SAS
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NEWSLETTER
SOCIETY FOR ARCHAEOLOGICAL SCIENCES

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

NEWS OF THE PROFESSION

SOME RESULTS OF A GEO-ARCHAEOLOGY SURVEY

A geo-archaeological questionnaire was sent to 193 people in the spring of 1977, using a recent list of "archaeological geologists" (prepared by George Rapp, Jr., University of Minnesota, Duluth), complemented by attendance lists from a number of recent conferences or symposia dealing with prehistoric archaeology or archaeological science. The survey was confined to North America. Of the 117 responses received, the professional breakdown is as follows:

university appointments	58%
students	6%
non-university appointments (consultants, government employees, museum personnel, etc.)	40%

However, some 70% have given courses or seminars relevant to geo-archaeology.

The breakdown of the most common specialization in terms of college and graduate school training is:

geomorphology and historical geology	36%
mineralogy/petrology	19%
paleontology/zoology	14%
archaeology	13%
geochronology	13%
paleobotany/palynology	9%
paleopedology/pedology	8%
chemistry	8%
other	32%

In response to a question about their interest and tasks in archaeology-related projects, respondents cited one or more special concerns as follows:

paleo-environmental reconstruction	58%
site stratigraphy	48%
geochronology	44%
paleo-geomorphology	40%
feature identification/interpretation	20%
artifact analysis or general prehistoric questions	16%
geophysical site prospecting	9%
remote sensing	6%
other	9%

This suggests that some three-fourths of the respondents have continued to pursue their traditional research, but in new contexts.

Geo-archaeological interests generally represent a secondary research focus. The respondents spend a mean of 28% of their professional time on archaeology-related research, and 41% devote less than 10% of their efforts in this direction. Only 10% are essentially full-time geo-archaeologists. The nature of contact between the respondents and archaeologists in common projects is of interest, underscoring the limited input geo-archaeologists have in the formulation of site-related research strategies:

close contact during fieldwork 85%
during data evaluation 72%
during publication preparation 64%
during research design 45%

Basic field expenses of archaeology-related research were most commonly covered by the archaeologist's grant, but only 53% of the respondents who engaged in such project research received a salary supplement. However, 44% of the respondents had applied directly for grant funds and received them, and money from this source covered an average of 74% of their field and laboratory expenses.

Average field stints involved were brief: less than 2 weeks per project for 42% of the respondents and less than 6 weeks per project for 86% of the respondents. However, of the time respondents devoted to individual projects, an average of 62% was spent in the laboratory. Of laboratory techniques used, the breakdown is as follows:

ceramic/glass analysis, mineralogy, petrography, optical microscopy, scanning electron microscopy, x-ray 40%
isotopic dating 38%
particle-size analysis 24%
palynology/botany 12%
non-isotopic archaeometric dating 10%
paleontology 3%

Of those utilizing particle-size analysis, 70% employ dry-sieving, 44% wet-sieving, 39% pipette analysis, and 35% hydrometers.

Geo-archaeology is not exactly a new interest. Five respondents carried out their first project in the 1930's, 6 in the 1940's, 18 in the 1950's and 44 in the 1960's. The age structure of the group, as inferred from the year respondents were awarded their first degrees,forms a bell-shaped curve, and 12% of the respondents already received their B.A./B.S. degree during the 1930's.

This survey is far from perfect since some individuals were inadvertently omitted and others did not respond. The concept of geo-archaeology was also deliberately left implicit: it was assumed that everyone who responded felt involved. It would be appreciated if anyone engaged in geo-archaeological research who did not receive a questionnaire would write me for one. In this way the sample and value of the survey could be improved.

Submitted by Robin L. Burgess, Department of Anthropology, University of Chicago.

PACT

The first volume of PACT, issued in 1977, marks the inception of a new European interdisciplinary archaeology publication. It is the journal of the European Study Group on Physical, Chemical and Mathematical Techniques Applied to Archaeology. It will be issued at least once a year, and each volume will be topical. The first publication deals with archaeological applications of X-ray fluorescence, and it contains papers presented at a symposium held in June 1977. Future issues will include a directory of European laboratories applying physical, chemical and mathematical methods in archaeology; results of a session on thermoluminescence applied to archaeology, held in Oxford in 1978; and forth-coming symposia on C-14 dating, analysis and technology of ancient ceramics, mathematics in numismatics, and palynology and palaeobotany.

Requests for information or orders may be addressed to T. Hackens, Co-Editeur, PACT. 28 a av. Leopold. B 1330 Rixensart. Belgique.

The price is 900 Belgian francs per issue.

