

EARTH AND MINERAL SCIENCES MUSEUM & ART GALLERY REPORT

ACADEMIC YEARS 2010–2016

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Mission Statement

The mission of the Earth and Mineral Sciences Museum & Art Gallery is to preserve and promote the diverse collections of Penn State's College of Earth & Mineral Sciences by serving as an informed resource for science and art education for learners and educators in the broader community. We serve the community by illuminating the process of science and its outcomes, providing educational and research resources, and communicating the research conducted within the college.

Vision Statement

Our vision is to foster a sense of curiosity in the natural world and to instill a sense of global stewardship among those who pass through our halls, both physical and virtual.

Unless otherwise credited, photographs and images included in this report were created by staff of the College of Earth and Mineral Sciences and the Earth and Mineral Sciences Museum & Art Gallery.

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LETTER FROM THE DIRECTOR

As a preface to this report, I have written a brief perspective on the museum from my point of view. As an introduction, it is clearly not exhaustive, but it does give everyone an idea of where we have been, where we are now, and potential for the future.

It has been six years since the museum's last "annual" report was published. There has been a lot of activity in the museum during those six years. I think the Earth and Mineral Sciences Museum & Art Gallery (EMS Museum) has moved to a higher level of achievement and is now ready for new challenges, especially accreditation by the American Alliance of Museums (AAM), the professional organization that sets standards for all museums in North America. We have been working toward this objective for a long time, but the work accomplished in the last couple of years has established a strong foundation for our application within the next year.

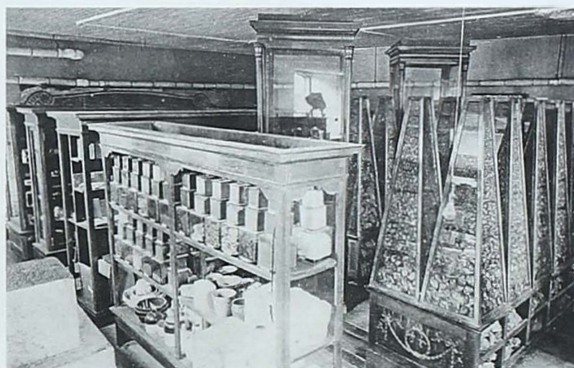
Past

The Earth and Mineral Sciences (EMS) Museum & Art Gallery at Penn State was established in 1859 when the Pennsylvania State Legislature consigned one of four cabinets of the state's mineralogical and geological collection to Farmers' High School—the institution that became Pennsylvania State College and then the Pennsylvania State University. The collections were assembled by Henry Darwin Parker during the first and second geological surveys of Pennsylvania. The College of Earth and Mineral Sciences, the EMS Museum's parent organization, was inaugurated in 1896 and established the museum on the foundation of the consigned cabinet.

Originally housed in the first Old Main (which burned in the 1930s), the EMS Museum relocated several times before 1929 when it moved into the building now known as the Steidle Building. After 75 years in Steidle, the museum was relocated to the ground floor of the Deike Building. The Deike Building is also home to classrooms, the college's administration offices, advising, the EMS library, and the Department of Geosciences.

Early exhibits of the museum focused on the Geological Survey of Pennsylvania rock and mineral collection. Later exhibits included large models of industrial complexes to demonstrate the relevance of earth and mineral resources to the state's industry and commerce. These exhibits informed visitors about the geology of the state and the importance of the state's earth and mineral resources.

When it was located in the Steidle Building, the EMS Museum reached its pinnacle in terms of the number and types of exhibits, growth of collections, and dedicated space. Dean Edward Steidle opened the EMS Art Gallery in 1942—the first art gallery on the Penn State campus—an extension of the museum



Rock and mineral collections on exhibit in the EMS Museum (Geological Museum), 205 Mining Building, 1910



Entrance to the EMS Museum in the Steidle Building (Mineral Industries Building), 1957

in the Steidle Building. By the time Dean Steidle retired in 1953, most of the hallways in the building were lined with specially made exhibit cases totaling nearly a quarter mile in length. Many of the exhibits in these cases were interactive. The museum's exhibits ranged from an extensive array of prehistoric human artifacts to modern materials (glass, vacuum tubes, sports equipment, etc.) made from earth and mineral resources, to rock, minerals and fossil specimens, historic mining equipment, and art depicting Pennsylvania's mineral industries.

The museum's exhibits were maintained in the Steidle Building until 2004 when the new dean, Dr. Eric Barron, along with other EMS administrators decided that it was time for a change. There were many practical reasons for this change including eliminating the disruption of classes in the Steidle Building by school field trips, and the dated nature of some of the exhibits. It was determined that the museum should be more reflective of the five disciplinary departments in the college and its three institutes. The museum's footprint was downsized and exhibits were relocated to the ground floor of the Deike Building—a space strategically positioned between the new Ryan Student Center and several large lecture halls and small classrooms. This location made the museum exhibits more visible and easily accessible to a wider variety of Penn State students, faculty, and staff. Two museum exhibition galleries (one primarily art, the other primarily science) were designed as spaces to be used for promoting the activities of EMS college staff. A new Director of the Museum, Russell Graham, was hired and a position for Assistant Director was created and filled by Julianne Snider.

As a result of the change in location, exhibits that had been in the Steidle Building were dismantled, the museum's collections were relocated, and all new exhibits were created for the new space. These changes were not welcomed by everyone. For example, two very popular exhibits (shrunken heads and fluorescent minerals) were eliminated. The room of fluorescent minerals that had been in the Steidle Building was too large to fit in the EMS Museum's new location. The shrunken heads were transferred to Penn State's Matson Museum of Anthropology where the specimens are displayed appropriately and in a cultural context. The museum went through a time of transition.

Although the process of dismantling the old museum and packing the collections (a lot of the packing was carried out by volunteers from the Nittany Mineralogical Society) was completed within a year, it took several years to find a permanent storage facility for the collections. During these years, the packed collections were stored in several facilities around campus; however, in 2009, most of the collections were moved to the Center for Education, Research and Collections (CERC) in the newly renovated Special Services Building off-campus. The renovations resulted in an environmentally-controlled collections storage range, other storage areas, work spaces, and offices for museum staff.

Present

All of the museum's collections are now, and for the first time in a long time, housed in one facility, the Center for Education, Research, and Collections (CERC), in the Special Services Building. The art collection is housed in the environmentally-controlled storage range on new art storage racks acquired through a grant from the Institute of Museum and Library Services and donations from the Steidle family (descendants of Dean Edward Steidle). The collections environment protects the art collection and makes it readily accessible for inspection, selection of works for exhibition, and monitoring its condition. Each painting in the art collection has undergone a condition assessment by a painting



EMS Museum's art and mineral gallery, 018 Deike Building, 2012

conservator. An endowment for conservation of the art collection has been established by the Steidle family. This endowment is enabling conservation treatments to be carried out on the paintings.

A scholarly book on the art collection, *Wonders of Work and Labor: The Steidle Collection of American Industrial Art*, was published by the EMS Museum in 2008. Funding for the publication was provided by the Steidle family and the Office of the Dean of EMS. A successful symposium, held locally at the American Philatelic Society facility in Bellefonte, commemorated the publication. Pieces from the art collection are currently displayed in changing exhibits in Earth and Mineral Sciences Museum's Art & Mineral Gallery in the Deike Building. Paintings are periodically loaned to other museums for exhibitions including two major exhibitions, one at the Grohmann Museum at the Milwaukee School of Engineering, Milwaukee, Wisconsin (2010) and the other at the James A. Michener Museum of Art, Doylestown, Pennsylvania (2015).

Thanks to donations by Drs. Mary and Hu Barnes, the museum has purchased new state-of-the-art display cabinets for use in the Art & Mineral Gallery. These cabinets, handcrafted from cherry wood, provide a better environment and security for exhibited objects, and help establish the professional image of the gallery.

With another grant from the Institute of Museum and Library Services (IMLS) the museum was able to hire a curatorial assistant in 2013 to unpack, inventory, catalog, and photograph the rock and mineral collections that were packed in 2004. Information and images of each specimen have been entered into a collections management database (PastPerfect). Although most of the rock and mineral collections are still housed in the old cabinetry from the former museum, their data and images can be placed on the museum's web page where they will be freely available to anyone. The actual specimens are housed at CERC in the environmentally-controlled storage range and the other storage areas.

To keep the museum galleries fresh, exhibits change periodically. The new exhibits feature aspects of research and education in the EMS college. Several exhibits (e.g., Earthquake, Tornado Simulator, and Historic Geologic Map) are long-term installations; other exhibits may be changed every year or so. Some of the exhibits are interactive. The museum also hosts an exhibit case for the Nittany Mineralogical Society. The society provides the specimens and science content; the museum develops the graphics and helps with the installation. Other exhibits have been student-developed as a result of classes, thesis or dissertation research, or in collaboration with other colleges.

Most museum programs involve visits to the museum galleries by school classes or activities taken by museum personnel to area schools. The museum participates in the annual Nittany Mineralogical Society Junior Education Day as well as larger outreach programs including Exploration Day, Bellefonte School Day, and the Department of Geoscience's Shake, Rattle and Rock. The museum hosts professional development workshops where teachers engage in hands-on activities and use the museum's exhibits and collections. Symposia have been sponsored by the museum, many in conjunction with special exhibits (e.g., acid rock, marine sustainability, and climate change challenges).

The museum exhibit spaces in the Deike Building are widely used by the college and disciplinary departments for receptions and special events. We partner with faculty and enable the broader impacts component (public information about scientific research) required by National Science



EMS Museum's science gallery, 006 Deike Building, 2010

Foundations and other agencies for research grants. Museum staff teach classes within the college, in other Penn State colleges, and at other universities. Students who volunteer or work for the museum gain experience with collections, exhibits, and programs. There is also a formal class offering on "Museums and Communicating Science" for graduate students taught by the Museum & Art Gallery staff.

For the past few years, the museum has been working towards achieving professional accreditation by the AAM. Accreditation serves the purpose of recognizing a high level of professional achievement amongst our peer institutions. Less than seven percent of all museums in the United States (ca. 16,000) are accredited. EMS will be the first accredited museum on the Penn State campus. The process of working towards accreditation will make the museum a much stronger institution. As part of this process, the museum was one of 10 selected nationally to participate in the inaugural Small Museums Accreditation Academy (SMAA) hosted by the AAM. Accreditation will allow us (museum staff, Advisory Board, and EMS administration) to reflect on what the museum should be and what its future will be. Finally, a badge of accreditation, although not required, will facilitate grant proposals and solicitations for donations.

