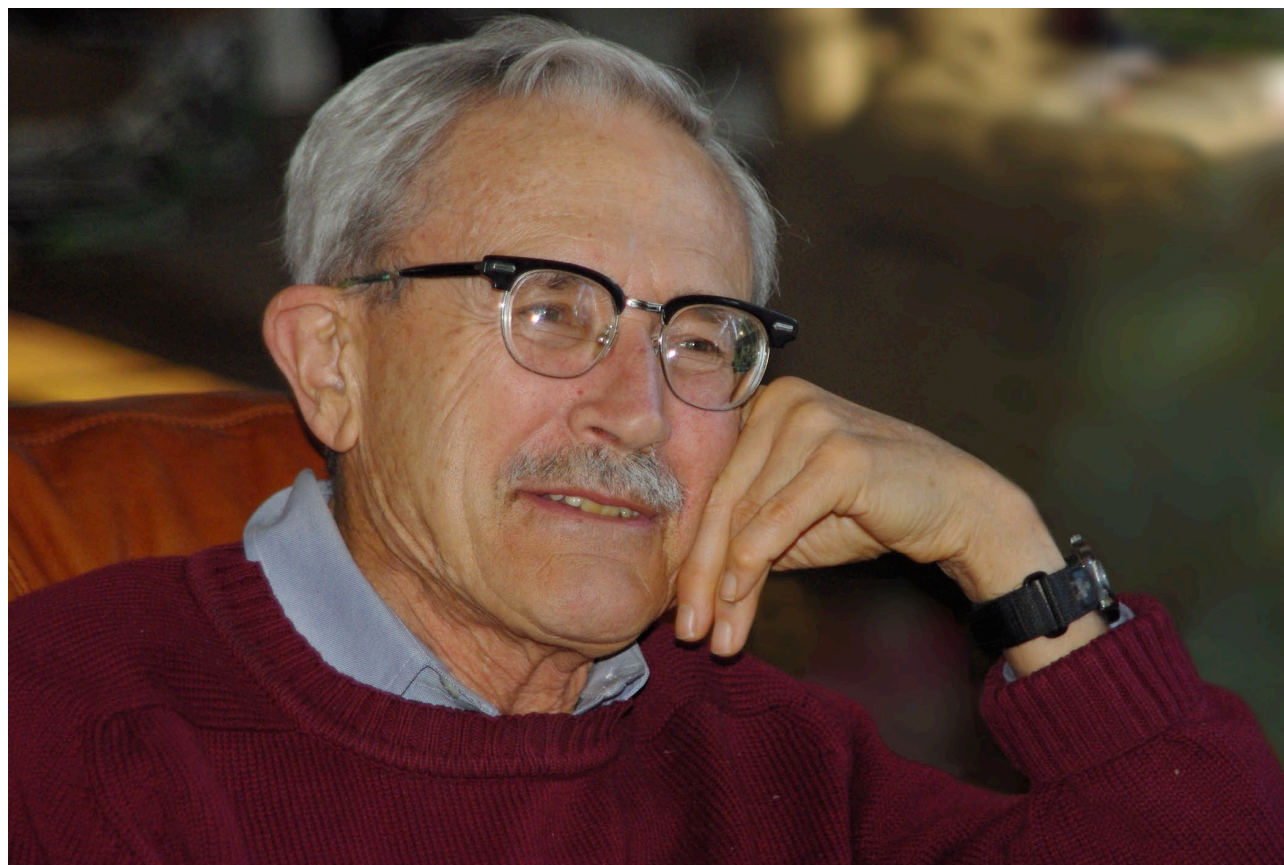




Colorado Scientific Society

*The objective of the Society is to promote
the knowledge and understanding of Earth science,
and its application to human needs*

An Evening Honoring Bruce Bryant and His Geologic Research in the Aspen Region



Featuring a Tribute by Friend and USGS Colleague Jack Reed
and Three Talks on Aspen Region Geology

Wednesday, Sept. 22, 2010

**Colorado School of Mines—Department of Geology and Geological Sciences,
Berthoud Hall, Room 241, Golden, CO**

Social half-hour—6:30 p.m. Meeting time—7:00 p.m.

