## THE CALCITE/ARAGONITE PROBLEM

Those interested in the calcite/aragonite problem (what determines which is precipitated in cave formations) might be interested in an article in the 5 January 1996 issue of *Science*. A similar question exists concerning the form of $CaCO_3$ in the shells of organisms, and it appears that they use large organic molecules at templates to force the precipitation of whichever form they prefer. The authors have duplicated the effect in the lab. Full reference is "Control of Aragonite or Calcite Polymorphism by Mollusk Shell Macromolecules." Guiseppe Falini et al., v. 271, p. 67-69.

## REVIEW OF CAVE LAWS IN ENVIRONMENTAL GEOLOGY

A paper reviewing significant state and federal laws that protect karst, caves, and associated unique minerals and biota appeared in the September 1995 issue of *Environmental Geology 25*(2). NSS member and *Journal* associate editor George Huppert of the University of Wisconsin Department of Geography and Earth Science wrote "Legal Protection For Caves in the United States," which gives an overview of the laws and acts that can be used to protect cave resources in the US.

## NEANDERTHAL CAVE ARCHITECTS

The "research news" section of *Science*, 26 January 1996, page 449, has a brief article reporting that an evidently manmade low wall composed of broken speleothems in a cave at Bruniquel, southern France, has been tentatively dated to 47,000 years ago. This date places the construction in the days of the Neanderthals, quite a bit older than the oldest paleolithic cave paintings (Grotte Chauver, 31,000 years). That Neanderthals, previously thought to have little mastery of fire, could have been so far into the dark zone of the cave is remarkable—assuming, of course, that the dating (said to be only a lower limit to the age) holds up to further scrutiny.

## RASS OFFERS RESEARCH GRANTS

The Howard T. Urbach Research Grant is awarded annually by the Richmond Area Speleological Society (RASS) to a graduate student in one of the affiliated disciplines of speleology. The maximum grant in 1996 is $1500. The deadline for submission is 10 February 1996 and the award will be made 1 May 1996. Although this notice is late for this year, students and professors may wish to note the availability of the grant in their files.

Information on the grant program can be obtained from Sandra Altorfer at:

RASS
5300 W. Marshall Street, Suite 10
Richmond, VA 23230
804-673-2283

## GSA MEETING FEATURES PAPERS ON KARST

The annual, national convention of the Geological Society of America was held between 6-9 November 1995 in New Orleans, LA. At least 19 papers on karst topics were accepted and presented at the meeting. The abstracts are published in the publication, *1995 Geological Society of America Program with Abstracts, v. 7.* In addition, most of the abstracts have been reprinted in *Geo² 23*(1). Some of the titles and authors are shown below.

Spring monitoring to access impacts from land application of animal wastes to ground water quality in northwest Arkansas: Sinor, N.J., Davis, R.K., and Steele, D.F.

A 6000 year stalagmite growth banding record for Cold Water Cave, northeastern Iowa: annual and seasonal precipitation changes: Jones, M.C., and others.

A speleothem record of recurrent dry periods and catastrophic flooding in central Missouri: Recelli-Snyder, H.L. and others.

Littoral karren along the western shore of Newfoundland: Malis, C.P., and Ford, D.C.

Principles for delineating boundaries of wellhead and springhead protection areas in carbonate terrains: Quinlan, J.F., Schindel, G.M., and Davies, G.J.

Hydrogeologic, geochemical, and biological data integration for characterization and management of groundwater drainage basins in karst aquifers: Veni, G.

Penn State's waste water land application nutrient management program: Parizek, R.R. and others.

A karst inventory of the Oak Ridge Area, Tennessee: the first step towards characterizing hazardous waste sites in carbonate terranes: Lemiszki and others.

Geochemistry of Lechuguilla Cave pool water: Turin, H.J., and Plummer, M.A.

Tritium in Lechuguilla Cave pool water: implications for recharge processes: Turin, H.J. and Plummer, M.A.

Flooding patterns in karst wetlands in middle Tennessee: Wolfe, W.J.

Controls on regional flow velocities in unconfined carbonate aquifers: Worthington, S.R.H.

## KARST SYMPOSIUM SCHEDULED AT 1996 AAAS CONVENTION

The Geology and Geography Section of the National Speleological Society plans a half-day symposium titled Interactions of Karst Geology and Ecology at this year's American Association for the Advancement of Science (AAAS) convention in February. The NSS is a member society of the AAAS and special program was originally proposed by our representative to the AAAS, Dr. Daniel L. Chess of Connecticut. Chess and Dr. George Veni, the Geology and Geography Section chair, are the co-chairs.