Future

The future of the Earth and Mineral Sciences Museum & Art Gallery is wide-open, and I believe quite bright. As stated previously, accreditation of the museum by the AAM is of the highest priority. This goal should be achieved by 2018. Even after accreditation, the museum will need to strive to provide better environments and facilities for the collections. To realize this goal, the museum must acquire grants and donations for new equipment to control the storage environments and to house the collections (e.g., cabinetry and shelving). Similarly, old exhibit cases in the Science Gallery should be replaced with cases that provide the environmental conditions, security, and a consistent appearance to elevate the image of the museum to a higher professional level.

The Steidle Collection of American Industrial Art has a much wider recognition in the art world today, especially within the industrial art genre. Without a doubt, the collection's reputation will grow, and it will be featured in more museums and art shows. The EMS Museum will need to seize these opportunities to promote other programs at EMS. It would be extremely beneficial if the art collection was used in developing oral histories of the different industries (steel, glass, and coal mining as well as oil and gas exploration) that it pictorially represents.

The mining lamp collection may have the same potential as the Steidle art collection in increasing recognition of the museum. More than 1000 lamps are in the collection which is probably one of the larger museum collections in the United States. It documents the evolution of these lamps as well as mining safety in general—a fundamental objective of EMS since Dean Steidle's time. An attractive publication (like *Wonders of Work and Labor*) on the lamps would definitely heighten awareness of this collection and the museum and help achieve another goal—to continue to increase visibility of the museum both within Pennsylvania as well as nationally. Visibility of the museum has risen recently due to a series of promotional articles in newspapers, on-line newsletters, and social media.

Part of this wider recognition the museum has recently received is a result of innovative and exciting programming (e.g., the 1893 3-D geological map [7.5 ft. x 17 ft.] of Pennsylvania and a series of interactive exhibits). To continue this trend, it will be essential that staff stay at the forefront of developments within the museum world, as a whole. Museum staff will need to continue to participate in national professional meetings to learn about new developments as well as to present the results of innovative programming at EMS and the museum. To ease strain on the museum's limited budget, a traveling fund endowment could facilitate travel to highlight our collections as well. National and international gem and mineral shows like those at Tucson, Arizona and Denver, Colorado would be excellent venues.

A new dynamic web page is also critical to boost the museum's profile. With reorganization in the dean's office and creation of the position of Director of Marketing and Communications for the college, the museum should have an excellent opportunity to achieve this goal. A stronger web presence will enhance educational opportunities for the museum as well. The museum should meet the challenge of developing on-line curricula and student-based activities for the exhibits that can be used by visiting school groups. Survey forms on the web will help evaluate the effectiveness of our programs.

All of these efforts have put the museum in an excellent position for expanding our financial resources through donations and endowments—two funding resources that have grown significantly in the last ten years. Specific objectives for additional endowments might be for student interns, collections care and specimen acquisition, and enhancement of exhibits and galleries. Our success with grants has also opened new avenues for funding to augment various aspects of the museum's operations. The museum should expand this potential short-term revenue stream by developing proposals for other foundations (e.g., Heinz Foundation) and agencies (e.g., National Endowments for the Arts) that fund museum activities.

Perhaps the most important aspect of the museum's mission is to expand our audience and engage them more in both science and art. This effort will require more innovative exhibits and programs that align themselves with visitor's interests as well as opening new windows for our audience and exposing them to ideas and issues that they may have never considered or do not fully understand (e.g., climate change, ocean acidification, human products and materials that make our planet a better place to live). It is essential that the museum convey the importance of science and art for human society, one of the primary goals set forth by Dean Edward Steidle more than 80 years ago.

Russell Graham, Director



Deike Building ground floor hallway and entrance to the EMS Museum science gallery, 2010

EARTH AND MINERAL SCIENCES MUSEUM & ART GALLERY EXHIBITS

Over the last six years, the EMS Museum staff have created more than 30 new exhibits. These exhibits are cataloged in the Achievements section of this report. For the purposes of the report, four of these exhibits have been featured in detail here. Creating new exhibits and changing displays in the EMS Museum frequently allows visitors to see more of the museum's extensive collections and provides visitors with unique experiences and multiple reasons to visit often.

Meteorites vs. Meteor-Wrongs



As a standard service to the public, the EMS Museum does identifications of natural earth science objects for the public. One of the most common questions asked is: "Is this a meteorite?" Russ Graham has examined more than 70 objects in the last 12 years that were brought in by people who thought they had collected a meteorite, but so far, none of the specimens have been a meteorite. In most cases, the unknown objects are slag from the variety of industrial processes that have been carried out in Pennsylvania. A common source of slag was early 19th century iron furnaces which were widespread across the state.

To help visitors understand meteorites and to see real meteorites, the museum designed an exhibit in which actual meteorites from the museum's collections are compared to specimens of "meteor-wrongs" such as slag, pig iron, and rocks and minerals that are frequently mistaken for meteorites. Charts illustrate the characteristics of meteorites compared to the frequent features of meteor-wrongs, different types of meteorites, and where real meteorites have been found. Visitors can bring their objects to the museum, see the exhibit, and decide for themselves or ask museum staff for help.

Fluorescent Minerals and Zinc and Zinc Ores

In the fall of 2011, the EMS Museum was approached by the George Thomas Mahler, Jr. family about the donation of a small collection of minerals that are frequently used as ore for zinc. When Russell Graham and Julianne Snider went to visit the Mahler home and evaluate the donation, they noticed a small mineral case that Mr. Mahler had made to exhibit fluorescent minerals that he had collected. The minerals were gone but the family agreed to include the case in their donation to the museum.

Before moving the EMS Museum to the Deike building in 2004, the museum had a dedicated room for its extensive collection of fluorescent minerals. This room had long been one of the most popular exhibits at the museum but was too large to move or recreate in the new galleries in Deike; however, the Mahler fluorescent mineral case was just the right size and design to fit within the new EMS Museum space.



Julianne Snider, John Simmons, and John Passaneau (1949–2014), former EMS Museum Advisory Board member and officer in the Nittany Mineralogical Society, remodeled the case. New short wave and long wave lights were installed. Mr. Passaneau wrote a computer program that activate the two UV lights and the general case light sequentially and turned a static exhibit into an interactive one. The case has been filled with a small portion of the museum's extensive fluorescent mineral collection and placed in a specially darkened corner in the Science Gallery to enhance viewing the minerals as they fluoresce. Once again, after 10 years without any fluorescent minerals on display, the EMS Museum has a very popular exhibit, *Fluorescent Minerals*.

Mr. Mahler's zinc-containing minerals are on display in the *Zinc and Zinc Ore* exhibit located in an exhibit case incorporated into the first floor landing of the Hosler Building stairway. The case was built to house materials and information specific to the Energy and Mineral Engineering program. The high quality minerals are accompanied by graphics explaining the natural occurrence of zinc, the uses of zinc, and the processing of zinc.

The Corals of Curaçao and CAUSE 2011: Global Environmental Change on Tropical Island Nations



Photo courtesy of Rob Crane

The Curaçao coral exhibit is the outgrowth of a 2011 CAUSE (Center for Advancement of Undergraduate Studies and Experience) class on global environmental change on tropical island nations. CAUSE classes are special project-based courses developed by EMS professors. The first semester of the class provides background information for the project. Over the summer, class participants go to the field and collect data for the project. In the final semester, the students analyze the data, write a report, and make a public presentation. The EMS Museum provided an excellent venue for the presentation portion of the Curaçao project's focus on environmental change and its impact on the health of coral reefs in the Caribbean.

After their initial course work and data collection, the CAUSE students worked with museum staff to develop an overall design for an exhibit that would highlight their research and its implications. The students generated an overall storyline which was then edited to create content for the exhibit. With guidance from museum staff, the students selected specimens and graphics that illustrate the key points of the edited content. The complete exhibit consisted of a display case with objects and specimens, three kiosks with panels of informative text and illustrations, and a GeoWall animation. During the opening event for the exhibit, students presented their research to museum visitors and celebrated their accomplishments. The project proved successful in raising the

museum's profile as a venue for the students to communicate science to their peers and the general public. Communication of science to the public is a fundamental part of science today. The CAUSE students' experience with learning to use the multiple methods of communication found in museums may help them be better communicators as they move into science careers.

Storied Images: Marcellus Shale. Documentary Photographs by Penn State Students

Student participation in museum activities is a high priority for the EMS Museum as is working with programs and departments outside of EMS. The *Storied Images* exhibit accomplished both goals. The exhibited photographs were taken by Art & Architecture students as part of an assignment to document natural gas production in Pennsylvania. The subjects of the photographs varied from equipment, facilities, people, drilling platforms, etc. The exhibit was in collaboration with the Palmer Museum of Art exhibit *Marcellus Shale Documentary Project*, the HUB-Robeson Galleries, and the Schlow Centre Region Library. The opening event included a "museum crawl" between the various galleries. Museum visitors were able to meet the Penn State artists and scientists involved with all aspects of Marcellus Shale natural gas extraction. Subsequent events hosted by the EMS Museum included a film series of documentaries exploring the economic, environmental, and social impacts of shale gas development. *Storied Images* was incorporated into the *Oil & Gas: Seeps to Shale in Pennsylvania* exhibit in the Art & Mineral Gallery at the EMS Museum.



Photo courtesy of John E. Simmons

Did You Feel That?

On August 23, 2011, at 1:51:04 pm there was a 5.8 earthquake in central Virginia. The earthquake did considerable damage to historical monuments and buildings within the Washington, D. C. area. The shock waves from the quake were felt throughout the mid-Atlantic region, including State College. Russ Graham was working in his Penn State office at the time and felt the first wave arrive as a ripple across his floor. The second wave arrived shortly after the first. Graham saw the exterior wall to his office move briefly inward.

Although the standard reaction of most people was to leave the building, Graham and most of the geoscientists headed to the *What Are Earthquakes?* exhibit in the museum to look at the seismometer readings. They were joined by others from across campus. It provided an opportunity for an impromptu teaching event which the geoscientists and the museum director took advantage of. Later in the day, using the exhibit as a backdrop for illustrating the event, Graham and several geoscientists were interviewed by various news media about the Virginia earthquake and earthquakes in general. Shortly after the quake event, the museum incorporated a new panel (*Did You Feel That?*) into the existing *What Are Earthquakes?* exhibit explaining the Virginia earthquake and its impacts on the region. Science in action!

Beyond the Edge of the Sea and Life in the Dark: Extremophiles



The EMS Museum hosted *Beyond the Edge of the Sea*, a travelling exhibit from the Muscarelle Museum of Art at the College of William and Mary in 2010–2011. The exhibit featured water colors and drawings of deep sea creatures and ocean vents. Many of the pieces were created while the artist, Karen Jacobsen, was working in a deep-sea submersible and collaborating with submersible pilot and marine biologist Dr. Cindy Lee Van Dover. Jacobson's artwork chronicles the ecosystem and organisms uniquely adapted to living in and around the hot water and gasses of volcanic vents and the extreme pressures of living a mile or more beneath the ocean surface.