September Talk Abstracts

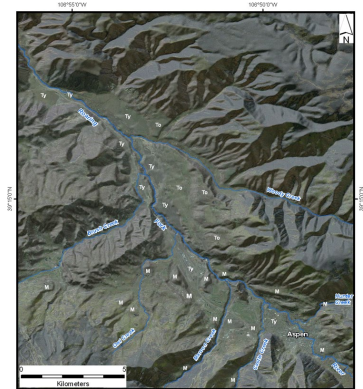
Brief Overview of the Quaternary in the Roaring Fork River Valley, Central Colorado

Lucille A. Piety

Seismotectonics and Geophysics Group, Bureau of Reclamation,
MS 86-68330, P.O. Box 25007, Federal Center, Denver CO 80225
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The Roaring Fork River heads in the Sawatch Range and flows about 100 km northwestward to join the Colorado River at Glenwood Springs. During the Quaternary, the Roaring Fork River and its tributaries, which head in both the Sawatch Range and Elk Mountains to the south, were filled periodically with glacial ice. The position and extent of moraine deposits indicate that the glaciers along the Roaring Fork River and three of its tributaries at times coalesced near Aspen, but later remained 2 to 7 kilometers upstream. The plentiful supply of water and sediment from glacial outwash helped form four extensive terraces about 10 to 200 meters above the Roaring Fork River downstream of Aspen. Terrace formation was likely influenced by easily erodible sedimentary rocks, such as Mancos Shale, that underlie the valley. The Maroon Formation gives parts of the valley and the moraine and terrace deposits their distinctive reddish color.

The terraces continue downstream and are extensive between the towns of Basalt and Glenwood Springs. In this section, basalt flows that erupted periodically beginning in the Laramide and continuing into the Quaternary are preserved on some of the highest terraces. Eagle Valley Evaporite crops out along the margins of the valley and underlies the terraces in the Roaring Fork valley and in the lower Crystal River and Cattle Creek valleys. Tilting of the older Pleistocene terraces and their underlying deposits toward the valley walls and anomalous drainages on these terraces suggest that deformation related to salt tectonics has continued into the Quaternary.



Moraines and terraces in the Roaring Fork River valley in the Aspen area.

Late Pleistocene-Holocene Stratigraphy of Rock Glacier Debris Mantles, Mt. Sopris, Near Aspen

Peter W. Birkeland

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Over 40 years ago I asked Gerry Richmond where I should do Quaternary stratigraphic work in the Colorado mountains. He suggested Mt. Sopris, so I spend several years pounding rocks and digging soils as I struggled over the unstable, bouldery rock glacier surfaces. I was hoping to emulate his La Sal work by doing all deposits on the mountain (slope deposits, etc.), but decided to concentrate on the rock glaciers.

My focus was to define mapping units and estimate ages of rock glacier debris mantles. Map units were defined using a variety of data: lichens, rock weathering parameters, soils, and the presence of loess. The first subdivision of mantles is Pleistocene vs. Holocene, best made with rock weathering, soil, and loess data. Within the Holocene, various lichen parameters help delineate three ages of mantles. At the time of publication I used ages of other workers elsewhere to estimate these ages for the mantles: Gannett Peak, present to several centuries; Audubon, 1-2 ka; early Neoglacial, 3-5 ka; and Pinedale (includes Younger Dryas), >10 ka. These still seem to be adequate ballpark ages. Once the rocks hit the surface at the upper end of the rock glacier, most travel piggyback down the valley, picking up lichens and weathering features. There was always a debate about the age of the Temple Lake, and years later, Gerry hiked into the Wind Rivers to help sort it out.

The rock glaciers are confined to a NW to NE aspect. Cirque basins characterize the headwaters of NE to N rock glaciers, but headwaters facing NW have a non-glacial look. Most rock glaciers have mantles of all ages, and the actively moving part of the rock glaciers does not coincide with a consistent stratigraphic boundary; in fact, the active-nonactive boundary decreases in altitude from NE to NW. I speculate that these are talus-fed rock glaciers with a core of ice cementing clasts and fines. Stratigraphic evidence suggests that they moved downvalley in the latter Holocene at rates of roughly 8-32 cm/yr, well within Bryant's Colorado rates of 5-60 cm/yr.



