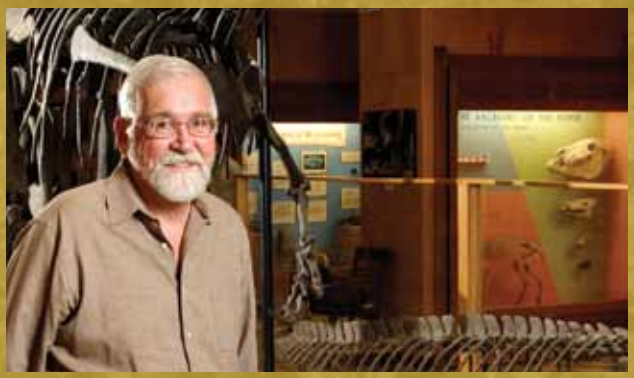
UNIVERSITY OF WYOMING
DEPARTMENT OF GEOLOGY & GEOPHYSICS

SPRING 2011

PROFILE

Inside



Department Head Art Snoke

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FROM THE DEPARTMENT HEAD

I write this message with a variety of emotions. On May 7th I had the pleasure of watching 15 of our graduates (undergraduate and graduate students) participate in the Spring 2011 Commencement. Several of these students won awards, which are described in this newsletter. On the same day, I was informed that one of our senior geology majors, **David C. Schmitt**, died the night before Commencement in a tragic accident. David was captain of the men's swimming and diving team, an experienced kayaker, and was scheduled to attend Summer Field Camp shortly after Commencement. David was a personal friend of many of our students; many faculty and staff members recognized David as a wonderful young man with a great smile and a bright future as a geoscientist.

This newsletter also is my last opportunity to send you a message about the Department, because I step down as the Department Head on August 15th. **Paul Heller**, my long-time colleague, will become our new Department Head. Paul brings 28 years of experience at UW to the job. As many of you know, Paul is a highly recognized sedimentologist, an excellent and stimulating teacher, and a creative and innovative scientist. I have greatly enjoyed my tenure as the Department Head because our Department has experienced unprecedented growth in Faculty as well as a significant growth in our undergraduate and graduate programs. Furthermore, our extra-mural funding has reached the highest level in the history of the Department. Our research infrastructure has greatly expanded with state-of-the-art analytical equipment, and we continuously revise our curriculum to meet the "Grand Challenges" of the geosciences in the 21st Century. The Department is playing important roles in the development of the new School of Energy Resources as well as the Roy J. Shlemon Center for Quaternary Studies. The UW Geological Museum is being revitalized through generous gifts of our alumni and friends and the enthusiasm of Assistant Professor and Vertebrate Paleontologist **Mark Clementz** and Museum Manager **Kelli Trujillo**. Working with University Facilities Planning, a museum committee is developing a plan for a series of new exhibits in the Geological Museum. These exhibits will range from Ancient Rocks of Wyoming to Whale Evolution to Water of the West. As these exhibits reach fruition, you will no doubt be reading about them in future issues of the PROfile.

