



University of Wisconsin-Madison

## Department of Geology and Geophysics

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# Annual Report for 2002

### Visitors

The Geology Museum enjoyed burgeoning popularity as a prominent educational facility for the University and the community. In 2002, about 21,000 visitors from 28 countries toured the museum. Our guides were kept busy providing tours to 12,422 school children (compared to 10,329 in 2001) who learned about the movement of continents, minerals and rocks, the workings of a cave, and creatures of long ago. In May alone, the museum provided tours to more than 2,800 students! As in years past, our dinosaur skeletons easily won the popularity contest among our younger visitors.

### Community Outreach

Once again our staff offered an array of educational programs outside the museum.

In spring, Museum Director Klaus Westphal and Assistant Director Richard Slaughter visited museums in Milwaukee and Green Bay, to share some of their expertise with visiting school classes, as part of the UW Wisconsin Alumni Association's "On the Road Program." In addition, museum staff gave educational talks at schools, and at the monthly meetings of the Madison Gem and Mineral Club, held in the Lowell R. Laudon



*The President of the Friends of the Geology Museum, John Rettig, presents mineral specimens to the museum's director, Klaus Westphal.*

Lecture Hall, directly below the museum.

Richard Slaughter participated in the JASON Project, a program that enables K-12 students to get involved in scientific research via live broadcasts into their school classrooms. Last year's theme was "Frozen Worlds," and Richard presented his research on Ice Age animals to a live audience of more than 100 elementary school students.

Richard also worked with teachers to improve the quality of K-12 earth science education. He attended two conventions for Wisconsin science teachers, and led workshops that provided strategies for teaching geology to pre-college students.

### The Open House

The museum's Annual Open House attracted several hundred visitors, especially families with younger children. The visitors were treated to programs on Planets and Stars visible in the sky above Madison (Dr. Jordan Marché, Dept. of Astronomy), Animal Life before the Dinosaurs (Dr. Rex Hanger, Dept. of Geology, UW-Whitewater), and on Ceratopsian Dinosaurs (Chris Ott, Geology Museum). The Free Rock Pile for Kids, held in the



Matt Kuchta and Joe Skulan survey the depth of a cave that was in the path of a new highway.

spacious courtyard, was again a major attraction. All youngsters ended up with a bag full of colorful stones and small fossils. A few lucky scavengers even took home an attractive gem tree studded with small amethysts, or other semi-precious stones. Many thanks to Burnie's Rock Shop, and David Cuff, both of Madison, for contributing much of the "loot."

### Pave It or Save It?

In May, the Door Peninsula Highway 57 project was halted temporarily when it was discovered that a small cave was directly in the path of the new highway. At the request of the Wisconsin Speleological Society and the Wisconsin Department of Transportation, museum staff members Richard Slaughter, Joseph Skulan, and Matthew Kuchta were brought in to assess the scientific value of the cave. The floor of the fissure was littered with the bones of hapless animals that had fallen into the crevice and were unable to escape. In the end, the cave was paved over, but a culvert was placed into the shoulder of the highway to maintain access to the site.

### Expeditions

It was another productive year for the museum's Vertebrate Paleontology Program. In May and June, museum staff and volunteers spent time in the Late Cretaceous badlands of eastern Montana excavating dinosaur bones, including the skull bones of the rare *Torosaurus*, as well as the



Matt stands atop a layer of bones as he takes notes inside the cave.

remains of fish, amphibians and birds. While in the field, we also assisted staff of the Burpee Museum with their own dinosaur exploration project in the same area.

In June, Joseph Skulan and Richard Slaughter traveled to southwestern Colorado to look for dinosaur fossils in the Late Jurassic Morrison Formation. Their goal was to find a site worthy of excavation for *The Age of Dinosaurs* summer field program. After days of searching, the duo discovered petroglyphs, hundreds of packrat nests, countless forms of prickly vegetation, but no more than a few scraps of dinosaur bone. Nonetheless, the scenery was spectacular, and we thank the Gaskill family for generously providing access to their land.

### Research and Conferences

In March, Chris Ott, Lisa Buckley, Clint Boyd, and Adam Behlke traveled east to study dinosaur fossils at various museums, including the Yale Peabody Museum, the Canadian Museum of Nature in Ottawa, and the Royal Ontario Museum.

Lisa Buckley and Julie Hill each completed a senior thesis this year. Lisa described fossils from a Late Cretaceous microsite in Montana, an area containing large numbers of small vertebrate fossils. Julie undertook a study of *Oreodon* skulls, Tertiary-age mammals that were collected in the Badlands of South Dakota in the late 1970's.

