



SPECIAL PUBLICATION ON R. C. MOORE

Have you ever wondered who R. C. Moore really was? To some KU geologists, he was an influential part of their education, to many, his scientific legacy still influences their geologic work, and to others, he is the stuff of legend. In a new book, published jointly by the Department of Geology and the Paleontological Institute, you can find out all you want to know about this outstanding KU geologist and paleontologist. Some fact and some legend, the story of R. C. Moore and his contributions is a fascinating one. Now, thanks to Dan Merriam's authorship, *Raymond Cecil Moore: Legendary Scholar and Scientist, World-Class Geologist and Paleontologist* is available to all R.C. Moore devotees. To purchase your copy, please telephone (785-864-3338) or email (paleo@ku.edu).

EVERYTHING IN ONE BOOK

Did you ever wonder what the map symbol was for an inverted anticline? Do you remember how to adjust the declination on your Brunton® compass? How about the correct use of global positioning systems in mapping, or the unified soil classification system? Well, all that and more is now available in a new book compiled by KU Faculty member **Doug Walker** and his co-author Harvey Cohen. This new book, *Geoscience Handbook: AGI Data Sheets* is a new publication of the American Geological Institute. The book has been described as "The essential reference for geosci-

entists in the field, office, or lab." It covers diverse subjects, from geophysics to geologic map symbols to GPS usage, and everything in between. Doug Walker is the perfect person to compile such a volume. Doug is basically the KU "answer man." Any fact or figure that you wish to know, Doug seems to recall, and now we can all just look up his answers by owning a copy of this new book.

EMERITUS PROFESSOR EQUALS NEVER RETIRE!

The KU Department of Geology is lucky to have a cadre of emeritus faculty who continue to be active in Departmental matters. Recently, three of these non-retiring retirees have finished some monumental works.

Paul Enos has been working for years on the Permian and Triassic carbonates of China, and much of this huge undertaking is now being published as GSA special paper #417, on the Triassic Evolution of the Yangtze Platform in Guizhou Province, Peoples Republic of China. The book provides a thorough account of the Triassic rocks on the Yangtze platform and adjacent basin in Guizhou Province, China, and incorporates work by KU students **Dan Lehrmann**, **Dan Chaikin**, **Marcello Minzoni**, **Adrian Berry**, KU post doc **Paul Montgomery**, and colleagues Wei Jiayong, Yu Youyi, and Xiao Jiafei.

Wakefield Dort has spent many years working on the Kansas River and its major tributaries. He has always wanted to compile his findings, and now that he is no longer teaching, he has had the time to complete

a major work. This new publication, *Historical Channel Changes of the Kansas River and its Major Tributaries*, Kansas Geological Survey Bulletin 252, has required two years of work by Wake and serves as an impressive atlas. The Kansas River drains an area of approximately 60,000 square miles and there is no doubt that the atlas will be useful for scientific purposes as well as practical land-use planning.

Dick Robison has been the world authority on Agnostoid trilobites for much of his career. Agnostoids were swimming and drifting trilobites common in the Lower and Middle Cambrian, and it appears that their widespread distribution and rapid evolution makes them the best fossil for global correlation for much of the Cambrian. After 50 years of research on these fossils, Dick has devoted part of his retirement to compiling all there is to know about them. His former student and co-author Loren Babcock will soon put the final touches on this major monograph.

DOUBLE DISTINGUISHED LECTURES

KU has one of the most distinguished programs dealing with the shallow subsurface of the Earth. The proof is that two of its own are on distinguished lecture tours. One lecture tour is dealing with near-surface geophysical imaging and another is dealing with ground-water. Selection as a distinguished lecturer is viewed as a major honor and recognition of excellence by the scientific society sponsoring it, so having two simultaneous distinguished lecturers is an impressive accomplishment for

KU and its research programs.

Faculty member **Don Steeples** has been selected to be the Society for Exploration Geophysicists distinguished lecturer. This fall, he will speak on aspects of near-surface geophysical imaging at a large number of national and international venues.

Jim Butler, courtesy faculty member and senior scientist at the KGS, is on a similar distinguished lecture tour. Jim has been selected by the National Ground Water Association as the Henry Darcy Distinguished Lecturer in Ground Water. Jim is already well into his 50-talk world tour.

KU is fortunate to have such a strong group working in the shallow subsurface, and having two distinguished lecturers at the same time will help spread the word about strong KU programs.