The EMS Museum created a collaborative exhibit, *Life in the Dark: Extremophiles*, of ongoing research taking place at Penn State. Researchers from across the campus who work with extremophiles—animals and plants that live in extreme environments—showcased their work through exhibits designed by the museum staff and during an opening event featuring gallery talks and activities presented by Penn State researchers and formal presentations by Karen Jacobson and Cindy Lee Van Dover. The event and the exhibits provided an opportunity for museum visitors to see how science and art work together, learn about different careers in science and art, meet Penn State faculty and students engaged in exciting research, and talk to the artist and marine biologist about their collaboration.

Our Fragile Oceans: As Seen Through Jeremy Cohen's Camera and Sustainability of Aquatic Environments

Exquisite underwater photographs, taken by Jeremy Cohen, formed the core of this exhibit. Dr. Cohen was professor of media studies, associate vice president and senior associate dean for undergraduate education, and program chair of the Intercollege Bachelor of Philosophy. He is a member of the American Academy of Underwater Sciences and serves on the Dive Control Board Degree of Penn State Science Diving. The museum worked with Drs. Tim White and Rob Crane of EMS and the Science Divers program at Penn State to bring Dr. Cohen's photographs into the museum's Art & Science Gallery. Through his photographs, Dr. Cohen has documented changes in marine systems and the impact of those changes on human populations.

The opening event for the photography exhibit included a mini-symposium on marine sustainability that was developed and hosted by the EMS Museum. Symposium presentations included a gallery talk by Dr. Cohen, a lecture on the health of coral reefs by Iliana Baums (Biology), a talk about pollution and recovery of the Chesapeake Bay by Raymond Najjar (Meteorology and Geosciences), and a discussion on the practical aspects of marine underwater research by Tim White (Earth and Environmental Systems Institute). The photography exhibit and the mini-symposium were part of a larger museum exhibit, *Sustainability of Aquatic Environments: Penn State Research*.



Dr. Jeremy Cohen speaking to museum visitors during his gallery talk in the EMS Museum art and mineral gallery

Antarctic Coal, Rocks & Minerals: Specimens from the Second Byrd Antarctic Expedition

As a result of the award of an IMLS grant, the EMS Museum has been able to unpack and catalog its geological collections now housed at the Center for Education, Research and Collections (CERC) in the Special Services Building. Opening the moving cartons and unwrapping each specimen has felt a bit like Christmas everyday as the long-unseen collections come to light. There have been many surprises as the extent and depth of our collections are revealed. One of these surprises was a collection of geologic specimens from Admiral Richard E. Byrd's second expedition to Antarctica (1933–1935).

The collection was amassed by expedition scientists Stuart Paine and Olin Stancliff and presented to the EMS Museum by Paine in 1935—around that time, Admiral Byrd was at Penn State



presenting lectures on his Antarctic adventures. In 2014, the museum placed the specimens on display in the Art & Mineral Gallery and was able to make connections between last century's Antarctic discoveries with this century's Penn State's Ice and Climate Exploration program working in Antarctica and other polar locations.

Historic 3-D Map of Pennsylvania Geology

In 1893, the State of Pennsylvania exhibited a large (7.5 ft x 17 ft), three-dimensional plaster map of the state in the Pennsylvania State building at the World's Columbian Exposition in Chicago. The highly detailed relief map, constructed at a scale of 1 inch for every 2 miles, shows "the coal fields, oil and gas pools, iron ore mines, blast furnaces, oil pipe lines, etc.," the geologic formations, drainages, and population centers in the state in the late 19th century.

After the World's Fair, the map was shipped back to Pennsylvania and it was displayed in the capitol building in Harrisburg before it was put on exhibit in Old Main in 1897. Since then, the map has been part of the EMS Museum although not always on publically accessible display. In the Steidle Building, the map was a prominent feature of the museum's Pennsylvania Room. Over time, the room was converted to offices and the map, although still on the wall in one office, was nearly forgotten until the building was scheduled for a complete renovation.

As part of the renovation of the Steidle Building, the map was dismantled and removed in four large pieces. Each piece was carefully packed, crated, and shipped to architectural and large object conservators at Materials Conservation in Philadelphia to undergo extensive conservation. After 12 months at the conservators, the map was then returned to Penn State and installed in the EMS Museum in the Deike Building.

The map will become the focal point of a series of exhibits on Pennsylvania geology and cartography and the foundational influence of geology on all the academic and science disciplines of the EMS college.



Conservators from Materials Conservation install the 1893 geologic map of Pennsylvania in the EMS Museum science gallery

Augmented Reality Topographic Sand Box



popular for use in museums and other indoor spaces. Visitors can shape the sand by hand to form hills, mountains, streams, lakes, etc. A 3-D camera and Microsoft Xbox Kinect sensor above the sand box is used to detect the sand surface and project contour lines and color coded elevations onto the sand. Museum visitors can "make it rain" by holding a hand above the sand and in front of the sensor. The blue "rain" falls down onto the visitor-created landscape and demonstrates hydrologic principles and drainage—water flows to the lowest elevation available following the contours of the landscape.

Besides the extreme popularity of this exhibit with general museum visitors, it has the potential fo being useful for demonstrations, teaching, and learning in a variety of classes taught in the college.

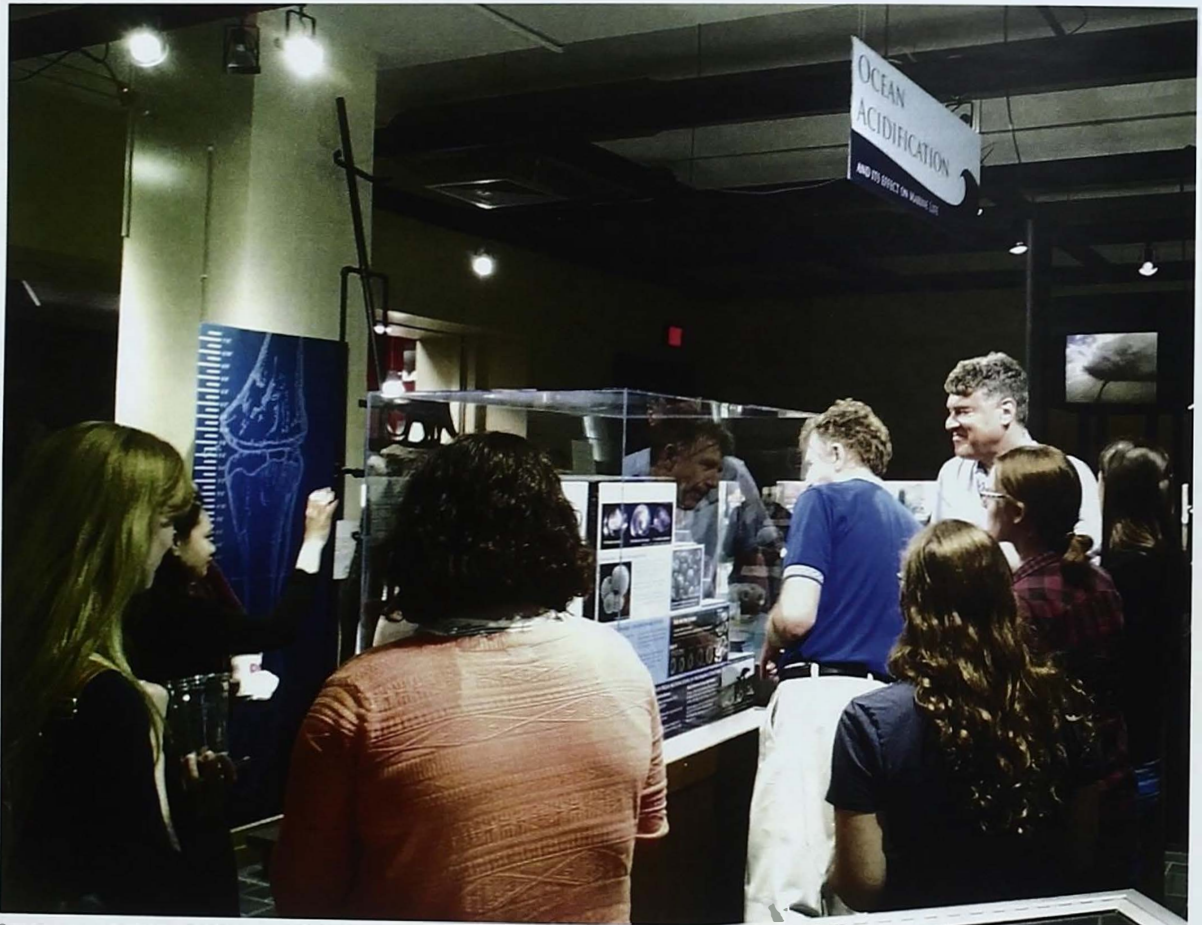
Augmented Reality Topographic Sand Box is a new and extremely popular interactive exhibit. The sandbox was designed and installed by the EMS Machine Shop under the guidance of Dr. Ken Mankoff of the Department of Geosciences. The primary purpose of the exhibit is to familiarize museum visitors with the concept of topographic (elevation) mapping which allows cartographers to depict a three-dimensional ground surface on a two-dimensional (flat) piece of paper to create a map. Cartographers use contour lines to illustrate elevations on a map.

The exhibit consists of a large "sand box" filled with Kinetic sand, a product made from sand and silicone that sticks only to itself, is easily built up into elevated shapes, and is easily knocked down again into loose sand. Kinetic sand is

Ocean Acidification and Its Effect on Marine Life

The ocean acidification exhibit is a product of the graduate student seminar "Communicating Science in Museums" taught by Julianne Snider, John Simmons, and Russ Graham during the Fall 2015 semester. All of the students in the class were from the Department of Geosciences; many of them were working with their supervisors on ocean acidification related projects. Halfway through the semester, several of the students proposed creating an exhibit as a class project. The topic they chose was ocean acidification. Working with the course instructors (i.e., museum staff), the students designed the project, composed a story line, identified objects and images to illustrate their story, and installed the exhibit in the museum at the end of the Spring 2016 semester. An interactive audiovisual component of the exhibit features students and faculty talking about their work on ocean acidification resulting from increased carbon dioxide in the atmosphere, class participants reflecting on the process for creating the exhibit, and footage of living marine creatures highlighted in the exhibit.

By actively participating in the creation of an exhibit meant to communicate complex scientific research to a general audience, the students gained an appreciation of the multifaceted process of museum exhibit development and the importance of knowing how to transform specific, technical information into accessible language and images.