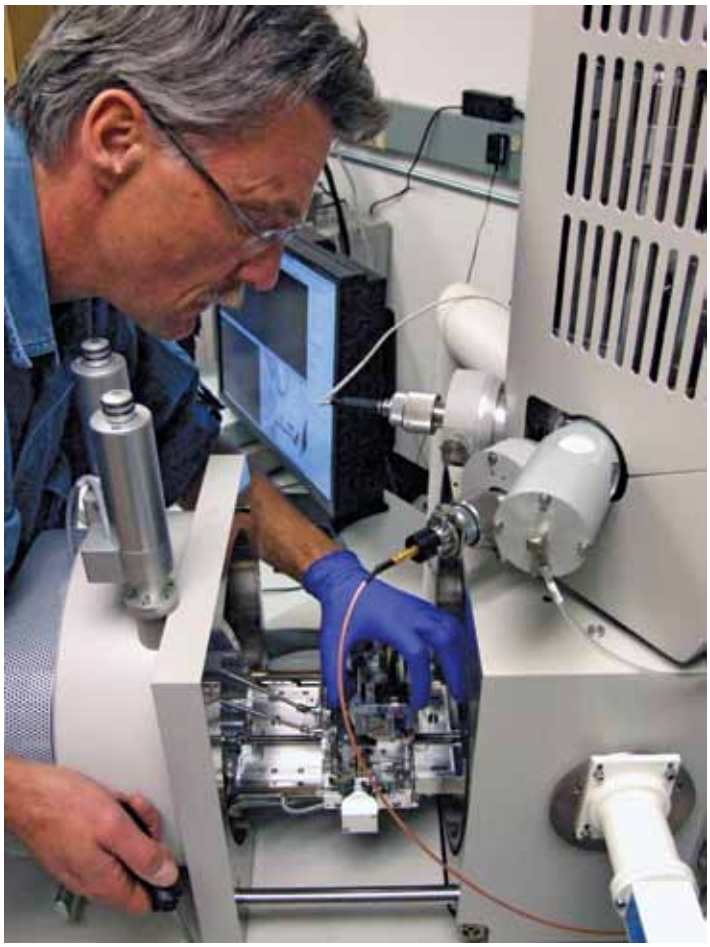
It has been a great honor to serve as Department Head of Geology & Geophysics for the past six years. I am very proud of our Department and recognize the great history of teaching and research excellence represented by it. During my term as Department Head, I have had the wonderful opportunity to interact with many of our alumni, and I plan to continue these activities. I do not plan to retire but to remain an active faculty member returning to full-time teaching and research—these were the reasons that I decided to pursue a career in higher education 40 years ago. Best wishes to all of you. ❖

Art Snoke

Department Home to Best Overall Scanning Electron Microscopy System in Rocky Mountain Region

The Department of Geology and Geophysics is proud to be the home of a new state-of-the art Field Emission Scanning Electron Microscope.

Last fall, Bruce Parkinson (Chemistry), and Professor **Carrick Eggleston** and Senior Research Scientist **Susan Swapp** (Geology and Geophysics), secured funding for the new instrument from the National Science Foundation (NSF) Major Research Infrastructure program. NSF funds were supplemented with other funds from the University of Wyoming (UW) School of Energy Resources and Research Office. The new Field Emission Scanning Electron Microscope (SEM) is capable of nanometer-scale resolution and has state-of-the-art EDS and EBSD capabilities for composition and structure studies, respectively. The new system has some other advanced capabilities that will be useful to researchers across UW, including scanning transmission electron microscopy and electron beam lithography, which helps make the SEM not just an analytical tool, but also an experimental tool. ❖



Laboratory Technician Norbert Swoboda-Colberg places a sample into the new Feld Emission Scanning Electron Microscope.

Associate Professor Kenneth W. W. Sims Featured in National Geographic

The April 2011 issue of *National Geographic* includes a feature about Associate Professor **Ken Sims**' research at what the magazine describes as "one of the world's most dangerous volcanoes."

Sims' expedition was also the subject of a television feature, "Man vs. Volcano," that premiered on April 7th on the National Geographic channel.

The article and television special feature Sims' studies at Nyiragongo, described as "a two-mile-high volcano towering over the eastern edge of the Democratic Republic of the Congo—one of the most active volcanoes on the planet and also one of the least studied."

It was Sims' second visit to the volcano to gather evidence to help scientists better understand when the volcano might erupt again.

While he is still analyzing data collected during the expedition, Sims says, "One of the coolest things we found was evidence of a major eruption there within the last 100 years, for which there is no historical record. Understanding the timing and magnitude of past eruptions is critical for accessing future eruptions. In volcanology the past is the key to the futue."

This is among the photos in a feature about University of Wyoming Associate Professor Ken Sims research at Nyiragongo that appears in the April 2011 issue of National Geographic magazine, on newsstands now. (Carsten Peter/National Geographic)

An excerpt from the magazine follows:

"Sims is 50 years old, an avid rock climber and former professional mountain guide. He doesn't like cities; he's allergic to crowds. He dresses as if life were one long camping trip.