Tentative title: Overview of the Bedrock Geology of the Aspen Region

Ed Dewitt
U.S. Geological Survey
Denver, CO 80225
edewitt@usgs.gov



An abstract was not submitted for this talk by the newsletter publication deadline. In the talk it is anticipated that Ed will present a brief summary of the Proterozoic through Tertiary geology of the Aspen region. Bruce Bryant's research contributions that have improved our understanding of the region's geology will also be highlighted.



September President's Message from Scott Minor



I hope your summer was as enjoyable and exciting as mine, which was highlighted by several weeks of fieldwork in coastal southern California, a 540 mile "Ride The Rockies" cycling trek through southern Colorado (see related photo elsewhere), a cruise up the Inside Passage to Alaska with my 92-yr-old dad, and, just last week, a short but delightful field stint near Poncha Pass. The recent sweltering heat, the parched lawn in front of my house, and the wildfire raging out of control just west of Boulder remind me that summer is not over just yet. Nevertheless, my calendar says it is September and, thus, it is time to start transi-

tioning into fall.

Before addressing fall CSS activities, I would like to briefly mention a couple of events that our Society hosted since my last prez message in the May newsletter. On our spring field trip Jonathan Caine (USGS) and Zachary Wessel (CSU) did a commendable job of leading over 30 participants to some key Front Range localities where they presented some interesting evidence that brings into question some long-held notions regarding the Colo. Mineral Belt and structures in Front Range Proterozoic rocks. For the CSS Family Day event in late June several CSS members and their families gathered at the Morrison Natural History Museum to enjoy a BBQ and take in a tour of the museum's excellent dinosaur fossil collection. I was quite impressed by the museum's informative exhibits and ongoing paleontologic research in quarries that are actually visible from the facility. Thanks to Libby Prueher for helping organize the event.

In other summer developments, CSS member Mitch Reese has graciously offered to fill our long-vacant Membership/Mentor Chair position. Mitch is a young and enthusiastic individual who has expressed willingness to not only embrace the challenges that CSS faces to bring youth into our aging membership, but also to help initiate and facilitate mentorships between "experienced" CSS members and students and other young members (see membership/mentoring article elsewhere in newsletter). Please join me in thanking Mitch for stepping up to the plate, and please consider offering him your help as he moves forward in this important cause!

In other exciting recent news, CSS is now an Associated Society of GSA! With this new honor, our Society now partners with 56 other associated professional societies "in pursuit of mutual goals to advance the geosciences, enhance the professional growth of members, and promote the geosciences in the service of humanity". Speaking of GSA, CSS will be involved in their upcoming annual meeting in Denver in several ways. Thanks primarily to the tireless efforts of Lisa Fisher, CSS is hosting a topical session on the Society's role in over 150 years of geologic research in Colorado as well as a field trip to the historic Arthur Lakes dinosaur quarries. Perhaps for the first time ever, CSS will have its own official booth in the GSA Exhibits Hall. For more information on these events please see the GSA article later in this newsletter.

With our September meeting and Fall field trip to the Aspen region honoring CSS Past President Bruce Bryant, we are continuing a new annual tradition of paying special tribute to a long-time CSS member who has made a positive impact to the Society and Colorado earth science. Bruce is certainly deserving of this honor, given his many past contributions to the Society and his excellent research record in the Aspen region and other parts of the Colo. Rockies. Even if you did not sign up for the field trip, which has reached full capacity (50 participants!), the CSS meeting on Oct. 22nd will be a great way to hear about many aspects of the Aspen region geology and to pay tribute to Bruce. I hope to see you all at the meeting!

CSS Involvement in the GSA Annual Meeting, 2010

Lisa Fisher, 303-215-0480, lisa.fisher@escalantemines.com

This year CSS will be involved with the Annual GSA meeting in several ways. I ask for your support in helping to make this a successful effort, by attending and helping to publicize these functions, encouraging others to attend, contributing to our panel discussion, and also by helping to raise funds for our booth. This participation in GSA was planned by the Council as part of our effort to move CSS into the next decade, and to better define the continuing role of CSS in the earth science community. I'd like to thank Libby Prueher, Thom Fisher, Scott Minor, and Beth Simmons, who have worked with me on this monumental task. Time for more of you to step up now, we need you!