Opening event for the exhibit Ocean Acidification and Its Effect on Marine Life in the EMS Museum science gallery, 02 May 2016

EXHIBITS OUTSIDE OF THE EMS MUSEUM

Fletcher L. Byrom Earth and Mineral Sciences Library, 105 Deike Building

Artwork from the Steidle Collection had been displayed throughout the Earth and Mineral Sciences Library for many years; however, when the library underwent renovations in 2013, the EMS Museum requested a long wall of the library be transformed into dedicated exhibit space. An art hanging system was installed and, in 2014, the library began hosting thematic exhibits developed by museum staff. The first two exhibits, *The Drama of Steel* and *Quarries, Kilns & Crushers*, featured paintings from the museum's Steidle Collection of American Industrial Art. The current exhibit, *Inuit Visions of the Arctic*, contains a collection of prints from the West Baffin Eskimo Cooperative in Cape Dorset, Canada. The EMS Museum cooperated with Penn State's Polar Center to bring the Inuit collection to the library as part of Polar Day 2016. Several EMS college faculty are actively engaged in the Polar Center, Arctic research, and the effects of climate change on the polar regions.

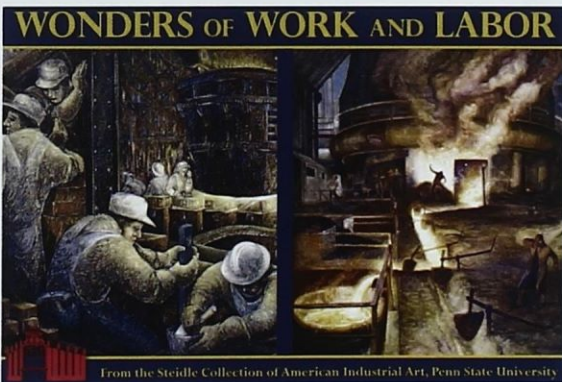
The EMS Museum has also installed a pair of mastodon (*Mammuth americanum*) tusks in the library. The tusks had been a feature of the museum in the Steidle Building. During the Steidle Building renovations, museum staff made arrangements with the EMS Library to relocate the tusks and install an information panel about their significance and structure. A tooth from the mastodon plus other objects (e.g., mineral, mining artifacts) are displayed in a small exhibit case nearby.



Old Main: Office of the President and Office of the Executive Vice President and Provost

When President Eric Barron took office in 2015, he asked if the EMS Museum was willing to install some art and mineral exhibits in his office as well as the office of the provost, Dr. Nick Jones. Julianne Snider worked with Drs. Barron and Jones in selecting art and mineral specimens. Museum staff inspected the offices to make sure the paintings and specimens would be displayed in the proper environmental and security conditions before installing the artwork and other objects. Normally, the museum does not exhibit objects and specimens in private offices but because of the large volume of people going through these two offices, we decided that it would give these objects, as well as the EMS Museum, more exposure.

Grohmann Museum, Milwaukee School of Engineering: *Wonders of Work and Labor: From the Steidle Collection of American Industrial Art*



The Grohmann Museum focuses on the depiction of industrial, technical, and agricultural work and its evolution in Europe. In addition to displaying works from their own collection, the Grohmann Museum hosts special exhibitions of artwork complimentary to their theme of work. In 2010–2011, the EMS Museum loaned the Grohmann 44 paintings from the Steidle Collection depicting workers engaged in various extractive industries in Pennsylvania. Julianne Snider, Russ Graham, and Betsy Fahlman (senior author of *Wonders of Work and Labor: The Steidle Collection of American Industrial Art*) were invited to participate in a Gallery Night Event, one of the opening events for the exhibition. The invited presentations covered the genre of industrial art in America, the formation and evolution of the Steidle Collection, and a biography of Dean Edward Steidle.

**James A. Michener Museum of Art:
*Iron and Coal, Petroleum and Steel: Industrial Art from the Steidle Collection***

The James A. Michener Museum of Art, an internationally recognized art museum in Doylestown, Pennsylvania, hosted an exhibition of 54 paintings from the EMS Museum's Steidle Collection of American Industrial Art. The exhibition, *Iron and Coal, Petroleum and Steel*, was on display from July 11 to November 1, 2015. In addition to the opening reception, the Steidle Family worked with the EMS Alumni Relations to host an additional reception, and Julianne Snider, Assistant Director of the EMS Museum, presented *Steidle's Vision: Art as Education* for the Michener Museum's Guest Lectures series.

As with the Grohmann Museum exhibition, the Michener Museum exhibition and related events heightened the visibility of the Steidle Collection and the large exhibit galleries in which the paintings were displayed proved to be excellent spaces in which to view EMS Museum paintings. Several of the paintings included in both exhibitions are too large to be shown in the Art & Mineral Gallery in the Deike Building.



Paintings from the EMS Museum's Steidle Collection on exhibit in the galleries of the James A. Michener Museum of Art, Doylestown, Pennsylvania

Photos courtesy of John E. Simmons

EMS MUSEUM COLLECTIONS ACTIVITY

Institute of Museum and Library Sciences (IMLS) Grants

Through the efforts of Julianne Snider, Assistant Director of the EMS Museum, the museum has received two grants from IMLS to help with the care, conservation, and organization of the collections. The first grant (2012) was for environmental improvements and conservation support for the Steidle art collection. The bulk of these funds allowed the museum to buy new art racks to facilitate rehousing the paintings in the collection. The racks were installed on a compactor rail system to reduce the amount of floor space needed to house the collection in the environmentally-controlled collection range. When not on exhibit, the art is hung on the racks where the paintings can be easily viewed thus reducing the need for handling (i.e., potential damage) when selecting art for exhibits. Also, the art is accessible for preventative conservation and can be easily monitored and assessed for condition problems that require conservation. Data and images for each piece in the art collection were entered into an electronic database (PastPerfect) designed for managing museum collections.

The second grant (2013) was for a multi-year collections management project for the geological (rock, mineral, and fossil) collections in the EMS museum. A large portion of this grant was allocated for curatorial assistance hired to unpack the collections that had been wrapped and stored in boxes since the museum moved out of the Steidle Building. Once unpacked, the specimens were cataloged and photographed. Data and metadata (geographic location, collector, date of collection, etc.) were entered into the museum's PastPerfect database. Currently, the geological collections are available for use in exhibits, educational programs, and research while additional collections data are being gleaned from handwritten ledgers, card catalogs, receipts, articles, and other written materials found during the unpacking phase of the project. These data will be matched with specimen records and added to the database as well.

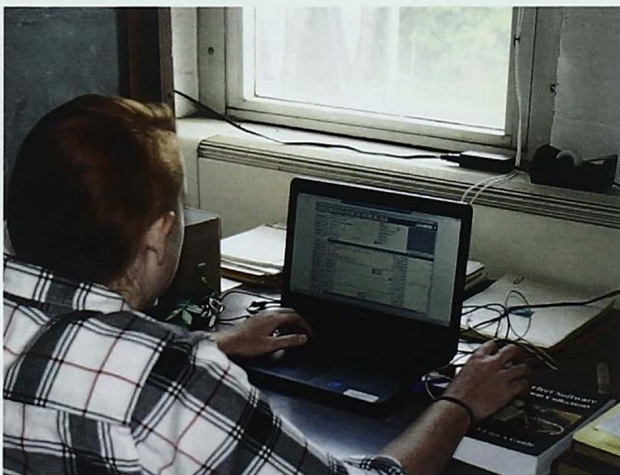
As more and more collections data is entered into the museum's database it has become easy to search the collections for any combination of attributes (e.g., calcite crystals from Centre County collected by Henry Darwin Rogers in 1842). Collections data will eventually be put on the Earth and Mineral Sciences Museum & Art Gallery's web page so that anyone can search the collections and see what objects (e.g., specimens, paintings) the EMS museum has. The database also includes the location of each object stored in the collections range and other storage areas so objects can be retrieved by museum staff with minimal effort.

Access to the collections and their data will allow for assessment of objects in the collections and evaluation of their relevance and value to the museum's mission, as well as each object's physical stability and condition. If collections objects have deteriorated to a point where they cannot be conserved and restored or objects in the collections are deemed outside of the educational and research mission of the museum these objects will be formally deaccessioned and removed from the collections storage areas. Following the American Alliance of Museums ethics, standards, and best practices for museum collections, deaccessioned objects will be offered to other educational



Julianne Snider processing outgoing loan data for paintings from the EMS Museum's Steidle Collection of American Industrial Art

Photo courtesy of John E. Simmons



Sarah Elder, IMLS grant funded curatorial assistant, using PastPerfect to record EMS Museum's geological collection data

institutions (e.g., museums, schools). A formal assessment of the geological collections by a mineral conservator will form the foundation for a grant that will allow for proper housing of the geological collections and special housing for mineral specimens that require special environmental conditions. The formal assessment will also document space requirements for properly housing the geological collections and provide guidelines for purchasing new storage furniture and implementing techniques for housing specimens. The collections assessments and the IMLS grants outcomes to date place us in an excellent position for acquiring future funding.

The Steidle Art Collection Maintenance Endowment

The Steidle family has generously endowed a fund for conservation of the Steidle art collection. This endowment allows the museum to contract with highly trained, professional art conservators to carry out assessments of the art collection and conservation treatments of objects (e.g., paintings, works on paper) in the collection to ensure their stability, longevity, and use in exhibitions and for education. Since a formal assessment of the collection's paintings was carried out in 2012, the museum has been able to send a steady stream of paintings to a painting conservator for conservation which includes repair of canvases, stretchers, and frames, replacement and restoration of lost paint, stabilization of paintings and their substrates, and cleaning paintings' surfaces to remove degraded varnish and accumulated dirt and grime. Several paintings in the Steidle Collection had hung on display for half a century in public entryways and hallways, private offices, and the art gallery in the Steidle Building. Over the decades, the paintings appeared to lose color and clarity as their surfaces became covered with airborne pollutants from cigarette smoke, coal fired heating systems, and dust and dirt brought into the building by thousands of college staff, students, and visitors. The formal assessment identified problems for each painting and was used to prioritize which paintings were unstable and at highest risk of loss and irreparable damage (Priority 1) through which pieces were relatively stable and could wait longer before undergoing conservation treatments (Priority 3). To date, 20% of the paintings in the collection have undergone or are undergoing conservation. The conserved paintings have been restored to their original vibrancy, color palette, detail.



Detail of painting by John Willard Raught in the EMS Museum's Steidle Collection before (left) and after (right) extensive conservation.

Florida Fossil Collection

In 2008 and 2009, Drs. Tim White and Russell Graham, both of EMS, taught a class with Dr. Lee Newsom (Anthropology) on the prehistory of Florida. This class focused on the geological origin and history of the Florida peninsula as well as the prehistory of the vegetation, vertebrate animals, and human cultures of Florida. The course was designed to attract students without science backgrounds and to spark interest in science. Consequently, several participating students went on to major in scientific fields and others became involved in the Penn State Science Divers program and became certified scuba divers.