"A professor at the University of Wyoming, he lives in Laramie with his wife and two young children. He hasn't owned a TV set in 25 years. Volcano science has never been a safe occupation—more than 20 scientists have died on volcanoes in the past 30 years.

"Sims carries a scar on his right arm from Sicily's Mount Etna, where his shirt melted into his skin. He's even-tempered and analytical and seemingly never off duty. He once wrote a paper on a restaurant tablecloth, scribbling until 3 a.m. Then he took the tablecloth home."

To read the full story, visit http://ngm.nationalgeographic.com/2011/04/nyiragongo-volcano/finkel-text. ❖

Student Alumni Association Honors Professor Art Snoke

A committee of Wyoming Student Alumni Association (WyoSAA) members has selected geologist **Art Snoke** as this year's Outstanding Faculty Award recipient.

The award recognizes faculty members who are dedicated to student success and make significant impacts in students' lives.

Snoke is professor and head of the Department of Geology and Geophysics. His major research interest is in studying fault rocks from all levels of the crust and even the mantle. He and his students focus on several research projects that they consider fundamental to the evolution of orogenic belts (long tracts of highly deformed rock).

In the graduate and undergraduate courses he teaches, Snoke attempts to relate personal experiences and encourages students to read primary literature in addition to textbooks. Because he knows that students commonly learn more in the field than in the classroom, field trips are an important component of many of his courses.

Lauren Harrison of Laramie, who is scheduled to graduate this spring, nominated Snoke for the Outstanding Faculty Award. She says he is her adviser on an undergraduate research project.

"I came away from our first meeting with more than I ever expected," Harrison says."I had personalized attention, a fascinating project idea, an adviser to guide me on the project, guidance for future academic goals and the beginning of the best opportunity I had as an undergraduate at UW."

She continues, "Over the next two years, Professor Snoke treated me, a rough and untrained undergraduate, as a scientist with valid ideas, research savvy and competence. His mentorship has made me into the graduate I am today."

Professor Snoke is so admired by the students throughout the department as the "quintessential geologist" that they are featuring his photo and favorite quotes on their annual T-shirt.

Senior Lauren Harrison of Laramie conducts field studies led by University of Wyoming Geology Professor Art Snoke. Harrison nominated Snoke for the Student Alumni Association's Outstanding Faculty award.

Snoke joined the UW Department of Geology and Geophysics in 1984 after serving as an assistant and associate professor at the University of South Carolina. He earned a Ph.D. degree (1972) in geology at Stanford University.

In 2001, Snoke received the university's most prestigious faculty honor, the George Duke Humphrey Distinguished Faculty Award.

Faculty Notes

Associate Lecturer **Erin Campbell-Stone** recently gave an invited talk at Occidental College, in Los Angeles, Calif. Titled, "The Geology of Carbon Sequestration: Site Characterization in SW Wyoming", where she presented research done on the Moxa Arch that will help to determine if that region is suitable for subsurface storage of CO_2."

Research Professor **Kevin Chamberlain** recently attended the first annual sponsor's meeting for the industry-funded, international project "Reconstruction of Supercontinents

back to 2.7 Ga," held in Toronto, Canada on March 5th, 2011. The goals of this five-year project are to improve mineral exploration by using high-precision U-Pb dates to determine continental configurations through Earth's history. The results will also determine the cyclicity and evolution of plate tectonics through time and the project represents an excellent partnership between economic and academic pursuits. The UW U-Pb high-precision geochronology lab, under the direction of Chamberlain, is one of four labs collaborating on the two- million dollar project. At the meeting, Chamberlain reported new U-Pb dates from samples collected in Wyoming, Siberia, and the Caribbean.

Associate Professor **Mike Cheadle** was recently awarded the *Antarctica Service Medal* of the United States of America for service in Antarctica in recognition of valuable contributions to exploration and scientific achievement under the U.S. Antarctic Program.