1. **CSS is now an Associated Society of GSA!!** One of the perks of this arrangement is that CSS members who are not GSA members can register for GSA activities at GSA member prices. We will be exploring other aspects of this collaboration as the year continues.
2. CSS is sponsoring Topical Session T-94, **The Colorado Scientific Society and 150 Years of Geologic Research in Colorado I: Early Colorado Geology and Important Scientific Contributions by the Founders and Members of the Rocky Mountain Region's Oldest Scientific Society, Founded in 1882**, to be held Monday, November 1, 2010, from 8 am to 5:30 pm, room 703. The session schedule can be found online at
http://gsa.confex.com/gsa/2010AM/finalprogram/session_26343.htm (morning)
http://gsa.confex.com/gsa/2010AM/finalprogram/session_27482.htm (afternoon)

There are two explanatory notes here:

- Emmett Evanoff's talk on the Western Surveys begins at 9:00. You will see that 9:15 to 9:45 are listed as "Discussion and further information: The Western Surveys, Emmett Evanoff, presenter. This is the way that we were able to give Emmett a longer time slot for his talk. If he does not take the full 45 minutes, the remainder will be a break.
 - At 2:15 to 3:00 is listed: Panel Discussion: Notable Members of the Colorado Scientific Society, Lee Shropshire, Moderator. Lee has agreed to help organize this time to discuss CSS members and their contributions not covered in the previous talks. We ask our members (YOU!) to help us prepare this information. Please submit your suggestions - *soon!* Do you have some personal anecdotes or remembrances of working with this person, or what do/did you admire about him/her or the work he/she did? Who do you think should be on this list? *We need your input!*
3. CSS is sponsoring a field trip to compliment this session; it is being offered both pre- and post-meeting: **Historic Dinosaur Quarries within a Newly Interpreted Paleoenvironmental Context**; Trip 413 - Sat Oct 30, or Trip 418 - Thurs Nov 4 (<http://www.geosociety.org/meetings/2010/fieldTrips.htm>). As of Sept. 7, there are 14 people registered for the pre-meeting and 7 for the post-meeting trip. This trip will tie in with several of the session talks on Arthur Lakes and his work, and current work being done on Lakes' quarries.
 4. CSS will have a booth this year in the Exhibit Hall! It will be booth #123, very near the CGS booth, around the corner from Gems & Crystals Unlimited, and down the aisle from the Internet Cafe. Thom Fisher, our booth chair, needs your help in raising enough funds to cover expenses of booth rental equipment. **We thank Sue Hirshfeld and Ben Duke for their generous contributions, but we need more in order to give our booth a polished professional look.** Keep in mind that we need to present our Society as the professional, high quality group that we are. There are likely to be about 6000 attendees at the conference, many of whom are local and potential new CSS members. **We welcome individual donations, but we also suggest soliciting donations from corporations that support earth science or community groups.** Please help us in making calls or visits to potential contributors!

CSM Geology Museum Annual Open House

Bruce Geller, Director

Colorado School of Mines Geology Museum, Golden, Colorado

The Colorado School of Mines (CSM) Geology Museum invites you to attend our Annual Open House and auction on September 15, 2010 from 6:00 – 9 P.M., the Wednesday evening preceding the Denver Mineral show. Come meet some of our Museum Advisory Council members, Student Aids, volunteers, members of the Friends of the CSM Geology Museum, see our new acquisitions, and our ever evolving collection. Some of you might even enjoy a visit to our Gift Shop. We also have Colorado's controversial "missing" lunar basalt specimen on display from Apollo 17.

Call for Abstracts – Colorado Scientific Society Student Night Competition

Don Sweetkind, CSS Past President

Students—Practice your talk for GSA! Win cash prizes!

The Colorado Scientific Society invites students at regional schools to submit abstracts to speak at the Society's Student Night Competition, to be held at our October meeting on Weds., October 20th. From the submitted abstracts, at least four papers will be selected for oral presentation. At the October meeting, the invited students will speak and the talks will be ranked on the basis of scientific merit and quality of the presentation. Each speaker will receive an honorarium to help defray some of the costs of their research and academic study (last year prize money totaled \$850!).

Students presenting posters at the Denver GSA are welcome to submit an abstract to student night. We will hang your posters and view them as part of the competition.