Fossil teeth collected from Santa Fe River, Florida by Penn State students. Left to right: Mammoth tooth plate, horse tooth, ray teeth (2), Paleolama tooth, sloth tooth, deer tooth, shark teeth (2), tapir tooth, sea cow teeth (2), alligator teeth (2)

The class culminated in a one-week field trip to the Ginnie Springs area of northern Florida. Student and faculty divers collected vertebrate fossils from the bottom of the Santa Fe River. Using these fossils, students learned how to make, document, and catalog a scientific collection and sort it into meaningful categories. Subsequently, the collected fossils have been incorporated into the museum's collections and have been used in exhibits, for teaching, and in other museum programs.

Although the specimens have fairly limited scientific value, they are useful for destructive sampling projects that

have resulted in some students' senior theses. This collection was also used in Kim Foecke's 2016 master's thesis work analyzing the nature of surface deposits on bones and their potential impact on long term preservation of the bone. While another research project conducted by students and faculty has resulted in a publishable scientific paper. This research project grew out of observations made during diving and collecting the fossils from the river in Florida. Divers noticed that fossils were accumulating in a depression on the river bottom and seemed to be sorted by size. The resulting research project was designed to collect the fossils along a transect parallel to the river's current to test the hypothesis of hydrodynamic sorting. This research also resulted in the discovery that the smallest size fraction was the best one for determining overall diversity of animals in the system.

Mineral Collection Donations

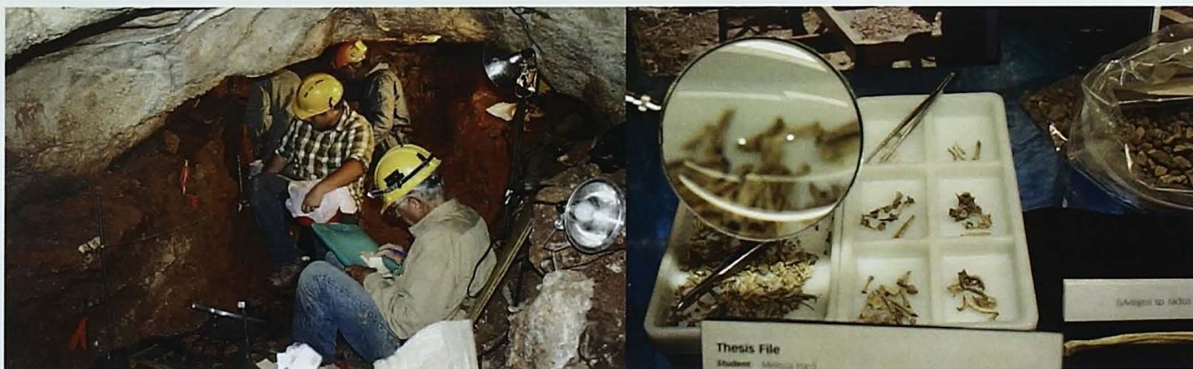
Two unique mineral collections have been donated to the EMS Museum during the past few years. The first collection, the George Thomas Mahler, Jr. collection, was assembled by Mr. Mahler and donated to the museum in 2011. Mr. Mahler (1935–2000), a 1960 graduate of EMS Mining Engineering, had worked for the zinc recycling company Horsehead Resource Development Company in Palmerton, Pennsylvania. His collection focused on mineral specimens that contained zinc or were related to the zinc industry. The collection was donated by his family and is now on exhibit in a case in the stairway of the Hosler Building—the building which houses the John and Willie Leone Family Department of Energy and Mineral Engineering.

In 2014, the museum received the K. Robert Conrad mineral collection. The collection contains many specimens exhibiting large crystals of calcite, galena, pyrite, quartz, fluorite, and other minerals. Although the minerals are relatively common, the large size of the crystals make the specimens unique and excellent for exhibitions. Mr. Conrad thoroughly documented all the specimens in his collection with regards to where, when, and who collected them. Most of the specimens donated to the EMS Museum were collected in Colorado by Mr. Conrad, a resident of Jonestown, Pennsylvania.

South Dakota Cave Collections

Russell Graham has been working on a research project in the Black Hills of South Dakota for the last 15 years. The purpose of this project was to collect small animal fossils that had accumulated in two caves for at least the last 20,000 years. This time period incorporated several major climate shifts in North America. Since the Black Hills are an isolated uplift related to the formation of the Rocky Mountains, they serve as a forest island in a sea of grassland. This situation allows for testing several different biogeographic models for how animals and plants responded to past climate changes. These data will also facilitate a better understanding of future changes in climate and biotic communities.

Collections of fossils excavated during this research project are housed in the EMS Museum CERC and have been used for a variety of purposes. More than 10 students have completed their senior theses and one graduate student completed her master's thesis working with these collections. Eight students traveled to South Dakota and gained field experience as summer interns at the excavation. The fossils have been used in numerous museum and college outreach programs including: the Department of Geosciences annual *Shake, Rattle and Rock* program at Penn State for all State College fifth grade students; Geosciences and College of Education class projects; three different EMS Museum exhibits, two of which were created by students around their senior theses; professional development workshops for K–12 teachers; and in Juniata College Museum Education classes.



Excavations by volunteers in the Red Cone of Parker's Pit Cave, South Dakota (left) Bones and teeth from Don's Gooseberry Pit Cave, South Dakota on exhibit in Melissa Pardi's senior thesis exhibit in the EMS Museum's science gallery (right)

EMS MUSEUM PROGRAM & EVENT PARTICIPATION

Department of Geosciences Shake, Rattle and Rock

Shake, Rattle and Rock (SRR) is an outreach event sponsored by the EMS Department of Geosciences. All State College fifth grade classes are invited to participate in this event which is typically held during the second week of January. Like the Nittany Mineralogical Society Junior Education Day, SRR is comprised of a several stations that students visit to learn about different aspects of the earth sciences. Each year, the EMS Museum's station features Bone Picking—an activity which incorporates actual research materials from the museum's South Dakota Cave project.



Russ Graham talking with State College 5th grade students at the bone picking activity during the Department of Geoscience's Shake, Rattle and Rock outreach program

Student participants in Bone Picking work with screen-washed concentrate from the cave excavations. The concentrate contains small rocks, gravel, and the fossil bones of small animals such as rodents, shrews, and bats. Paleontological researchers use these fossils to identify the species of animals that were trapped in the cave thousands of years ago. By knowing what animals were in the cave during a given time frame, paleontologists can reconstruct prehistoric environments—in this case to as far back as 20,000 years ago. The students become participants in this research by learning how to differentiate the fossil bones from the rock and gravel and by separating (picking) the fossils from the other material in the concentrate so that fossil bone can be identified.

With help from museum staff, the fifth graders use illustrations to identify the different skeletal elements—leg bones, jaws, teeth, ribs, etc. Species of animals are identified by museum staff looking at the teeth and jaws picked out by the students. The species identified are listed on the blackboard and Graham uses this information to code the environmental adaptation (e.g., forest, grassland) of each species found in the concentrate. The students are then able to make environmental interpretations based upon the species found in their samples of cave concentrate. Museum staff discuss the implications of this type of research for future climate change and the possibilities of extinction.

Involving students with actual scientific data has been shown to enhance students' awareness of scientific research. Most of the kids really enjoy the activity of picking and are excited by the discovery of finding and identifying the tiny fossils hidden among the rocks

Teacher Professional Development

Teacher workshops help K-12 teachers to refresh their skills, add to their knowledge and understanding of science practices, and enhance their teaching of science. The EMS Museum collaborates with the Center for Science and the Schools (CSATS) in the College of Education and hosts the teacher professional development events. CSATS staff recruit the teachers and work with museum staff to determine the nature and general content of the workshop. The museum staff then develops a series of mini-lectures, demonstrations, and inquiry-based activities and provides objects and specimens used in the workshops that it hosts.

These workshops provide participating teachers with a more in-depth knowledge of specific areas of science and continuing education credits. The museum has developed and conducted a workshop about dinosaurs to introduce teachers to paleontology and the history of life on earth, was involved in a NASA-funded project on extinction, and created



Graduate student, Lauren Miledeo (foreground), Julianne Snider, and Russ Graham working with teachers during a professional development workshop

a workshop focused on the rock cycle illustrating the formation and recycling of different rock types on earth. Museum and CSATS staff discuss ways teachers can apply the content and activities of each workshop in their classrooms.

Nittany Mineralogical Society Junior Education Day

The EMS Museum traditionally participates in the annual Nittany Mineralogical Society program that is designed as earth science outreach for children. The event includes a number of activity and exhibition stations hosted by Nittany Mineralogical Society members, Penn State students and faculty, as well as EMS Museum staff and volunteers. The museum's program varies from year to year but generally focuses on vertebrate fossils and their evolution. Showcasing specimens from the museum collections, museum staff and volunteers talk with Junior Education Day participants about all aspects of vertebrate evolution. Frequently, adults accompanying the children are as fascinated by the museum's presentations as the children are. Each year, 200–300 children sign up for Junior Education Day.

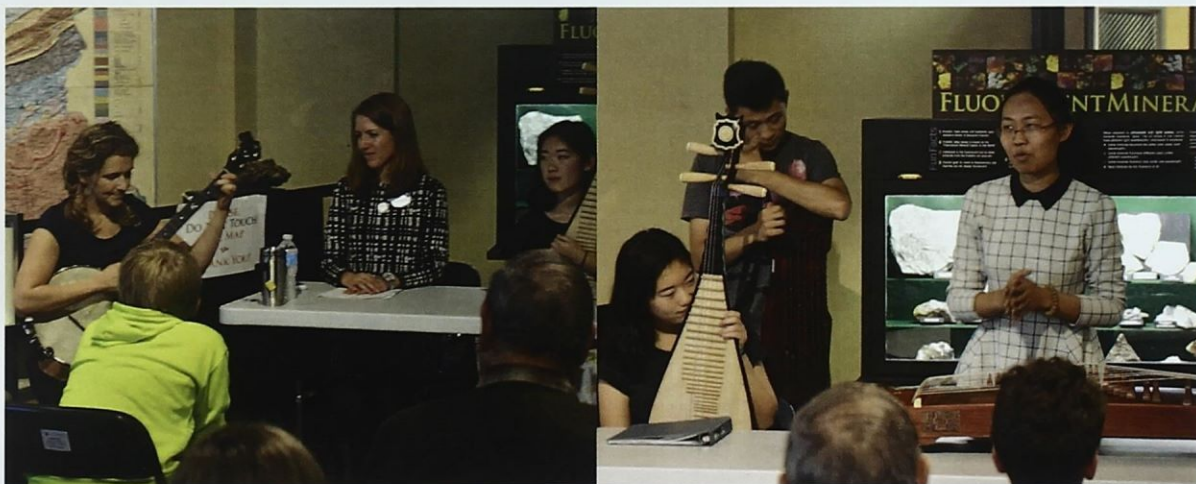


Photo courtesy of David Glick

Russ Graham and Julianne Snider discuss fossils with participants at the 2014 Nittany Mineralogical Society's Junior Education Day at the Central Pennsylvania Institute of Science & Technology.