In December, Chris Ott completed his Master's thesis, which describes the bones of the museum's two specimens of *Leptoceratops gracilis*, a protoceratopsian dinosaur from the Late Cretaceous Hell Creek Formation. These are two of the eleven specimens known, and the only ones recovered from the Hell Creek.

Results of some of the ongoing research were presented at two conferences. In April, Chris Ott and Adam Behlke reported on one of our mosasaur specimens at the Kansas Academy of Science conference in Hays. In October, ten museum staff members and volunteers traveled to Norman, Oklahoma, to present five posters. Lisa Buckley, Clint Boyd, Adam Behlke, Kurt Spearing and Chris Ott authored a total of three posters on their dinosaur and mosasaur research. Joseph Skulan and Richard Slaughter also presented posters there that focused on Quaternary bone deposits in Midwestern caves. Joe's poster was by far the most colorful at the conference, and among the most unusual, as none of its images or text blocks had any right angles.

### The Wisconsin Vertebrate Fossil Project

The National Science Foundation has funded a museum initiative that will engage high school students and teachers in field-based exploration and research. During the next two summers, museum staff and project participants will excavate and interpret bone deposits from caves in southwestern Wisconsin. The main scientific objective of this project is to determine how amphibian and reptile communities in this region have changed over the past 30,000 years. This information will help determine whether recent declines in amphibian populations are unusual, or part of a long-term pattern. The museum is pleased to have Cave of the Mounds and Wyalusing State Park as partners in this endeavor.



Richard Slaughter and the Latino Science Club from Stephens Elementary School crack open some geodes.

### A New Web Course—The Age of Dinosaurs

The museum is now the home of an important new distance learning program, *The Age of Dinosaurs* (Geology 333). This three-credit online course on Mesozoic vertebrates is currently the only course on vertebrate paleontology taught at UW-Madison. Funded by the College of Letters and Science, *The Age of Dinosaurs* was developed by Matthew Kuchta, Joseph Skulan, and Richard Slaughter. The class was first taught in the fall semester, and will be offered every semester for the foreseeable future. Over 400 students enrolled, making *The Age of Dinosaurs* the full-credit course with the highest enrollment in the history of the department, and one of the premiere online courses in the university.

*The Age of Dinosaurs* includes a field-training program that will begin this summer. Three one-week expeditions of 20 students each will be sent to a fossil locality in the Western US. Participants will excavate fossil vertebrates and learn the techniques of field paleontology.

Museum staff will

lead these expeditions, and only students who have completed the course will be allowed to participate.

### Museum Expansion Plans—A Status Report

The Weeks Hall building expansion plan initially included a significant enlargement of the Geology Museum. However, plans for the museum have since been put on hold. A new fundraising campaign is now under consideration that may eventually provide funds for an enlarged museum.



### The Friends of the Geology Museum

In 2002, the *Friends* supported the museum in many ways. They contributed \$10,000 to fund both the dinosaur expedition program, and the

preparation of fossil bones from previous expeditions. Another \$10,000 was donated to the museum's general fund at the UW Foundation. The *Friends* also donated \$5,000 towards the acquisition of a small, high-security gem display case. The balance was covered by a grant from the department's Lewis G. Weeks Bequest. The case will be installed and unveiled in early 2003. The *Friends* also donated a display-quality collection of fluorites and associated mineral specimens from the Southern Illinois fluorspar district.

Last year, we were notified of an unexpected inheritance. The late Ethel Wise of Dakota, Illinois, an acquaintance of Klaus Westphal, had bequeathed her entire lifetime collection of minerals to the *Friends*. It took two vans to retrieve the countless boxes of geodes, cut rock, and many other specimens. Cave of the Mounds managers, Joe Klimczak and Ann Wescott, helped to transport the material from Dakota to a storage locker, temporarily rented by the *Friends*. More than 200 specimens have since been transferred to the museum's general collection. Other specimens will provide the *Friends* with a long-lasting supply of sales material for fundraising.

The *Friends* received a major financial boost from the David Jones Foundation, Minnesota. This generous donation is being used to support our fossil vertebrates program.

John Rettig, the *Friends'* founder and president, continued to visit the museum twice a week to do paperwork, to handle sales, and to spoil the staff and volunteers with sweet pastries or brownies from a local bakery.



Preparing bones for display: the museum's fossil preparation lab.

### The Mazon Creek Fossil Collection

The museum has a significant collection of fossils from the Pennsylvanian-age "Mazon Creek" area of northern Illinois. This collection is the result of several donations that were received in the past 30 years. The hard, brown mudstone nodules contain impressions of leaves, clams, jellyfish, crayfish, baby sharks, and the Illinois State Fossil, the rare Tullimonster, and many more. Michael Henderson of the Burpee Museum of Natural History, an expert on the Mazon Creek flora and fauna, most generously volunteered his time to help with the conservation and identification of the material.

