

# Colorado Scientific Society

*In pursuit of the promotion of knowledge,  
understanding of science,  
and its application to human needs.*

## *March Presentations*

### **ICE AGE MAMMALS OF COLORADO**

**Russ Graham**

Denver Museum of Natural History

### **EVIDENCE FOR THE COLLAPSE OF LARGE ICE SHEETS: PAST AND FUTURE**

**John Andrews**

INSTAAR

University of Colorado at Boulder

Tuesday March 11, 1997

Social Time: 7:00 p.m.; Meeting Time: 7:30 p.m.

In The Theatre at the Sheraton Hotel, 360 Union Blvd., Lakewood, Colorado

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# ICE AGE MAMMALS OF COLORADO

*Russ Graham*

Curator and Head of Earth Sciences  
Denver Museum of Natural History  
Denver, Colorado

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he Ice Age mammal fauna of Colorado was much more diverse than the modern fauna. Large animals like giant ground sloth, camel, mammoth, horse, bison, and flatheaded peccary were relatively common elements of Pleistocene mammal communities. Most of these species were adapted to grassland, parkland, or savanna environments. Many species went extinct at the end of the Pleistocene (ca. 11,000 years ago). The cause of this extinction is debatable, but both climate change and overhunting by prehistoric humans have been suggested. In any case, the composition of our modern mammal fauna is a direct result of these terminal Pleistocene changes.

# EVIDENCE FOR THE COLLAPSE OF LARGE ICE SHEETS: PAST AND FUTURE

*John Andrews*

INSTAAR  
University of Colorado at Boulder

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scientific paradigm for much of the 1970s-1980s was that the fluctuations of the world's great ice sheets were driven mainly by forcing associated with the Milankovitch orbital variations. Thus, ice sheets waxed and waned slowly and predictably on time-scales of 90,000 to 20,000 years. However, in the late 1970s there were bits and pieces of evidence that suggested that large ice sheets, particularly the North American (Laurentide) Ice Sheet (LIS), had a much more unstable behavior. In 1988 Heinrich, and then in 1992 Broecker et al., Bond et al., and Andrews and Tedesco, presented evidence for dramatic collapses of the LIS approximately every 7,000 years (e.g. 14.5, 20.5, 27, 35 ka BP). These events spread debris over a broad swath of the North Atlantic from the Canadian Arctic to off Spain/Portugal, probably associated with iceberg rafting. These events call into question the future stability of the West Antarctic Ice Sheet, especially in view of the evidence for global sea level to have been 5 m above present at the height of the last interglacial, ca. 125 ka.

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The talk will review the evidence for rapid collapses of large ice sheets based on current research in the Labrador Sea, Baffin Bay, the eastern margin of Greenland, and West Antarctica.

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## Society Business

### 1996 Contributions to the Memorial Funds and Endowment Fund

The Society thanks the many members and friends who contributed a total of \$6,817 to our four Memorial Funds and the Endowment Fund between January 1, 1996, and December 31, 1996. (Contributions made in the memory of another are shown in parentheses, whereas those contributing more than \$100 to the funds are indicated by an asterisk.) Please remember that your contributions to the funds are 100% tax deductible and that all of your contribution goes towards supporting student research. For 1996, the Society received 44 student research proposals, of which 11 were funded, and we anticipate funding a similar number of proposals in 1997 from our 1996 fund earnings (interest).

#### Ogden L. Tweto Fund (\$2,032 contributed)

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**Endowment Fund  
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## Membership Renewals

**T**o date, the Society still has 88 (of 345) members who have not paid their dues for 1997. If you are unsure as to whether or not you have done this, please look on your newsletter mailing label. The upper right-hand corner should say 1997- Reg (or Stu or Corr) if you are paid up. If it says 1996, you are in arrears, and we would appreciate prompt payment of your dues. Yearly dues are a modest \$15 for Regular members, \$10 for Corresponding members, and \$5 for Students. (*Michael Machette, Treasurer*)

## Society Homepage

Randy Schumann has established our homepage at <http://rainbow.rmi.net/~css/> and our e-mail address is [css@rmi.net](mailto:css@rmi.net). Our hats are off to Randy for a magnificent job!