## CLIMATIC CHANGE - THE KARST RECORD CALL FOR PAPERS

A symposium will be held next summer at the University of Bergen, Department of Geology, Bergen, Norway on karst systems as a unique source of paleoclimatic information. The University of Bergen and The Karst Waters Institute of the United States will sponsor the event between 1-4 August 1996.

Contributions are invited to the following sessions:
1. Speleothems as high-resolution recorders of paleotemperature, erosion rates, ice cover, sea level, and mechanisms and processes of speleothem deposition.
2. Cave sediments and stratigraphy, including paleomagnetism.
3. Inference of climatic change from the morphology and function of karst landforms.
4. Climatic change as inferred from paleontological and archeological records in karst caves.
5. Present day speleofauna and environmental change.

In addition to abstracts that will be pre-printed in a conference volume, full manuscripts are required from all contributors for later submission to special issue(s) of international, refereed journals.
For additional information concerning costs and pre- and post-conference excursions, contact:
Dr. Stein-Erikson Lauritzen
Department of Geology
Bergen University
Allegaten 41
N-5007 Bergen, Norway
Fax: (47) 55 32 44 16
e-mail: Stein.Lauritzen@geol.uib.no

## LIFE SCIENCES EDITOR REPLACEMENT NEEDED

Dr. Horton H. Hobbs, III is retiring from his position of Life Sciences Associate Editor of the *Journal of Caves and Karst Studies*. Hobbs has served on the Editorial Board since 1987 and his many years of service to the publication (formerly called the *NSS Bulletin*) are greatly appreciated. We wish him success with his new endeavors. The new editor of the *Journa*l needs a replacement for Dr. Hobbs. The responsibilities of the Associate Editors are to solicit articles, arrange for appropriate reviews for papers within their fields of expertise, work with authors to prepare their manuscripts for publication, make recommendations concerning acceptance and rejection of submitted papers, and assist the Editor in gathering material for the non-refereed sections of the *Journal*. Interested candidates are asked to send a letter of interest and a curriculum vitae by June 1, 1996 to:

Editor, *Journal of Caves and Karst Studies*
PO Box 3388
Littleton, CO 80161-3388

## ABSTRACTS

We will occasionally publish abstract from scientific conferences that are directly related to cave and karst studies. The following abstract was submitted by the author.

### REDWALL LIMESTONE KARST AND COLORADO RIVER EVOLUTION DURING LATE TERTIARY, GRAND CANYON NATIONAL PARK, ARIZONA

Noel Eberz, Grand Canyon River Guides, 4433 Kathy Rd., Flagstaff, AZ 86001

Presented at the Quaternary Geology/Geomorphology Session at the Geological Society of America's National Meeting, New Orleans, LA, November 1995.

The extended Colorado River has a long, complex and segmented history of evolution. In Grand Canyon, several models of this history have centered on the classic problem of how the river incised the Colorado Plateau, and specifically the Kaibab upwarp of the Kaibab Limestone (Permian) peneplain. Was the upwarp the topologic obstacle it appears to be today?
New data on the age of the river bring into question stream superimposition through Mesozoic strata, now very remote, and favor a more recent history in a regional topography not significantly different from the present. As an alternative, there is evidence for stream capture through karst conduits abundant in the Redwall Limestone (Mississippian) near the Chuar Basin, a transitional area between upper Marble Canyon and lower Grand Canyon N.P.

Field mapping of horizontal lineaments of collapse breccias, dissolution topography, and cave conduits show a large subterranean drainage system that predates the present river course. The conduits terminate in the vicinity of the friable Butte Fault zone, consequently tunneling across a critical segment of the Kaibab upwarp. As such, an upper, mature river valley with a high water table was captured by a youthful, high-gradient stream aided by high-pressure karst conduits 2000 ft. below the Kaibab peneplain. Many artesian springs eroded the broad Chuar Basin during an early phase. A latter phase was subsequent collapse and surface capture of the river at the lowest and southernmost location near Cape Solitude. As the new river incised Marble Canyon, the other now-isolated and preserved karst routes reversed flow to form narrow, steep side-canyons creating high buttes of the original peneplain surface. Other evidence includes renewed cutting of side streams in the lower basin and exposure of major aquifer routes in the upper basin. Present erosion rates of the river support this area being a knickpoint with a capture time of 2-4 Ma ago.