Papers are invited from all areas of the Earth Sciences and need not deal with a Colorado or Rocky Mountain theme. Papers that have been, or will be, presented at GSA, AAPG, or other similar venues are welcome, although the work described and presented must clearly be that being conducted by the student, not an advisor's work in which the student plays a minor role. Abstracts will be published in the October CSS newsletter and on the Colorado Scientific Society web page.

Submit your abstract (~300 words, GSA, AAPG, or similar format) as a Microsoft Word attachment to an e-mail to: Don Sweetkind at dsweetkind@usgs.gov

Abstract submittal deadline: Friday October 1st

Please provide your contact information, the name of your research advisor, and whether you are a PhD, Master's or Bachelor's degree candidate. You will be informed if your presentation has been accepted early in the first week of October.

Professors—Please post this notice outside your classroom or office!



In the above photo your Society President (right) and Western Interior Paleontological Society (WIPS) President Paul Belanger (left) rejoice at the finish line upon completing (barely) the 2010 Ride the Rockies (RTR) cycling tour. Riders pedaled over 540 miles and six mountain passes in one week this June. After this year's grueling ride, Scott, at least, is serious considering taking a break from the tour next year! The USGS RTR website (<http://www.cr.usgs.gov/rtr/>) has links to geology-related products that have been created throughout the years of USGS RTR participation.

The Grand Loop Field Trip—A Tribute to Bruce Bryant September 24–26, 2010

THE FIELD TRIP HAS BEEN SUCCESSFULLY FILLED UP! We will depart from the Cold Springs RTD Park-n-Ride at 3:00 pm on Friday Sept. 24th. All attendees should be prepared to provide their own dinner and breakfast in Glenwood Springs, pack their own lunches for Sat. and Sun., and provide their own dinner and breakfast in Aspen. You will need to bring your own camping gear if you are camping Sat. night. Please pack warm clothing - the weather can change dramatically and rapidly this time of year!

Any last minute questions or concerns?

Contact Cal Ruleman at cruleman@usgs.gov or 303-859-0911

Important Message From Our New Membership/Mentor Chair

Mitchell Reese

575-317-4864, mreese83@gmail.com

When you look around the room during one of our monthly meetings, what do you see (or see a lack of)? I am sure that the responses vary, but recent graduates and young scientists make up a very small percentage of our membership. This is not necessarily due to a lack of interest in the younger community. Since the establishment of CSS, the primary focus of the Society has been sharing scientific/geologic knowledge, whether it be discussion, instruction, field trips, etc. With larger and more well-known organizations out there, many possible members simply never hear of the Colorado Scientific Society. Our organization is brimming with experience and knowledge, and what better way to reach the community and strengthen our society than to reach out to some new energetic students and professionals. Listed below are a few things that I am working on in the Membership/Mentor committee and I am looking for some help from eager and equipped members to supply their knowledge.

If you are willing to help in this cause or if you have any ideas or suggestions, please contact me.

Typical Questions and Concerns of a Young Scientist

• Education vs Experience

- Many places won't hire me with just an education. Where are good places to start looking for a career job with little experience?
- What can I do with my degree? What am I qualified for?
- How do I apply my education to the work force? What are some important skill sets that carry over?

• Networking

- I am energetic and willing, but how do I get my foot in the door?
- There are so many people in the meetings, I don't know where to begin
- I just moved to the Denver area and have no networks

Possible Mentorship Opportunities

- **Small Specialty Practice Groups:** Not only is it easier to meet people with similar interests in smaller groups, but more can be taught and not everyone needs to attend (can meet for lunch, at a bar, volunteering, etc)
- **Networking Groups:** Can be separate from practice groups and focus on things other than scientific topics
- **One-on-One Interviews:** For students or interested members, can stem from smaller groups

Where to look for our 'Successors'

- **CSS Facebook page?** Okay, so Facebook is not exactly our favorite way to socialize, but with tens of millions of members, and free advertising, it's not a bad start
- **Student Career Fair:** Trying to keep it scientific can be tricky, but there are plenty of energetic young scientists roaming the fairs
- **Campus Outreach:** Target in all of the Denver Metro area
- **Networking with Other Organizations:** GSA Annual Meeting might be a good start

Earth Science Meetings and Talks

Newsletter items must be received by the 25th of each month.