Bilingual Bluegrass: A Collaboration Between Abigail Washburn and the Penn State Asian Music Club

Singer-banjoist Abigail Washburn plays professionally with her husband, acclaimed American banjo player Béla Fleck. While at Penn State to give a performance at Eisenhower Auditorium in October 2015, Washburn collaborated with Penn State students from the Asian Music Club, the EMS Museum, and the Ryan Family Student Center in a free event held in the museum's Science Gallery. Washburn sang, played the banjo, and discussed her cross-cultural experiences working in China. The students played traditional Asian stringed instruments and talked about Asian music traditions and modern interpretations. Washburn and the students, unrehearsed, played a few tunes together in an impromptu jam session at the end of their more formal presentations. The informal, intimate space of the museum gallery allowed the enthusiastic audience to ask questions of all the performers during the event, to see the instruments close up and talk with Washburn and the student musicians after the performance.



Left to right: Abigail Washburn (with banjo), Melissa Croushorn (Center for Performing Arts Student Engagement Manager), and members of the Asian Music Club perform and talk with the audience during Bilingual Bluegrass in the EMS Museum's science gallery.

EMS MUSEUM IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

Another aspect of the museum is as a resource for identification of objects and specimens, and information about natural history. People are naturally curious, and they are always finding objects that interest them, but they often do not know what the found objects are. To find out, these objects are frequently sent to the museum, brought into the museum, or photographs of the objects are emailed to the museum or museum staff for identification. Most of these objects museum staff identify are natural materials such as minerals, rocks, fossils, and prehistoric stone artifacts.

Frequently, the dark colored, heavy, and somewhat magnetic objects brought to the museum are thought to be meteorites by the finder—most have been pieces of slag. Other objects are thought to be fossils but many times they are some other natural manifestation of rock formation (cavities, bedding structures, soft sediment deformation). These instances provide museum staff with opportunities to informally teach museum visitors about the sciences of EMS and the history of the area. Generally, despite the fact that most of the objects brought in for identification may not be a one-of-a-kind or once-in-a-lifetime discovery, the finders are happy to know what their object is and are able to make personal connections to their object based on the information museum staff have provided.



Polished piece of fossil coral known as Petoskey stone from Michigan

EMS MUSEUM STAFF PROFESSIONAL ACTIVITIES

Russell Graham, Julianne Snider, and John Simmons—the museum's core staff—participate in a wide variety of activities directly related to their respective professions. Through presenting papers and posters at a variety of professional meetings, museum staff share the results of their museum related research and projects with their peers from other institutions. By attending meetings and other professional development events, museum staff are connected to the latest discoveries in their fields—discoveries which can be used in improving EMS Museum conditions, developing new exhibits and programs, and providing content on the most recent discoveries.

Graham, Snider, and Simmons also publish professional papers on a wide array of topics as well as write articles targeted to the general public. Simmons has been particularly busy over the last few years publishing books, book chapters, and articles on a host of museum issues.

All three museum staff members teach university level courses on topics related to museum practices and research. Graham has been involved with a class on vertebrate evolution that is taught for upper level undergraduate students as well as graduate students. He has also taught a class for pre-service science teachers in the College of Education on climate change and biotic response. Simmons and Snider have co-taught a museum education class at Juniata College in Huntington, Pennsylvania for seven years. Snider and Simmons have taught museum studies related courses at the National University of Colombia in Bogota, Colombia. Simmons teaches several on-line classes in museum studies for Kent State



Left to right: John Simmons teaching in Bogota, Colombia; Russ Graham leading a SVP field trip in Pennsylvania; Julianne Snider speaking at the Michener Museum.

Photo courtesy of John E. Simmons

University and other museum professional development entities. In Fall 2015, Graham, Snider, and Simmons launched and co-taught a graduate seminar on Communicating Science in Museums for students in the EMS Department of Geosciences.

During the last six years, Graham and Snider have written several grant proposals that have been funded. Graham has worked on National Science Foundation grants that primarily support scientific research and fund outreach through the museum or its web page. Snider has been extremely successful in getting grants for collections stewardship and upgrading collections care through the Institute of Museum and Library Services.

By actively participating in these activities (e.g., professional meetings, continuing education, grant writing, teaching) the professional image of the EMS Museum and museum staff are enhanced. All three staff members are nationally and internationally recognized for their work in museums and research. This recognition brings greater attention to the Earth and Mineral Sciences Museum & Art Gallery as one of the best small museums in Pennsylvania.

EMS MUSEUM SPACE UTILIZATION

Probably the least recognized function of the museum, although one of high visibility, is utilization of the museum space by the EMS college and others. The museum galleries in the Deike Building provide excellent venues for small receptions and gatherings of all kinds. The galleries are booked for events by groups from across the university (e.g., Penn State student groups, professional organizations). Additionally, the museum space is used for academic purposes such as classes from Art and Architecture, Education, and Eberly Science visiting the museum for various educational experiences and specific activities related to museum exhibit content. Museum space is used by EMS academic departments for undergraduate and graduate poster displays. The EMS Library uses the Art & Mineral Gallery to present their film series each semester. The Art & Mineral Gallery is also outfitted with chairs and tables which are frequently used for small, informal meetings and as study spaces, especially during exam times at the end of each semester.



The EMS Museum galleries are favorite sites for receptions, poster presentations, lectures, and awards ceremonies. Student groups, faculty, and staff from across the university may reserve the EMS Museum galleries for many different types of university-related events.

 EMS MUSEUM REPORT: IMAGES FROM THE FRONT COVER...



Left to right: Julianne Snider installing exhibit in the art and mineral gallery of paintings and prints from the Steidle Collection, Russ Graham conducting a teacher professional development workshop, John Simmons preparing a specimen for Life in the Dark: Extremophiles, and Russ Graham and Alex Bryk working with specimens for the museum's comparative osteological collection.



Left to right: Laurie Eccles, Russ Graham, and Julianne Snider unpacking a new exhibit case, John Simmons presenting at the 2016 AAM annual meeting, Lauren Milideo talking with museum visitors in the science gallery, and Julianne Snider preparing a mastodon tusk to be moved from the Steidle Building to the EMS Library in the Deike Building.

NEW EXHIBITS

Beyond the Edge of the Sea: Watercolors for the Deep Sea Wilderness
 Blue & White: Minerals from the EMS Museum Collection
 Coal: A Burning Legacy
 History in Photographs: The Earth and Mineral Sciences Museum & Art Gallery, 1901–2011
 Life in the Dark: Extremophiles—Creatures Living in Extreme Environments
 Pre-History of Fossils: 300 BCE to Present
 Grohmann Museum, Milwaukee School of Engineering, Milwaukee, Wisconsin: Wonders of Work and Labor: From the Steidle Collection of American Industrial Art, Penn State University September 8, 2010–January 2, 2011
 Nittany Mineralogical Society, science gallery: Petrified Wood

COLLECTIONS ACTIVITY

Loans made:

Grohman Museum. Forty two (42) Steidle Collection paintings, for exhibition
 Westmoreland Museum. Five (5) Steidle Collection paintings, for exhibition.
 Graham, R. W. Osteology and fossil specimens, for vertebrate paleontology class
 Travis Deptola. Osteology and fossil specimens, for paleobiology class
 Barry Voight. Magnetite specimen, for education
 Laura Quinn. Turkey Hill Experience Center, image from the Steidle Collection, for video

*Conservation:**

Henry Varnum Poor, *Miners in a Lift*, 1947, oil on Masonite, 58" x 40"
 George S. Zoretich, *The Role of Refractories in Steel*, 1954, oil on canvas, 83" x 98"
 Edmund Marion Ashe, *The Cast*, 1939, oil on canvas, 83" x 72"

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/10	Bald Eagle School District	24
6/16	Discovery Space board	3
6/18	Matson Museum tour of CERC	2
7/02	Palmer Museum of Art interns	10
7/30	Tyrone Elementary	28
8/03	Office of Physical Plant	4
8/17	EMS Freshman Orientation event	
10/18	John Eckbland and Palmer Art Museum	5
11/22	MATSE Open House	300
11/22	Phillipsburg-Osceola School	68
12/13	Penn State Library Special Collections	8

2/26	EMEX	210
4/2	Nittany Mineralogical Society Junior Ed Day	9
4/7	Home School Group	12
4/12	New Castle High School	25
4/18	Dean for Educational Equity Group	21
4/20	Assistants to the Academic Deans	11
4/20	Boy Scout Troop	15
4/25	Bethany Heim Class	12
5/20	Pine Grove Mills 4 th and 5 th grades	42
5/20	Keystone Central School District, Lock Haven and Renovo, 4 th grade	38
5/24	Howard and Port Matilda, 3 rd grade	68

VISITS TO SCHOOLS

date	school	number of participants
3/24	Park Forest 5 th grade bone picking/paleoecology	40
4/4	Easterly Parkway Elementary 4 th grade, PA Geology	12
4/5	Easterly Parkway Elementary 3 rd grade, PA Geology	12
4/7	Park Forest Elementary 4 th grade PA Geology	12
4/12	Park Forest Elementary 5 th grade PA Geology	12

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
11/7	WPSU Cat in the Hat Eventapalooza	450
1/14	WPSU Dino Day	400
4/2	Nittany Mineralogical Society Junior Ed Day	250
2/26	Earth and Mineral Sciences Exposition (EMEX) EMS Museum and Paleontology information table	400

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
6/3	Jim Grim	Glass slag
7/5	Kenneth Cox (Fleetwood PA)	Artifact Banner stone
12/1	Helen Vo, Penn State Abington	KT Extinction
12/1	Chris Palma, Penn State Astronomy	Meteorite identification
12/7	Patricia McGinnis (Eagleville, PA)	Rocks & Minerals for class
1/5	Thomas D. Stewart (Slippery Rock)	R.O. Stewart and paintings
1/11	Milner (Penn State Anthropology)	Overkill
2/9	Dave Stable	Slag and Hematite
2/24	Mike Hodge (Tamaqua, PA)	Slag
4/7	Troy Neff (McClure PA)	Concretion presumed dino egg
4/12	Dennis Solomon	Rock identifications
4/21	Jerod Shreckengast	Nautiloid in concretion
4/25	Michael A. Guiswite (Jersey Shore)	Additive for Fe production presumed meteorite

* Care and conservation of museum collections includes everything done to avoid and ameliorate the deterioration of museum collection objects and their associated information. These measures support the museum's efforts to practice good collections stewardship while exhibiting and interpreting its collections to preserve them for future generations. Preventive conservation measures are carried out by the museum staff, but restorative conservation of works in the Steidle Collection of American Industrial Art is done by professional art conservators and is supported by the Steidle Family Art Collection Maintenance Endowment.