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## Items for Newsletter and Homepage

**W**e extend an invitation to all members and friends of the CSS to send news of interest to Society members to the Newsletter Editor. Write-ups can be in hardcopy form, but computer disks and e-mail are preferred. Send your material to Dave Nealey, USGS, Box 25046, Denver Federal Center, MS 913, Denver, CO 80225, or call (303) 236-0249, fax (303) 236-0214, or e-mail [dnealey@usgs.gov](mailto:dnealey@usgs.gov). Please send items before the 20<sup>th</sup> of the month to ensure inclusion in the next newsletter.

# Earth Science Meetings

**Colorado Scientific Society's** regular meetings are held the 2<sup>nd</sup> Tuesday of the month (unless otherwise advertised). Social time begins at 7:00 p.m. and program is at 7:30 p.m. Contact Karl Kellogg at 236-1305 for information.

## Upcoming CSS Programs

**April 8** / Roger Bilham, Collision and kinematics of southern Tibet and the Himalayas, CU Boulder; 2<sup>nd</sup> talk to be announced

**May 13** / John Thorson, Sandstone-hosted Cu deposits, Lisbon Valley, Utah, Consulting Geologist; 2<sup>nd</sup> talk to be announced

**Denver International Petroleum Society (DIPS)** meets the 2<sup>nd</sup> Friday of each month at the Wynkoop Brewing Co., 18<sup>th</sup> and Wynkoop Streets. Reception begins at 11:30 a.m., luncheon at 12 p.m., program at 12:30 p.m. Make reservations (required) by calling GRI Information Center Office, (303) 575-9030. Reservations accepted after 8 a.m. on Friday until 10:30 a.m. on Wednesday prior to the meeting. Cancellations accepted until 11:00 am Wednesday prior to the meeting. Cost: \$13 for lunch; talk only is available for \$2 (make checks payable to "DIPS"). Contact Keith Murray at (303) 986-8554 for information.

**Denver Region Exploration Geologists' Society (DREGS)** meets in the Mutual Consolidated Water Building, 12700 West 27th Avenue, Lakewood. Social hour 6:00-7:00 p.m. Technical presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. For information contact Dick Grauch, 236-5551.

March 3 / Don Taylor, BHP Minerals, Economic geology of the Bayan Obo iron-rare earth elements deposit, China

**Denver Mining Club** meets Thursdays from 11:30 a.m. to 1:00 p.m. at the Denver Federal Center, Building 41 Cafeteria (south entrance) in Lakewood. For more information contact Dick Beach, DMC Secretary, at (303) 986-6535.

## Colorado School of Mines Van Tuyl Lectures

6 Mar. / William Hammer, Augustana College, AAPG Distinguished Lecturer: Dinosaurs on Ice: Jurassic Dinosaurs from Antarctica

## Colorado State University Geology Lectures

All presentations are at 4:00 p.m. in room NR 316, with the exception of the AAPG Distinguished Lecture, which will be at NOON.

7 Mar / William R. Hammer, Augustana College, AAPG Distinguished Lecturer: Dinosaurs on Ice: Jurassic Dinosaurs from Antarctica

21 Mar. / William A. Wescott, Amoco Production Co: Rift Sedimentation / Gulf of Suez

28 Mar. / Laura McCarthy: The impact of military maneuvers on the Mojave Desert, A multi-scale analysis

## Earth Science Field Trips and Museums

**Friends of Dinosaur Ridge**...for information call 697-DINO. Visitor's Center is located at 16831 West Alameda Parkway (north side of Alameda, just west of the C-470 overpass). Open 9 a.m. to 4 p.m. weekdays and weekends.

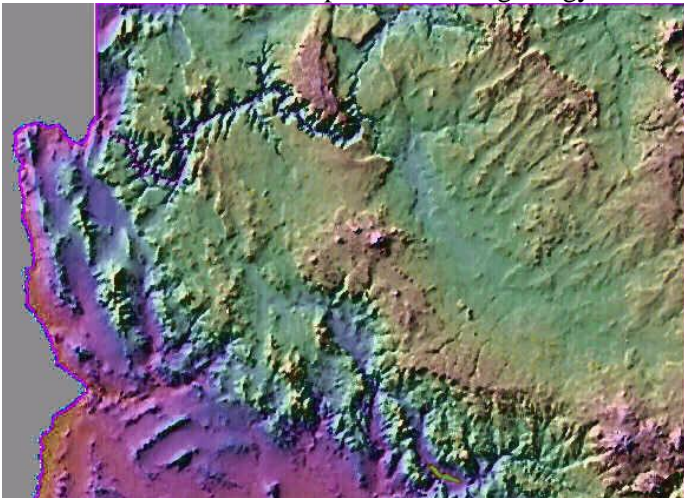
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**Morrison Natural History Museum**...is open 1-4 p.m., Wednesday through Sunday. The Museum is located on State Highway 8, \_ mile south of Morrison. Fireside chats are cosponsored periodically by Friends of Dinosaur Ridge at Red Rocks Elementary School in Morrison.