Colorado Scientific Society's regular meetings are held the 3rd Thursday of the month at the Colorado School of Mines in Golden (**unless otherwise advertised**). Social time begins at 6:30 p.m. and talks start at 7:00 p.m.

For more information, contact Scott Minor, at 303-236-0303, sminor@usgs.gov

CO-AIPG September Luncheon—Sept. 21, *Bill Langer, USGS*, “Colorado Front Range Aggregate Development.” 11:30 am social gathering; Noon luncheon and subsequent speaker presentation. The meeting will be held at the Petroleum Club (3rd Floor in the Denver Athletic Club building), 1325 Glenarm Street, Denver. Please make an advance reservation so that seating and food preparation are adequate to cover attendance. Cost is \$25 with advance reservation and \$30 at the door. Paid parking available along the street (metered) or in the adjacent parking lots. Contact Jim Russell by Noon on Sept. 17 for reservations at 303-278-4456 (home), 303-815-3901 (cell), or via e-mail at summitdatasvcs@msn.com.

CSM Geology Museum Open House—Sept. 15, 6 to 9 p.m. Silent auction, hors d'oeuvres, cash bar. 1310 Maple St., Golden. For more information, call the museum at 303-273-3815.

Denver Mining Club—Sept. 13, *Lindsey V. Maness, Jr., Geologist*, “Anticipated Supply and Demand for Semiconductor Elements.” **Sept. 20**, *Tom McMichen, Boulder County Parks & Open Space*, “Restoration of the Blue Bird Mine Complex at the Caribou Ranch Open Space, Boulder County, Colo.” **Sept. 27**, Speaker and topic to be announced. The DMC meets every Monday at the Littleton Country Buffet near Bowles and Wadsworth (8100 W. Crestline Ave., in the shopping center) 11:30–1:00. Purchase of lunch required. <http://www.denverminingclub.org>

Denver Museum of Nature and Science — “The Science Lounge,” **Sept. 16**, “Dinosaurs Get All the Attention”, Entertainment, Science, and Cocktails. 6:30-9:30 pm, 2001 Colorado Blvd., Denver. \$8 member, \$10 non-member, cash bar.

Denver Region Exploration Geologists' Society— Sept. 13, *Cal VanHolland and Sam Talbott, Er-Energy USA*, “Exploration, Development and Mining of Roll-front Uranium Deposits by In-situ Recovery (ISR)”. DREGS meets in the Mutual Consolidated Water Building, 12700 West 27th Avenue, Lakewood. Social 6:00-7:00 p.m. Presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. For information contact Jim Piper, (303) 932-0137, or the website <http://www.dregs.org>

Denver Well Logging Society (DWLS)—The DWLS meets on the third Tuesday of each month, Sept. through May. Lunch and a technical talk at the Wynkoop Brewery begins at 11:30 a.m., 18th and Wynkoop Sts. in Denver. To make your reservations for the luncheon, please use the new PayPal page, *no later than noon on the Thursday prior to the lunch*. http://dwls.spwla.org/Luncheon_Reservation.htm

Rocky Mountain SEPM—Sept. 28, *Marieke Dechesne, Denver Museum of Nature and Science*, “Four Dimensional Sedimentation Patterns in the Denver Basin, Colorado.” Reception at 11:30, lunch at noon, speaker at 12:30. Reservations: luncheons@rmssepm.org, or call Peter Bucknam 303-895-4698, before noon of preceding Friday. \$20.00 lunch, \$3 talk only. Wynkoop Brewing Company, 1634 18th St., Denver. <http://www.rmssepm.org/luncheons.shtml>

Univ. of Colorado, Boulder, Geol. Sciences Colloquium— Sept. 8, *Greg Duschel, Univ. of Vermont*, “New geochemical insights into microbial iron and sulfur cycling”, **Sept. 15**, *Steven Banwart, Univ. of Sheffield*, “The role of soil fungi in mineral weathering and soil formation”, **Sept. 29**, *Eric Tilton, Univ. of Colorado*, TBA. Meets Weds., 4:00 p.m., Benson Earth Sci. Auditorium, Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. <http://www.colorado.edu/geolsci/>

Western Interior Paleontological Society—Meets the first Monday of the month, Sept. through May in the Ricketson Auditorium at the Denver Museum of Nature & Science, 2001 Colorado Blvd., Denver. For more details, go to: www.westernpaleo.org

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