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SAS

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MEETING NOTES

RADIOCARBON DATING WITH ACCELERATORS

A conference on radiocarbon dating with accelerators will be held at the University of Rochester in New York on April 20 and 21, 1978. It will survey the progress made in the direct detection of C-14 using accelerators and assess the implications of results obtained to date on the design of systems and on new dating applications. The conference fee is $55.00. Although the number of participants must be restricted to 100 people due to space limitations, effort will be made to accomodate those with strong interest in the subject.

For further information contact Dr. H. E. Gove, Department of Physics and Astronomy, The University of Rochester, New York 14627.

MEETING CALENDAR 1978

March 28-31 First Symposium of the Society of Biological Anthropology of Spain. College of Spain. College of Biology, Complutense, U Madrid, Spain. Write: Julio Alonso, Departmento de Antropologia, Facultad de Biologia, Ciudad Universitaria, Madrid 3, Spain.

April 12-15 American Association of Physical Anthropologists. Annual Meeting, Toronto. Program Chair: Daris R. Swindler, Dept. of Anthro. U. Washington, Burke Museum Rm 5, Seattle, WA 98195.

May 4-6 Society for American Archaeology. 43rd Annual Meeting, Tucson. Tucson Marriott Hotel and Tucson Convention Center, Tucson, AZ. Program Chair: Dee Ann Story, Dept. of Anthro. U Texas, Austin TX 78712.

July 2-29 International Assn of Sedimentologists. 10th International Congress (July 9-13), in Jerusalem (July 2-6 and 16-29). Write: G. Gvirtzman, Geological Survey of Israel, 30 Malkhei Israel St., Jerusalem 95501.

August 20-Sept. 2 Geochronology, Cosmochronology and Isotope Geology. 4th International Conference, near Aspen Colo. (August 20-26) and field trips (August 27-Sept. 2). Write: Irving Friedman, U.S.G.S. Stop 963, Federal Center, Denver CO 80225.

Sept. 2-4 Americn Quaternary Association. 5th Biennial Conference, Edmonton, Alberta, Canada. Theme: The Ice-Free Corridor and Peopling the New World. Write: N.W. Rutter, Dept. of Geology, U Alberta, Edmonton, AB T6G 2E3 Canada.

Oct. 23-25 Geological Society of America and associated studies. Annual Meeting, Toronto. Write: Fred Handy, GSA Headquarters, 3300 Penrose Place, Boulder, CO 80301.

Nov. 8-11 Plains Anthropological Conference. Annual Meeting, Denver. General Theme: Stewardship and Science in the Anthropology of the Plains. Write: David Stuart, Office of the State Archaeologist, 1300 Broadway, Denver, CO 80203.

Nov. 9-11 Southeastern Archaeological Conference. 35th Annual Meeting. Ramada Inn, Knoxville, TN. Program Chair: Jefferson Chapman, Dept. of Anthro., U Tennessee, Knoxville, TN 37916.

CURRENT RESEARCH

PLIO-PLEISTOCENE LAKE TURKANA

Professor Richard Hay (U.C. Berkeley) reports that Thure Edward Cerling has recently completed a dissertation on the paleochemistry of Plio-Pleistocene Lake Turkana and diagenesis of its sediments.

The paleochemistry of the Plio-Pleistocene lake northeast of Lake Turkana in Kenya can be estimated by comparing modern lakes from the Eastern Rift of East Africa. Modern East African lakes are related to each other because most of them occupy closed basins and become concentrated by evaporation. Their chemistries follow trends defined by the precipitation of mineral

phases at progressively higher alkalinities. Alkalinity holds the key to estimating the paleochemistry of the ancient lake waters: if paleoalkalinity is known, cations and anions can be closely estimated by comparison with modern lakes.

Three methods are used to estimate paleoalkalinity. Diatoms, molluscs, and fish have certain metabolic requirements that are dependent on pH, alkalinity, or calcium levels. Because these three are related in East African lakes, this can be a valid paleoalkalinity indicator. Cation exchange between clay minerals and lake or pore waters can also be used because the relative concentrations of sodium and calcium are related to alkalinity. Absence or presence of certain minerals can also be used as a paleoalkalinity indicator. Although the latter two techniques give estimates of paleoalkalinity that are averaged over several hundred or thousand years, they agree with the instantaneous estimates based on biologic considerations.

This study shows that the earliest lake phase was very fresh and continued until the end of the Kubi Algi Formation. The Lower Member of the Koobi Fora Formation is shown to be a fresh- to brackish- water lake. From the beginning of Upper Member time (about 1.8 m.y. B.P.) to the present, the lake occupying the Turkana Depression has varied from a brackish lake that overflowed to a closed basin lake that fell below overflow level and whose alkalinity rose to about 200 meq/l.

Oxygen isotope studies from the Turkana region and from Olduvai Gorge 800 km south show that this change in lake chemistry was probably due to a major climatic change. Three progressively drier episodes are indicated by these studies, beginning at about 1.7, 1.2, and 0.6 m.y. B.P.

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