## Interesting Web Sites

Each month we mention web sites that relate to that month's presentation(s) or to the geology of the Southwest. This month we look at an excellent web site that teaches geology to college students in an interactive way. The web site is Arizona State University Geology Department's virtual geology homepage at [http://www-glg.la.asu.edu/~sreynolds-azvt/azgeo\\_tourist.htm](http://www-glg.la.asu.edu/~sreynolds-azvt/azgeo_tourist.htm).

The most outstanding aspect of the virtual geology tour is that by moving your mouse arrow over the shaded relief map of the State you are able to bring up ground photographs that show geologic features in detail. These photos were taken by the person who probably knows more about the geology of Arizona than anyone else, Steve Reynolds, Professor of Geology and former senior geologist for the Arizona Bureau of Geology and Mineral Resources. Steve's web site also contains his recent compilation of the geology of Arizona.



Shaded relief map of northern Arizona from Steve Reynolds' web site showing the Grand Canyon, the Colorado Plateau, Mogollon Rim, and a part of the Basin and Range.

The web site is supported in part by the Arizona Collaborative for Excellence in the Preparation of Teachers (ACEPT) which is funded by the National Science Foundation. Steve is a Co-PI on the ACEPT project.

**Got an e-mail address???**  
**Send it to the Newsletter Editor and get**  
**the News early and in color.**  
**[dnealey@usgs.gov](mailto:dnealey@usgs.gov)**

## Technical Training

The Petroleum Technology Transfer Council's Rocky Mountain Resource Center is hosting the following hands-on computer training:

Rockware Utilities Software Training, March 13<sup>th</sup>.

LogPlot (RockWare) Software Training, March 14<sup>th</sup>.

The fee for each class is \$200. Register early, seating is limited. Contact Sandra Mark at (303) 273-3107 or e-mail [smark@mines.edu](mailto:smark@mines.edu)

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# Invitation to Join the Colorado Scientific Society

The Society is dedicated to the advancement of science through open forums and activities. We sponsor lectures, field trips, investigations, and discussions of scientific matters of public concern.

I hereby apply for \_\_\_\_\_ membership in the Colorado Scientific Society.  
(regular, corresponding, student)

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(Last Name)	(First Name)	(Middle)	
(Address)	(Telephone)	(e-mail)	
(City)	(State)	(Zip)	
(Company/Agency/University)			
(Mailing address if different than above)			
School	Degree	Year	Major

## Main Scientific Interests

# D

**UES** (Your dues are for the calendar year and help support the newsletter, monthly meetings, two field trips each year, family night, and the Emmons Lecture.

Regular Member (\$15)

Corresponding (outside Denver metro area) Member (\$10)

Student Member (\$5)

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Please make your dues payable to Colorado Scientific Society. Thank you!!

# T

The success of certain Colorado Scientific activities depend on your volunteer help. Please circle those activities for which you can provide assistance. We will pass your name on to the appropriate Committee Chairperson.

*Arrangements*

*Fund Raising*

*Newsletter*

*Publicity*

*Best Paper Award*

*History*

*Outreach*

*Science Fairs*

*Field Trips*

*Membership*

*Program*

*Web Site*

I certify that all statements in this application are correct and, I agree to promote the objectives of the Society and to abide by its Constitution, Bylaws, and Rules.

\_\_\_\_\_  
Applicant's signature

\_\_\_\_\_  
Date



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**Colorado Scientific Society, P.O. Box 150495, Lakewood, CO 80215-0495**

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P.O. Box 150495  
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## Colorado Scientific Society Officers, Councilors, and Chairpersons

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