BIG MEETING IN LAWRENCE

This spring, KU hosted the joint meeting of the South-Central and North-Central Sections of the Geological Society of America on campus in Lawrence. The meeting included almost six hundred attendees from around the country and led to an exciting several days of workshops, symposia and field trips. Meeting co-chairs **Greg Ludvigson** and **Greg Ohlmacher** put together an outstanding meeting that showcased Lawrence, the Department of Geology, and the Kansas Geological Survey, with 30 workshops and symposia. Among those were a special symposium to honor Raymond Moore: *The 20th Century's Paleontologist-Stratigrapher Laureate*, an exciting session to honor Wakefield Dort's influence on *Geoarchaeological and Geomorphological Explorations in the Midcontinent*, and an opportunity to reflect on Roger

Kaesler's many contributions in *Contributions to Paleontology through Research and the Treatise on Invertebrate Paleontology*. The meeting brought many G-Hawks home to roost, with over 100 people attending a boisterous G-Hawk alumni reception at the KU Adams Alumni center.

BEST STUDENT TALK

KU geology students strive for excellence and succeed. At the recent annual meeting of the North-Central and South-Central sections of the Geological Society of America, KU Ph.D. student **Celina Suarez** gave an enthralling talk entitled *Laser Ablation ICP-MS Analysis of Fossil Bone: Preliminary Results on Rare Earth Element Distribution in Different Types of Fossil Bone Apatite*. Her presentation gave examples of combining rare earth element analyses with sedimentology and paleontology to interpret the environment of fossilization of Cretaceous dinosaur bones. Her findings produced unique rare earth element chemistries in vertebrate fossils and helped her interpret the climate and age of various dinosaur remains. The talk, co-authored by KU faculty **Gwen Macpherson** and **Luis González**, as well as David Grandstaff, was acknowledged as the best student talk of the meeting, and received the Outstanding Graduate Student Oral Presentation award from the South Central Division of GSA.

GREATEST GROUP OF GRANTS

If there were an award for most awards, the students of the KU Department of Geology would win it. Each year, the American Association of Petroleum Geologists opens up its worldwide competition for grants in aid of research. In

2007, the society granted nearly one hundred such awards, totaling \$169,000. The awards were spread out over eight countries and 70 universities. This year, KU geology graduate students took the honor for the greatest number of awards, earning more awards than any other school in the world, with a total of five. Second and third place went to students of the University of Texas and Colorado State University. Four of the five KU awards were "named" awards and are among the most prestigious that AAPG confers. KU winners included **Bethiah Hall** who won the Horst & Jessie von Bandat Memorial Grant. Bethiah is working on sequence stratigraphic analysis of tidally dominated deltaic deposits in the Triassic Moenkopi Formation of Capitol Reef. **Christopher Lipinski** won the J. Elmer Thomas Past Presidents Memorial Grant and is doing research on Miocene oolitic reservoir analogs in outcrops of southeast Spain. **Rebekah Ost** received the Classen Family Grant and is doing research on sequence stratigraphy of a unit in the Piceance basin of Colorado. **Jeffrey Schroeder** received the Garth W. Caylor Memorial Grant and is doing research on a pull-apart basin in the Eastern California Shear Zone. Finally, **Hayet Serradji's** grant will support her research on sequence stratigraphy of the Dakota Sandstone in southwest Colorado.

PRACTICAL PETROLEUM FOR ASPIRING EXPLORERS

During the Fall semester of 2006, **Tony Walton** experimented with a new component for his introductory course on Petroleum Geology. The idea was to give his students, all neophytes to the practice of oil-and-gas work, some practical

experience in dealing with Kansas oil fields. Tony's idea was to have students do what petroleum geologists do in the real world. The assignment started at the beginning of the semester with students paired into teams and given the assignment to find an oil field to examine in one of two counties in Kansas. During the semester, students gave weekly updates on their progress and looked at well logs, scout cards, drill stem tests, and production data. They produced cross sections and maps using commercial software (Petra® and Kingdom Suite®), and analyzed the engineering data.

It was a diverse group of students including geologists, petroleum engineers, and even a law student. Tony paired students into logical teams to take advantage of strengths in the various students' training and experience. Throughout the semester, teams interacted and presented their progress to one another. Skills learned by one team were typically shared with the other teams. This went well beyond Tony's expectations. Students actually taught one another. The projects culminated in written reports and public presentations given for the Kansas Geological Society in Wichita in February.

A highpoint included a project on the Crawford Field in Rice County, Kansas, by engineering student Nathan Berg and geology student **Robert Brewer**, who proposed water-flooding the Lansing-Kansas City and Cherokee, and initiating a horizontal drilling program. Another excellent project was on the Riverside Oil Field in Ness County, Kansas, presented by law student Blake Nelson and geology major **Travis Glauser**, whose detailed structural mapping may have identified areas along the sub-Pennsylvanian unconformity and overlying strata that could still be exploited.