Associate Professor **Ken Dueker** recently received a $112,000 grant from the National Science Foundation Geophysics program to continue analysis of a fascinating new upper mantle seismic feature that may have importance with respect to the volcanic and surface adjustment history of the western United States.

Professor **Carrick Eggleston** is a co-PI on two projects involving the role of semiconducting oxides in solar energy applications. These projects, totaling about $3.2 million, are funded by DOE and NASA EPSCoR, and involve UW faculty from Physics, Astronomy, Chemistry, and Electrical Engineering.

Eggleston was also recently named the Associate Director of the new Center for Photoconversion and Catalysis at the School of Energy Resources.

In February, Professor **Carol Frost**, along with graduate students **Jason Mailloux** and **Fred McLaughlin**, published articles in the *Wyoming Law Review* and *AAPG Bulletin*.

Frost, along with fellow Professor **Ron Frost**, also published a major paper on granites in the *Journal of Petrology*.

Associate Professor **John Kaszuba** recently published an article in *Geophysics Research Letters* titled, "Relative stability and significance of dawsonite and aluminum minerals in geologic carbon sequestration."

Associate Professor **Bryan Shuman** published six articles in *Climate Dynamics*, *Geology*, *Earth and Planetary Science Letters*, *Ecosystems*, *Hydrological Processes*, and *Quaternary Research*.

Shuman also recently gave an invited talk titled, "From Causes to Impacts of Holocene Hydroclimate Variability in Mid-Latitude North America," at the Institute for Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder.

Associate Professor **Ken Sims** recently received a $30,000 grant from the National Science Foundation. The grant, titled "Collaborative Research: Rates of Carbonate Formation in the Samail Ophiolite, Oman: Implications of Ultramafic Weathering for the Carbon Cycle," is in collaboration with the Woods Hole Oceanographic Institution and will fund the graduate research of Sims' student Eveline Mervine at WHOI/MIT.

Sims also received an $113,000 NSF grant for a study to examine the sources and times scales of mid-ocean ridge volcanism in the arctic ridges, with a focus on Jan Mayen, a volcanic island located in the artic and adjacent areas. This grant is in collaboration with Sims' former WHOI Ph.D. student Lynne Elkins who is now at Bryn Mawr College, Pennsylvania.

Sims, along with postdoctoral researcher **Chris Waters**, also published an article in the *Journal of Petrology*, which was later selected as a featured article by the Petrological Database of the Ocean See Floor (PetDB).

PetDB is a scientific information system that maintains a geochemical data collection of ocean floor igneous and metamorphic rocks. PetDB contains analytical data (major oxides, trace elements, stable and radiogenic isotope ratios, and analytical ages) for whole rocks, volcanic glasses, minerals, and melt inclusions for samples from mid-ocean ridges, fracture zones, back-arc basins, young near-ridge seamounts, and old oceanic crust. The majority of the data are for mid-ocean ridge basalts (MORB) and abyssal peridotites.

Professor and Department Head **Art Snoke** recently received one of the "A&S Top Ten Teacher Awards" as chosen by the University of Wyoming College of Arts and Sciences graduating class of 2011.

Assistant Professor **Ye Zhang** published four articles in the *Environmental Science and Technology*, *Journal of Hazardous Toxic and Radioactive Waste*, *Transport in Porous Media*, and *Water Resources Research*.

In April, Zhang also gave an invited talk at Colorado State University titled, "Upscaling and Model Complexity in Subsurface Flow Simulation: Insights Gained & On-going Research." ❖

Two G&G Seniors Selected as College of Arts and Sciences Outstanding Graduates

Undergraduate seniors **Brandon Bishop** and **Lauren Harrison** were among 20 other students to be selected as University of Wyoming (UW) College of Arts and Sciences Outstanding Graduates for 2011. The award is given to graduating students in recognition of their exceptional academic achievements and scholarship. This is the first time that two undergraduates were selected from the Department of Geology and Geophysics (G&G) in the same year for this major award. The Department congratulates both Brandon and Lauren for this enormous honor!

