propose a meeting of round-table format, which will bring together those relatively few research scientists who are most directly concerned with the topics to be enumerated below. We would further propose that the schedule be flexible, and that most of the time be taken by free discussion rather than by formal presentation.

The topics to be discussed should, in our opinion, include:

(1) Standards for reporting archaeological provenience and description of material to be analyzed;

(2) Standardization of chemical analyses of archaeological material. Procedures for improving interlaboratory standardization and comparability of data. Preparation and use of "in-house" standards;

(3) Standards for data reporting. The desirability of reporting complete, raw analytical data. Estimation of error;

(4) The establishment and effective utilization of data banks in archaeological analysis;

(5) Computerized data-handling techniques related to any of the above.

Although it is probable that the greater part of the discussion will focus on archaeological ceramics, we do not wish to exclude consideration of other materials such as obsidian, flint, chert, copper, turquoise, jade etc. where similar problems of intercomparison are encountered.

Bearing in mind that this is a preliminary announcement, we solicit at this time an expression of your interest in this meeting, your possible attendance, your suggestions as to additional topics that are relevant to improving intercomparability and cross-utilization of data, and whether you might wish to make an informal presentation of standardization or data-handling procedures in use at your laboratory. Slide projectors etc. will of course be available. It is not anticipated that there will be any publication so it would probably be desirable to circulate a summary of the conclusions reached to all interested parties, and the sponsors will undertake to do this.

Anyone interested in this meeting should contact Dr. Harbottle at Brookhaven National Laboratory, Department of Chemistry, Upton, New York 11973.

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SAS

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ASSOCIATE EDITORS: S. P. De Atley, P. I. Vanderhoeven, Matthew Hall

JOURNAL OF ARCHAEOLOGICAL SCIENCE

The JAS, put out by Academic Press (London), has made an auspicious start as a high-quality journal (first issue 1974). It has, however, remained largely a British effort, and sales in North America have been poor, with only a very few university libraries carrying subscriptions.

In order to make the JAS a critical medium for the large number and broad spectrum of "archaeological scientists" in the New World, a North American editor (Karl W. Butzer) has been appointed and a new advisory panel is being selected for a two-year term: R. G. Klein (zoo-archaeology) and R. E. Taylor (archaeochronometry) have already agreed, and specialists in geoarchaeology and archaeobotany are being contacted.

The immediate goal is to encourage submission of quality manuscripts and boost subscriptions substantially. This would give the JAS a new role in North America: (a) a prime publication opportunity; (b) a central exchange medium for archeological scientists, and (c) a major reference for archaeologists involved primarily in excavation. To be successful the JAS requires everyone's participation: good manuscripts, a trebling of private subscriptions, and the journal in every library where archeological research is carried out.

It is hoped to include review articles in subsequent issues of JAS, as well as think-pieces evaluating broader subdisciplinary problems. Such articles should be aimed at not only the full spectrum of "archaeological scientists" but also directed at archaeologists in general. Guest editorials by archaeologists will also be welcomed, to provide a genuine dialogue and to promote more effective interdisciplinary collaboration in all phases of archeological work: research design, field execution, data analysis, and publication.

The present subscription price of the journal is $29.45. Application and payment to: Journals Division, Academic Press, 111 Fifth Avenue, New York, NY 10003.

RECENT PUBLICATIONS

BUTZER: EARLY HYDRAULIC CIVILIZATION IN EGYPT

Karl W. Butzer has published *Early Hydraulic Civilization in Egypt: a study in cultural ecology* (University of Chicago Press, 1976). It deals with irrigation agriculture, which provided the economic base for the first civilizations in the Near East. Social scientists have long been concerned with the apparent relationships between irrigation farming, social stratification, and urbanization. However, the ecological framework of an ancient hydraulic society has not been systematically examined.Mr. Butzer analyzed the archaeological and historical record of settlement, land use, environment, and technology in Egypt from late prehistoric times until the close of the pharaonic era. The evidence shows that hunting and gathering activities remained important long after agriculture was adopted; that artificial irrigation was introduced slowly, as an improvement on natural floodplain irrigation, and that pastoral activities remained preeminent into the Old Kingdom. It further suggests that lift irrigation on a modest scale was begun in the New Kingdom, and that irrigation of higher ground was impractical until the waterwheel was introduced in Greek times. Settlement of the larger natural flood basins, which required advanced technology and massive labor, remained thin until the Greco-Roman period, creating persistent population gradients within the alluvial lands. Despite a governmental system of grain redistribution in the New Kingdom, the impacts of Nile flood variability were so great as to keep population levels well below carrying capacity and to threaten the viability of the national economy in times of recurrent ecological stress. Water legislation was already immutably established in oral tradition before the 1st Dynasty, when a multi-tiered economy and complex social stratification are apparent in the urban sector. But irrigation of natural or artificial flood basins continued to be organized at the local level, and competetion for water was never an issue on the free-flooding alluvial lands. It is therefore not surprising that the Old Kingdom bureaucracy cannot be linked to irrigation control. Consequently, although the political infrastructure of Egypt was probably linked to natural flood entities, irrigation did not generate social stratification bureaucracy, nor a despotic political superstructure. These findings suggests that socio-polital theories, such as those of Wittfogel, also be re-examined in other early hydraulic civilizations.

CURRENT RESEARCH

COPPER SMELTING EXPERIMENTS IN CYPRUS

James Muhly and Robert Maddin (University of Pennsylvania) carried out some preliminary smelting experiments just outside Nicosia, Cyprus. A small clay furnace was equipped with a potentiometer, protective tubes and thermocouples. Ore samples (date now being determined from support timbers in the mine) containing copper sulfide, copper iron sulfide, iron sulfide and iron oxide with an assay of about 4% copper were part of the charge along with wood placed in the furnace preheated with burning wood for about an hour. Alternate layers of both ore and wood produced a temperature with natural draft never exceeding 800° C; with an artificial draft (electric blower) a temperature of 1160° C for about an hour resulted in slag containing some small copper-colored pellets now being examined. Without an artificial air supply, but with an abundant natural draft producing a temperature below 800° C, some roasting of the sulfides occurred. The 1160° C reaction yielding the small pellets also produced large amounts of SO_2. The experiments are aimed toward answering two questions: One, could copper smelting be successful without an artificial air supply? Two, can copper be smelted from a sulfide ore without a *distinctly* separate roasting process? These experiments will be continued in Cyprus during the 1978 season by refining the furnace construction, the temperature measurements, and by adding various fluxes to determine the partition of chemical elements in the copper and in the slag.

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