Another study of the Rellim Oil Field in Rice County, Kansas, by engineering student Mohammad Hosein Kalaei and geology student **William Scriven**, really got the group in Wichita interested. When faced with the map that the students produced for the Mississippian pinchout against the Central Kansas uplift, one petroleum geologist in the audience inquired, "Do you know if anyone is holding those leases up there? I am ready to go!"

Tony Walton's work with these aspiring petroleum geologists shows just how much excitement exists among students and professionals about petroleum geology. His work on pairing students with diverse talents on practical problems is very important in KU's work to help train the next generation of geologists.

SOIL GRUBS AMONG THE BEST

KU Faculty and students have established a tradition of competing for best poster and best paper honors in major venues. The recent annual meeting of AAPG and SEPM in San Antonio was no different. Among the 20 or so KU presentations at this annual meeting, one was by graduate student **John Counts** with co-author **Steve Hasiotis**. John's poster, *Neoichnological experiments with modern Scabaeid beetle larvae: Implications for backfilled trace fossils in Permian continental deposits, Hugoton gas field, western Kansas* was chosen to receive SEPM's honorable mention for best poster. This places John's research presentation among the best at the national meeting. Such recognition is exceptional for a student poster, as professors and experienced professionals are in the same competition for this honor.

The research involved experimental work on beetle larvae

(soil grubs) to evaluate the structure of their burrows. It related these burrows to structures in core from Permian strata of the Hugoton gas field to help with paleoenvironmental reconstruction. It is nice to know that those grubs are useful for something other than brown patches in our lawns, namely enhancing gas recovery in the Hugoton and a high honor for a KU student and faculty member.

LIEBERMAN A ROCK STAR

The next time you are surfing the channels, look for our own **Bruce Lieberman** talking about the history of life on planet Earth. Bruce's work on the origin of animal life, evolution, and extinction constitutes a world-class research program that grabs the public's enthusiastic interest. In the last year, you may have seen him on the National Geographic Channel and the History Channel or heard him on the Discovery Channel radio network.

Subjects of interest have included Bruce's work on the Cambrian evolutionary explosion of animal life, fossils of strange soft-bodied organisms, astrobiology-related research on a possible gamma ray burst causing the Ordovician mass extinction, and other cycles of mass extinction that may have been caused by our solar system's interaction with a galactic bow shock. With respect to his cycles-of-extinction research, Lieberman notes that a boost in cosmic-ray exposure could lead to higher rates of genetic mutations in organisms, or interfere with their ability to repair DNA damage, potentially leading to diseases like cancer and affecting entire populations of organisms.

Ideas that relate the influx of cosmic radiation to events of mass extinction are certainly of

broad interest to the public. This “death-from-above” hypothesis shows how the fossil record may be important in understanding the future of our own species.

Having a rock star in our midst is great for KU, and the research findings do much for stimulating interest in paleontology worldwide. Next time you are surfing the science channels, be sure to look for Bruce.

GEOPHYSICS ON ICE

Imagine, for a moment, what it must have been like for KU faculty member **George Tsoflias**, who grew up in the warm weather of Greece and was educated in toasty Austin Texas, to spend five weeks on the ice of Greenland where he was conducting geophysical studies as part of CReSIS (Center for

Remote Sensing of Ice Sheets). The mission of CReSIS is to understand and predict the role of polar ice sheets in sea level change. One way of accomplishing this goal is to analyze the most rapidly flowing glaciers in the world as analogs for glaciers capable of contributing the most to sea level rise.

As part of this effort, George was doing ground-penetrating radar and seismic imaging of the ice on the Jakobshavn Glacier. This glacier wins the race for fastest flowing in the world, moving at a brisk 135 feet per day, as well as greatest acceleration, having doubled its speed over the last decade. The answer to Jakobshavn’s behavior is believed to lie in its basal properties, 2-to-3 km below the surface. Is it grounded on solid bedrock, does bedrock

geomorphology contribute to its properties, or is it sliding on soft, water-saturated glacial till? Geophysical imaging, employing the same methods developed for oil and gas exploration, is used to answer these questions.

Although conditions were harsh, with low temperatures, high winds, and whiteout conditions making work impossible during a third of the field season, excellent geophysical data were gathered. Tsoflias’s adventure into the Arctic should have a real impact on our understanding of the factors that control sea level change. Also, it has changed George’s personal temperature tolerance. No longer will those winter cold snaps in Lawrence cause him the least bit of concern.

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