Brandon Bishop – Imperial, Nebraska. Brandon chose to attend UW because of the strong reputation of the undergraduate geology program and his lifelong interest in the earth sciences.

Seniors Brandon Bishop (left) and Lauren Harrison (right).

Highlights of his time at UW include Professor Ron Frost's Petrology course and active participation in the fencing club on campus. He credits the G&G Department for emphasizing a strong foundation in the knowledge of geological concepts, which he feels will better prepare him as he pursues a graduate degree in geophysics.

Lauren Harrison – Laramie, Wyoming. Choosing to attend UW to study geology was a natural choice for Lauren, who over the course of her childhood accumulated a ridiculously large rock collection. Her family's cabin in the Medicine Bow Range gave her plenty of opportunities to discover fantastic rock specimens. Throughout high school and college, her fondness of rocks evolved into an interest in studying the geochemical aspects of rocks with a focus on high-temperature, hard-rock geochemistry. She credits Department Head **Art Snoke** for his dedication to students and helping her with her undergraduate research project and fondly remembers the summer field camp taught by Associate Lecturer Erin Campbell-Stone. A self-described "outdoor nut," she tries to occupy her spare time throughout the year by biking, camping, hiking, and skiing. She is looking forward to graduate school and feels the challenging, well-rounded curriculum at UW G&G has helped prepare her for her future studies. ❖

Four Graduate Students Awarded GSA Student Research Grants

Masters students **Tyler Brown**, **Robin Canavan**, **Jacob Carnes**, and **Lauren Colwell** were all recently awarded Geological Society of America (GSA) graduate student research grants to help fund their research.The students are working on a diverse range of projects from around the world.

Brown's (Associate Professor **Michael Cheadle** and Professor **Barbara John**, supervisors) proposal was titled, "Understanding lower crust accretion at fast-spreading mid-ocean ridges: A multi-approach fabric analysis of in situ gabbros from Pito Deep, Easter Microplate."

Canavan's (Assistant Professor **Mark Clementz**, supervisor) proposal was titled, "Palaeo-elevation reconstruction of the Antofalla Basin, Northwestern Argentina."

Carnes' (Associate Professor **Michael Cheadle**, Supervisor) proposal was titled, "Did the Dufek Layered Mafic Intrusion, Antarctica, grow by multiple magma replenishment events?"

Colwell's (Associate Professor **Michael Cheadle** and Professor **Barbara John**, supervisors) proposal was titled, "An in-depth chemical characterization of oceanic titanite (sphene)." ❖

Student Notes

Graduate student **Tyler Brown** (M.S.) and undergraduate senior **Lauren Harrison** were both recently chosen for the United States Geological Survey (USGS) Summer Field Training Program.

Soon to enter its fifth decade, the National Association of Geoscience Teachers (NAGT)-USGS Cooperative Summer Field Training Program is the longest continuously running internship program in the earth sciences. Over the past 46 years, more than 2000 students have participated in this program with an impressive number of these individuals becoming full-time employees of the USGS.

Graduate students **Jacob Carnes** (M.S.) and **Brady Foreman** (Ph.D.) each recently received a fellowship from the Wyoming NASA Space Grant Consortium to cover their stipends for the 2011–12 academic year. They are working on research projects titled, "The magmatic history of the Dufek large Mafic Intrusion, Antarctica" and "Fluvial Response to the Paleocene-Eocene Thermal Maximum," respectively.

Graduate student **Chris Christofferson** (M.S.) received a $1,500 GSA student grant last fall to continue his thesis research into the modes of construction of oceanic crust. He is supervised by Associate Professor **Michael Cheadle** and Professor **Barbara John**.

Graduate student **Jorden Hayes** (Ph.D.) recently received the *Outstanding Student Paper Award* for her presentation at the 2010 annual American Geophysical Union (AGU) in San Francisco, Calif. Her presentation, titled, "Crustal structure across the Central American Volcanic Arc in Costa Rica from TICO-CAVA seismic refraction data," was recognized as among the best of a strong group of student presenters. The research that Hayes presented represents the first part of her dissertation and the next part of her thesis will involve applying waveform tomography to seismic refraction data from the Southern Sierra Nevada Critical Zone Observatory.