PEER-REVIEWED PUBLICATIONS

- Scott, E., T. W. Stafford, Jr., R. W. Graham, and L. Martin. (2011). Modern AMS ^{14}C date the type specimen of *Equus laurentis*: Implications for taxonomy. *Journal of Vertebrate Paleontology* 30: 6, 1840–1847. DOI: 10.1080/02724634.2010.520780
- Semken, H. A., Jr., R. W. Graham, and T. W. Stafford, Jr. (2010). AMS ^{14}C analysis of late Pleistocene non-analog faunal components from 21 cave deposits in southeastern North America. *Quaternary International*. 217:240–255.
- Simmons, J. E. (2010). Collections management policies. IN Buck, R. A. and J. A. Gilmore (eds.). *Museum Registration Methods, Fifth Edition*. American Association of Museums, Washington, DC, xi + 516 pages.
- Simmons, J. E. (2010). Collections Management. Chapter 15, IN *Health and Safety for Museum Professionals*. Society for the Preservation of Natural History Collections.
- Simmons, J. E. (2011). Fluid specimen conservation course. *Society for the Preservation of Natural History Collections Newsletter* 25(1):15–17.
- Simmons, J. E., and J. Snider. (2010). *Ciencia y arte en la ilustración científica*. Cuadernos de Museología, Sistema de Patrimonio Cultural y Museos, Universidad Nacional de Colombia, Sede Bogotá.

OTHER PUBLICATIONS

- Graham, R. W. (2010). *Classic Quaternary Cave Sites in Maryland and Pennsylvania*. Field Trip Guidebook, October 9, 2010, Society of Vertebrate Paleontology, 70th Anniversary Meeting, Pittsburgh, PA
- Graham, R. W. (2011). The Giant Bison. *Quest*, January 2011:15.
- Graham, R. W. and J. Snider. (2010). *Annual Reports of the EMS Museum for the Academic Years 2008–2009 and 2009–2010*. EMS Museum & Art Gallery, University Park Campus, PA.
- Simmons, J. E. (2010). Taphonomy, biogeography & paleoecology of Quaternary cave faunas in the Black Hills. *Dakota Amphibian and Reptile Network Newsletter* 3(2): 7–8

PRESENTATIONS

- Graham, R. W., C. Anderson, J. Snider and T. Ryan. (2010). *Applications of the GeoWall in Vertebrate Paleontology*. Program and Abstracts, Society of Vertebrate Paleontology, 70th Annual meeting, Pittsburgh, PA.
- Graham, R. W. and A. D. Barnosky. (2010). *Classic Quaternary Cave Sites in Maryland and Pennsylvania*. Society of Vertebrate Paleontology, 70th Anniversary Meeting, Pittsburgh, PA.
- Simmons, J. E. (2010). Keynote lecture, *Sapos, Shamans, and Sustos*. Microcosm Conference, Tree Walkers International, Lynnwood, Washington.
- Snider, J. (2010). Invited presentation, *The Steidle Collection: Present/Future of the Past*. Gallery Night Event, Grohmann Museum, Milwaukee School of Engineering, Milwaukee, Wisconsin.

- Graham, R. W. (presented by J. Snider) (2010). Invited presentation, *Edward Steidle: Mining Engineer, Intellectual, Visionary & Art Collector*. Gallery Night Event, Grohmann Museum, Milwaukee School of Engineering, Milwaukee, Wisconsin.

TEACHING & INSTRUCTION

- Graham, R. W. and J. Snider. (2011). Teacher professional development workshop, *Earth's History: Uncovering Clues of the Past*. Center for Science and the Schools, Saturday Science, Penn State
- Graham, R. W. (Fall 2010). Vertebrate Paleontology (GEOSCI 422), Penn State
- Simmons, J. E. (2010). workshop: Care, Management, and Conservation of Natural History Collections. Museu Paraense Emilio Goeldi, Belém, Brazil.
- Simmons, J. E. (2011). ¿Cómo operar un museo de manera exitosa? Centro Científica y Cultural Caracol, Ensenada, Baja California, México. (US Embassy sponsored workshop)
- Simmons, J. E. (2011). webinar, *Writing Collections Management Policies*. American Association of Museums.
- Snider, J. and J. E. Simmons. (Spring 2011). *Museum Education* (AR 392), Juniata College.

PROFESSIONAL DEVELOPEMENT

- Simmons, J. E. (2010). Fluid Specimen Conservation Course. Horniman Museum: London. October 29–November 7.
- Simmons, J. E., and J. Snider. (2011). *Modern/Contemporary Art and the Curiosity Cabinet*. Seton Hall Museum Professions Graduate Program Symposium: South Orange, New Jersey.
- Snider, J. (2010). Technology, Interpretation, and Education. American Alliance of Museums/National Association for Museum Exhibitions. Web conference.
- Snider, J. (2010). *East Asian Art: Historical Context & Modern Preservation of Paper-based Works*. Conservation Center for Art and Historic Artifacts: Philadelphia, Pennsylvania.
- Snider, J. and J. E. Simmons. (2011). Small Museum Association annual meeting, Ocean City, Maryland.
- Snider, J. (2010–2011). American Alliance for Museums webinar series: Museum standards and best practices primer, July 7; 21st century museum and school partnerships: What museums need to know, July 21; Step-by-step collections acquisition, September 22; No Child Left Behind Elementary Education Act, October 15; Understanding the dimensions of your board, October 20; and The basics of developing a collections management policy, March 23.

AWARDS RECEIVED

- Simmons, J. E., *Carolyn L. Rose Award for Outstanding Commitment to Natural History Collections Care and Management*. Society for the Preservation of Natural History Collections.

PRESS & LISTINGS

Denver Post (2010). Graham, R. W., Snowmass site. November
Smithsonian Magazine (2011). Snowmass. Interview with
 Russell Graham

HOST

Society of Vertebrate Paleontology Field Trip: Classic
 Quaternary Cave Sites in Maryland and Pennsylvania,
 October 9, 2010.

FUNDING

National Science Foundation: Geoinformatics
 Howard "Chip" Steidle
 Hu and Mary Barnes
 Sean Miller

MATERIAL DONATIONS

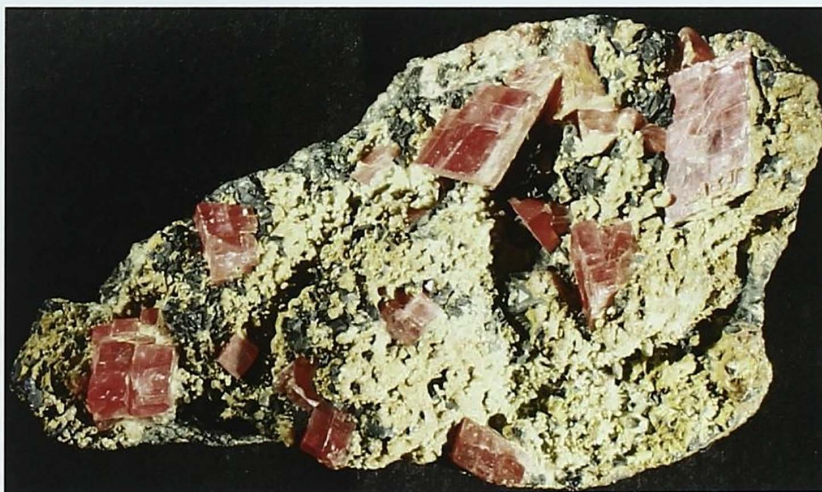
Blake Ketchum Sculpture (bust) Neanderthal woman.
 Suzanne Mahler George Mahler Mineral Collection

EMPLOYEES

Laurie Eccles
 Brittany Grimm

VOLUNTEERS

Jane Allard	Klaus Keller
Hu Barnes	Cassi Knight
Don Brandenburg	Jonathan Mathews
Niki Brandenburg	Angela Mathias
Sue Brown	Don McCuan
James Cornette	Lauren Miledeo
Steve Cota	Kathy Miles
Carol Cota	David Moscato
Travis Deptola	John Nese
Richard Duschi	Lee Ann Nolan
Medora Ebersole	Matt O' Donnell
Sara Elliot	Melissa Pardi
Maureen Feineman	John Passaneau
Eric Grimm	Ron Redwing
Nell Herrmann	John Simmons
Ken Hickman	Howard "Chip" Steidle, Jr.
Brenda Johnson	Burkley Tweist
Steve Johnson	



Rhodochrosite from the collections of the Earth and Mineral Sciences Museum & Art Gallery

NEW EXHIBITS

- Coal—Art & Artifacts: Specimens and artwork from the EMS Museum collections
- Rare Earth Element Uptake in Weathered Bones: Geosciences Undergraduate Senior Thesis, Brittany Grimm
- Fluorescent Minerals: Specimens from the EMS Museum collection
- Meteorites vs. Meteor-wrongs: Specimens from the EMS Museum collection
- Did You Feel That? 2011 Virginia earthquake
- Our Fragile Oceans: As Seen Through Jeremy Cohen's Camera
- Sustainability of Aquatic Environments: Penn State Research
- Indigenous Peoples & Global Change: "This Place is Sinking"
- The Corals of Curaçao: CAUSE Students' Research
- Is the Global Climate Warming?—Magic School Bus Live! The Climate Challenge in collaboration with Center for the Performing Arts
- Hosler Building*: The Mahler Collection, Zinc and Zinc Ore
- EMS Library, Deike Building*, Open House: Minerals from the EMS Museum Collection

COLLECTIONS ACTIVITY

Loans made:

- Center Furnace Mansion, paleontological specimens and casts, for exhibition and outreach, 9/30
- Clay Magill, mineral specimens, for outreach, 10/18
- Clay Magill, mineral specimens, for outreach, 10/25
- Clay Magill, mineral specimens, for outreach, 11/15
- EMS Library, mineral specimens, for exhibition, 4/26

Conservation:

- Malcolm Stevens Parcell, Edward Steidle Dean of the College of Mineral Industries 1928–1953, 1953, oil on canvas, 50" × 41"