### Major Gifts

The Geology Museum's success is due, in large part, to the many generous gifts from its dedicated supporters.

The museum received a small collection of mostly mineral and fossil specimens from the estate of the late Wilma Cox Larson of Mount Horeb, Wisconsin. Her daughters, both alumnae of the UW, Bette Rae Cox, Seattle, Washington, and Judith Anne Cox, Portland, Oregon, donated the collection. Wilma Cox Larson was the first secretary of the amateur organization, the Wisconsin Geological Society. The collection includes a rare galena specimen from Dodgeville, Wisconsin, and fossils from the "Mazon Creek" area of northern Illinois.

F. John Barlow, Appleton, Wisconsin, UW alumnus and the recipient of an honorary doctorate from the UW Engineering Department,

honorary life member of the Friends of the Geology Museum, and contributor of many outstanding mineral specimens, donated a spectacular, cut slab of fossiliferous limestone from Morocco. The 4-foot-wide slab contains over 100 coiled and straight cephalopods. The brightly colored hardparts are scattered throughout the colorful matrix in a striking display.

Andy Clark, Phoenix, Arizona donated two outstanding mineral specimens from Arizona: a sample of peridot (a gemstone variety of olivine) on basalt, and large, black obsidian "Apache tears" in a silky white matrix.

Major financial contributions of \$1,000 or more were received from Laura L. Linden, Madison; the Robert M. Sneider Exploration, Inc., Houston, Texas; and the Evjue Foundation, Madison. The UW Natural History Museums Council supported our vertebrate program with a grant of \$5,000.

## Moving On

In December, Chris Ott and Lisa Buckley graduated and moved to Rapid City, South Dakota. For the past several years, they supervised the fossil preparation lab and spearheaded the museum's vertebrate program. Prior to his departure, Chris undertook the gargantuan task of reorganizing our off-site storage facility that is filled with fossil material awaiting preparation in our lab. Chris and Lisa will stay involved in our vertebrate program, and coordinate our upcoming expedition to the Hell Creek Formation of Montana.

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## The Geology Museum thanks its staff and its many dedicated volunteers

Andy Arntz, volunteer, fossil preparator, expedition member

Mirian Barquero-Molina, tour guide

Adam Behlke, volunteer, fossil preparator, expedition member

Clint Boyd, volunteer, fossil preparator, expedition member

Lisa Buckley\*, student assistant, fossil preparator, expedition member

Leslie Dundore, volunteer, fossil preparator, expedition member

Adam Eisenach, tour guide

Maya Frost, tour guide

Lou Goodman, volunteer, fossil preparator, Saturday morning museum host, expedition member

Keith Hennings\*, tour guide

Julie Hill, tour guide, volunteer, fossil preparator

Anna Huntley, tour guide

Dan Hyslop, volunteer, fossil preparator

Reuben Johnson\*, tour guide

Stephanie Kautzer, volunteer, fossil preparator

Lynnette Kleinsasser, tour guide

Tammy Krukowski\*, tour guide

Matt Kuchta, webmaster, assistant, *The Age of Dinosaurs* course

Matt Kuhns, volunteer, expedition member

Carrie Larson, tour guide

Elizabeth Leslie, project assistant

Amy Lippitt\*, volunteer, fossil preparator

Ed Mathein\*, volunteer, expedition member

Simon Masters, tour guide, volunteer, fossil preparator

Shasta McGee, volunteer, fossil preparator, expedition member

Adam Novotny\*, volunteer, fossil preparator, expedition member

Christopher Ott\*, student assistant, preparation lab supervisor, expedition member

Christine Pagelsdorf, tour guide, volunteer, fossil preparator, expedition member

Dr. Joseph L. Skulan, instructor, *The Age of Dinosaurs* course

Kurt Spearing, volunteer, fossil preparator, expedition member

Brooke Swanson, tour guide

Rebecca Tedford, tour guide

Joy Scriver\*, volunteer, expedition member

Ian Sweeney, volunteer, fossil preparator, expedition member

Susan Werther, newsletter editor

\* Individuals no longer with the museum

## ... and the Friends of the Geology Museum

John R. Rettig, President

Richard Emerson, Vice President

John Evans, Treasurer

Maxine Triff, Secretary

Thank you!

Dr. Klaus W. Westphal, Director

Dr. Richard Slaughter, Museum Assistant Director