"I am incredibly honored to have received the Outstanding Student Paper Award and be recognized among the best student presenters at AGU," says Hayes.

Graduate students **Fred McLaughlin** (Ph.D.) and **Karri Sicard** (M.S.) each recently received research grants from The Educational Component of the National Cooperative Geologic Mapping Program (EDMAP) through the United States Geological Survey (USGS).

EDMAP is a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers. Through EDMAP, the USGS allocates funds to colleges and universities in the United States and Puerto Rico through an annual competitive grant process. Every Federal dollar that is awarded is matched with university funds. Geology professors, who are skilled in geologic mapping, request EDMAP funding to support undergraduate and graduate students at their college or university in a one-year mentored geologic mapping project that focuses on a specific geographic area.

Sicard, who is supervised by Professor **Art Snoke**, plans to use her grant to fund field research this summer where she will be mapping part of the Ruby-East Humboldt metamorphic core complex in northeast Nevada.

McLaughlin, who is supervised by Professor **Carol Frost**, plans to use his grant to fund field research where he will be mapping Archean rocks of the Stampede Meadows quadrangle in Fremont County, Wyo.

Graduate student **Lynsey Spaeth** (M.S.) was recently awarded the *AAPG Weimer Family Grant* for her research proposal titled, "Analysis of the geochemical and physical properties of Triassic Formations as a potential confining system for CO_2 sequestration in Wyoming." She is co-supervised by Professor **Carol Frost** and Associate Lecturer **Erin Campbell-Stone**.

Graduate student **Guan Yang** (M.S.) will be working in Houston this summer as part of his internship for. He is supervised by Assistant Professor **Ye Zhang**. ❖

ALUMNI NEWS

Notes

Alumnus **Bill (W.H.) Ashley** (M.S. '48) shares his fond memories of his time at UW that included working with Drs. Don Blackstone, S.H. Knight, and Bill Thomas and helping to organize the first NCAA ski team at UW in 1946.

Alumnus **Jim Barlow** (M.S. '50, Ph.D. '53) is encouraged by the recognition of the importance of geology to Wyoming and the U.S. by the UW School of Energy Resources, Enhanced Oil Recovery Institute, and coal gasification at UW. He feels that building on Wyoming's contributions to the country's energy needs is great for education, technology, and Wyoming's "place in the sun."

Alumnus **Timothy Clarey** (M.S. '84) recently led a GSA field trip to the Garden of the Gods near Colorado Springs, Colo., as part of the 2010 Annual GSA convention in Denver. He also co-authored a field guide paper for the site as part of the field guidebook for the conference.

Alumnus **Gene L. Del Mauro** (M.A. '53) is currently enjoying retirement in Hamden, Conn. with his wife Jo and five grandchildren. After an honorable discharge from the army and service under General Douglas MacArthur from 1942–1946 that included time in Australia and Japan, Gene was employed in the oil industry from 1953–1959. He went on to enjoy a career in education at public schools and Southern Connecticut University from (1963–2000). He is currently working on a book about his WW II experiences and would enjoy hearing from some of his UW colleagues. You may contact him at his address below:
35 Lent Rd.
Hamden, CT 06517

Alumnus **Tim Master** (M.S. '77) is currently working as the President and COO of Desert Hawk Resources Inc., a promising startup of a new gold and Cu-Mo company focused in Nevada.

Alumna **Kara Philippe (née Hackwith)** (M.S. 2002) is currently working as a geophysicist for the French company Total in Paris, France. She recently moved to France after three years in Angola.

Alumnus **Randy Sipe** (M.S. '84) is currently employed as a hydrogeologist at the North Carolina Department of Environment and Natural Resources where he has been working since 2005.

Alumnus **Mark D. Stock** (M.S. '81) was recently awarded the Distinguished Service Award by the national Environmental Division of the Society for Mining (SME), Metallurgy and Exploration. The award recognizes members who have significantly contributed to the workings of SME and the Environmental Division and have an outstanding reputation for professionalism and accomplishment. Stock has more than 30 years of experience as a geologist and hydrogeologist. He is the owner of Global hydrologic Services. Prior to starting the company in 1998, he was manager of Latin American operations for Hydro-Search. Stock's career has concentrated on mining hydrology and water supply issues. These include the impacts of water supply development and mine dewatering, the analysis of aquifer properties, evaluation of ground water in fractured and karstic rocks, hydrology of desert basins, well and well-field design, hydrogeological analysis in support of water rights, ground water flow modeling and hydrogeology of underground and open-pit mines. He has worked extensively in the western United States and Latin American, including Mexico, Chile, Peru, Brazil, Argentina, Bolivia, and Panama. Stock is a registered professional geologist and holds an undergraduate degree in geology from the University of Tennessee and a M.S. degree in geology from the University of Wyoming. He has served on several Environmental Division committees.

Obituaries

Alumnus **Raymond N. Larsen** (B.S. '54) passed away on November 18th, 2002. After graduating from UW, Ray worked in the field for Saber Uranium and the Atomic Energy Commission. In 1957, Ray transferred to the Army Corps of Engineers and moved about the U.S. researching dam sites (geological studies for dam sites and reservoir projects). In 1965, he was hired by the U.S. Bureau of Reclamation. In 1984, he retired from the bureau and moved to Menton, France, where he lived until death in 2002. ❖

COLLECTING THE UW MUSEUM MAMMOTH SKULL

by William R. (Dick) Keefer

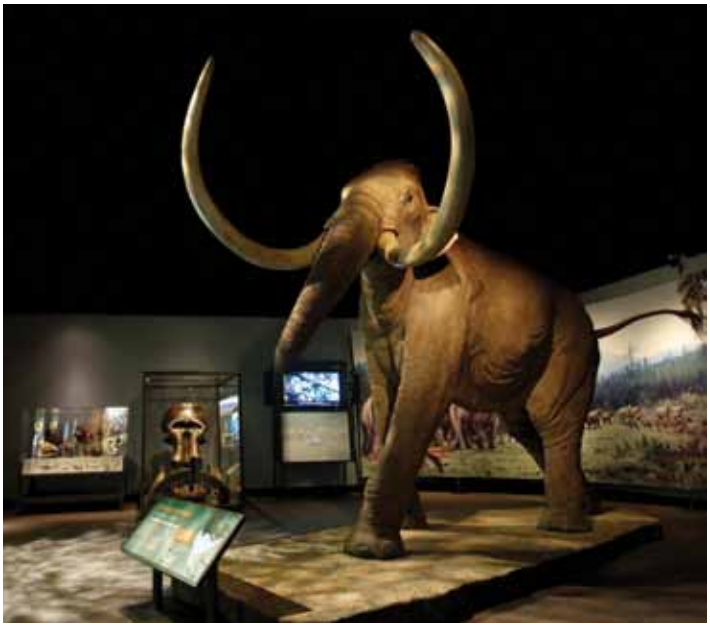
During the summer of 1960, I was working in my USGS office in the University of Wyoming (UW) Geology Building. On a Monday morning (I've forgotten the exact date), I received a call from Dr. George Agogino, Professor of Archaeology at the UW, saying that he had been contacted by a dragline operator who, while excavating a small bog at a site a few miles southwest of Rawlins for a possible water supply for a nearby drilling rig, had dug up several large fossil bones. He informed George that he had ceased excavating until someone from the UW had an opportunity to retrieve and examine the bones. Over the weekend, George drove to the site, recognized the bones to be limb bones of a mammoth, and requested that excavation cease until he could consult with other UW staff about proceeding with further work at the site. He had called the USGS office in an effort to contact Dr. Paul McGrew, vertebrate paleontologist on the UW geology faculty, through Paul's wife, Laura, also a USGS geologist and in the office at the time. Laura told George that Paul was in the field and unavailable.

However, Dr. Brainerd (Nip) Mears, Jr., UW Professor of Geology, was found to be available and was informed of the situation. It was quickly decided to follow up on this opportunity to obtain as much of the mammoth skeleton as might still be buried there. It was also an excellent chance to achieve a long-time goal of Dr. S. H. (Doc) Knight, Head of the UW Geology Departmen—that of having a mammoth from a Wyoming locality for exhibit in the UW Geology Museum. Unfortunately, Doc was in Copenhagen attending the International Geological Congress and could not participate.

A crew was organized that included Nip, George, Laura, two custodians from the Geology Building (I've forgotten their names), Don Smith (a geology graduate student), and me. Nip checked out a UW flatbed truck, which we loaded with needed equipment, and another vehicle and we headed for the site in the late morning, arriving in the early afternoon. Laura, in her car, stopped in Rawlins for provisions enough for at least one night's stay.

Soon after arriving, we began to dig in what was a pit of extremely sticky black mud. Nothing much was found until, cutting into one of the pit walls, my shovel hit something that was obviously big and solid. Further excavation revealed it to be one side of the huge mammoth skull. The rest of the day and much of the next morning was spent digging around and exposing the entire skull as well as the enormous tusks that were detached from their sheaths but lay only a few inches out in front.

When the excavation was completed, getting the skull up and out of the muddy hole without damage was a challenge—we had none of the means customarily used by paleontologists to prepare such a fossil for further handling and safe transport, in this case one that appeared to be so well preserved in virtually every detail as the result of being buried in sediments that never dried out for some 11,500 years (dated by carbon-14). After some thought,



The skull and tusks of 'Nip', UW's Columbian Mammoth (in glass case, left-of-center in photo) are part of a five-year traveling exhibit seen here at the Field Museum in Chicago.

a plan was devised that took advantage of a Jeep equipped with a winch that a local rancher had driven to the site to observe our operation. We wrapped a rope around the heavy skull and it was slowly and carefully winched up the incline and onto solid ground. Sand was thrown onto the truck bed to cradle the skull, tusks, and other bones, and the corners of a tarpaulin were tied to the rear of the truck. The skull was then placed on the part of the tarp that lay on the ground, we and some of the "onlookers" who had by then gathered there positioned ourselves along the other three sides, and lifted it to the level of the truck bed and placed it on the sand cushion. After securing it for transport, the truck and driver, and Laura left for Laramie, so that Laura could begin the essential process of treating the fossilized bone before it dried and started to crack.

Those who remained continued digging for additional bones and, a short time later, much to our surprise and certainly of great interest to George Agogino, a stone cutting tool (knife?) was discovered by Nip. This immediately led us to speculate that the animal was chased into the bog by hunters, became trapped, was killed, and then at least partially consumed because some of the bones already collected appeared to have been crushed. The site therefore became an archeological site as well as a paleontological site, and for the next two summers archeological digs were conducted and several other artifacts as well as bones were found. An article was subsequently published by Cynthia and Harry Irwin and George Agogino in the National Geographic in 1962 (Vol.121, No. 6), discussing the significance of the site and what was found there.

All in all, it was a great experience, and certainly one of the highlights of my work in geology. Now that this mammoth skull is being exhibited in several world-renowned museums, I am again reminded of the rather rudimentary (but successful) manner in which it was collected and that its pristine form was preserved for viewing by museum visitors not only at UW but elsewhere. ❖

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Spring 2011 student award recipients, from left to right: Brandon Overstreet and Jeremiah Marsicek (outstanding masters students), Department Head Art Snoke (with gifts from the G&G Dept. student clubs), Virginia Marcon (outstanding undergraduate), Stephanie Peek (outstanding Ph.D. student), and Lauren Harrison (College of A&S 2011 Outstanding Graduate). Not pictured Brandon Bishop (College of A&S 2011 Outstanding Graduate).