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/3	Huntindon 4 th grade	46
6/2	Standing Stone Elementary School	65
6/3	Osceola Mills 5 th grade Classes	52
8/3	Home school Group	18
8/3	Palmer Museum of Art interns	8
8/5	Penn State Day Care	28
11/9	Friends School	18
2/3	Pennsylvania History (HIST 012)	48
2/15	Eberly College	67
2/15	Integrated Arts (INART 497c)	12
2/24	Home school group	22
4/12	Belleville Mennonite School	19
4/26	Eberly College	72
4/26	EMS Library	20
4/26	EMS Library	6
5/23	Bellefonte Schools 6 th grade	100
5/30	Bald Eagle School 3 rd grade	35

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
6/18	WPSU Dinosaur Train Day, DelGrosso Amusement Park	150
7/14	Ice Age Paleontology of the Black Hills, North Stockade Lake Campground, Custer, South Dakota	55
8/20	Cave Paleontology, New Paris Group, New Paris, Pennsylvania	13
10/14	George Mahler Mineral Collection, Display Case Dedication	8
4/22	Aquatic Ecosystem Sustainability Exhibition, Galley Talk	35
4/22	Aquatic Ecosystem Sustainability, Symposium	50

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
6/10	Bob Thompson	Slag (meteorite)
7/5	Francis Jay	Glass slag
8/4	Nicolas Gaultier	Ammonite DNA
8/12	Charlie Miller Juniata College	Advice on exhibit labels
8/22	Curt Lougy, Utah	Bootherium skull & teeth
9/30	Corie McCall, State College	Stigmara fossil
10/8	Paulina Vaca, National Geographic	Giant bison
10/10	Paulina Vaca, National Geographic	Giant bison
11/30	Catherine Badger	Fossil identification
1/17	Don Ritter (NE PA)	Chert nodules
2/1	Bill Melius	Limestone with fossils
2/6	Bill Ventura (Neenah, WI)	Shrunken heads
2/8	Michelle (Bellefonte)	Iron concretion
2/13	Daniel Jageman (Penn State Erie)	Shark tooth
2/14	Karen Meinstein (Denver)	Vertebrate fossils from TX
2/20	Scott Jones (Hoboken, NJ)	Rocks for fish tank
3/12	Tom Robosky	Septarian Concretions ("Dinosaur Eggs")
3/20	Tom Johnson (State College)	Slag (meteorite)
4/26	Tom Heard (PA)	Concretions from AZ

PEER-REVIEWED PUBLICATIONS

- Blois, J. L., J. W. Williams, E. C. Grimm and R. W. Graham. (2011). A methodological framework for assessing and reducing temporal uncertainty in paleovegetation mapping from late-Quaternary pollen records. *Quaternary Science Reviews* 30: 1926–1939.
- Barnosky A. D., M. A. Carrasco, R. W. Graham. (2011). Calibrating USA mammal diversity loss in the sixth extinction. IN A. Smith and A. McGowan, (Eds.), *Comparing the Geological and Fossil Records: Implications for Biodiversity Studies*, Journal of the Geological Society.
- Feranec, R. S., N. G. Miller, J. C. Lothrop and R. W. Graham. (2011). The *Sporomeilla* proxy and end-Pleistocene megafaunal extinction: a perspective. *Quaternary International* 245: 333–338.
- Simmons, J. E., and J. Snider. (2012). Observation and distillation—preservation, depiction, and the perception of nature. *Bibliotheca Herpetologica*, 9(1–2): 115–134.

PRESENTATIONS

- Graham, R. W. (2011). Invited presentation, Snowmass Ice Age Animals. Denver Museum of Nature & Science, Denver, Colorado.
- Graham, R. W. (2011). Invited presentation, Mammal response to global warming. Penn State, Dept. of Agriculture.
- Graham, R. W. (2011). Invited presentation, Snowmastodon site presentation. Geological Society of America, Denver, Colorado.
- Graham, R. W. (2011). Chronology of NA Pleistocene Extinction. Holarctic Workshop
- Graham, R. W. (2011). Snowmastodon Symposium. Society of Vertebrate Paleontology Annual Meeting, Las Vegas, Nevada.
- Graham, R. W. (2011). Radiocarbon Dating of Bone. Society of Vertebrate Paleontology Annual Meeting, Las Vegas, Nevada.
- Graham, R. W. (2011). Environmental Gradients & Taphonomy. Society of Vertebrate Paleontology Annual Meeting, Las Vegas, Nevada.
- Graham, R. W. (2011). Rare Earth Elements & Bone. Society of Vertebrate Paleontology Annual Meeting, Las Vegas, Nevada.
- Simmons, J. E., (2012). Looking Back at Moving Forward? Historical View of How New Technologies and Discoveries Changed Collections. World Congress of Herpetology, Vancouver, Canada.
- Simmons, J. E., (2012). Application of Preventive Conservation to Solve the Coming Crisis in Collection Management. Society for the Preservation of Natural History Collections, Yale University, New Haven, Connecticut.
- Snider, J. (2011). Invited panelist, Taking Your Museum to the Next level with the Museum Assessment Program and the Conservation Assessment Program, Mid-Atlantic Association of Museum Annual Meeting, Baltimore, Maryland.

TEACHING & INSTRUCTION

- Graham, R. W. (2011). Archeobiology/Paleobiology Workshop, Holguin, Cuba
- Graham, R. W. (Fall 2011). Vertebrate Paleontology (GEOSCI 422), Penn State
- Graham, R. W. (Spring 2012). Biotic Response to Climate Change & (SCIED/EARTH 297D), Penn State
- Simmons, J. E., (2012). Principios de la Administración de Colecciones y Sistemas de Información, Universidad Nacional, Bogotá, Colombia
- Simmons, J. E., (2012). Estándares de Excelencia para el Desempeño Museístico, EEDM, Mexico City
- Simmons, J. E., R. Buck, and J. Gilmore. (2012). Essential Policies and Procedures, Newark Museum, Newark, Conservation Center for Art & Historic Artifacts.
- Snider, J. (2012). Guest lecture, Integrated Arts (INART 497c), Penn State

- Snider, J. and J. E. Simmons. (2011). Guest lecture, Museum Studies (AR 390), Juniata College
- Snider, J. and J. E. Simmons. (Spring 2012) Museum Education (AR 392), Juniata College

PROFESSIONAL DEVELOPMENT

- Snider, J. (2011). Center for the Conservation of Art and Historic Artifacts, Disaster Preparedness and Planning Workshop, Part 1, October 18; Part 2, December 15
- Snider, J. (Fall 2011). Science Teachers' Knowledge and Practices (SCIED 597a), Penn State
- Snider, J. (2012). Center for the Conservation of Art and Historic Artifacts, Essential Policies and Procedures.
- Snider, J. (Spring 2012). Teaching and Learning about Spatial Reasoning (SCIED 597c), Penn State
- Snider, J. and J. E. Simmons. (2011). Learning Worlds Institute: The Art of Science Learning conference, Chicago, Illinois

PRESS & LISTINGS

- Centre Daily Times*. (2011). State College. Museums offer history, discover. April 1.
- Channel 6 TV, State College (2012). Earthquake. August 23

FUNDING

- Institution for Museum and Library Services: Conservation Project Support: Environmental Improvement for Collections
- National Science Foundation Collaborative Research: Paleogenetic assessment of small mammal community response to Late Pleistocene deglaciation
- John Ritzenthaler Company
- Hu and Mary Barnes

MATERIAL DONATIONS

- Bob Wenner, Devonian fish fossil
- John Hellman, Salt Core

VOLUNTEERS

- | | |
|------------------|----------------------------|
| Jane Allard | Nell Herrmann |
| Hu Barnes | Ken Hickman |
| Don Brandenburg | Klaus Keller |
| Niki Brandenburg | Cassi Knight |
| Rebecca Britton | Jonathan Mathews |
| Sue Brown | Angela Mathias |
| James Cornette | Don McCuan |
| Carol Cota | Lauren Miledeo |
| Travis Darney | Kathy Miles |
| Travis Deptola | John Nese |
| Richard Duschl | Lee Ann Nolan |
| Medora Ebersole | John Passaneau |
| Sara Elliot | Ron Redwing |
| Maureen Feineman | John Simmons |
| Tim Gould | Howard "Chip" Steidle, Jr. |
| Eric Grimm | Burkley Tweist |

NEW EXHIBITS

- Oil & Gas in Pennsylvania. Paintings from the EMS Museum Steidle Collection of American Industrial Art
- Do You Measure Up—*Diplodocus* Limb Bones. Specimens from the EMS Museum collection
- How Big Are Your Feet?—Dinosaur Footprints and Ichnofossils. Specimens from the EMS Museum collection
- What's Happening: Hyperbolic funnel coin well
- Why Measure Atmospheric CO₂? EMS Department of Meteorology CO₂ Monitoring
- Nittany Mineralogical Society, science gallery. Secondary Minerals and Volcanic Rocks
- HUB Robeson. Coal & My Coal Journey. Kathy Mattea, collaborative exhibit with Center for the Performing Arts and Eberly Family Special Collections Library

COLLECTIONS ACTIVITY**Loans made:**

- Russell Graham, rock and paleontology specimens, for Vertebrate Paleontology class, 11/2012
- Max Christie, paleontology specimens for Paleontology Laboratory, 1/2013

Conservation assessment:

- Steidle Collection of American Industrial Art paintings

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/20	Phillipsburg–Osceolla K–2 nd grade	52
6/20	Phillipsburg–Osceolla 3 rd grade	49
6/20	Phillipsburg–Osceolla 4 th –5 th grades	47
6/26	ABC Day Camp	37
7/12	Osher Lifelong Learning Institute	32
10/12	Friends School	36
2/22	Teacher workshop	22
3/13	Phillipsburg Elementary School	40
4/13	Pennsylvania History (HIST 012)	43
5/3	Pine Grove Mills 3 rd grades	58
5/10	Tyrone Kindergarten	92
5/12	Bellefonte 6 th grade	32
5/13	Tyrone Elementary	140
5/23	Park Forest 7 th grade	70
5/29	Palmer Museum of Art summer interns	13

VISITS TO SCHOOLS

date	school	number of participants
3/22	St. Paul, Alaska School 4 th –6 th grade	25
3/23	St. Paul, Alaska High School	12
4/18	Radio Park Elementary 5 th grade	62
3/17	Juniata Valley Elementary School	19
5/6	Patterson International School, Lakewood, CO	57

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
7/12	Campground Talks, Custer State Park, Custer, SD	62
1/2–4	Shake Rattle, and Rock. Bone Picking	200
4/4	Nittany Mineralogical Society Junior Ed Day	230

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
7/30	Sam Williams (Tyrone)	Steidle Art Collection
8/2	John Canetta, Tallahassee, FL	walter paintings
10/17	Bob Pohl, Tacoma, WA	Worth McCoy paintings
10/22	David Martin, Tacoma Art Museum	Z Vanessa Helder paintings
12/14	Terresa Reed (Penn State)	Shrunken heads
6/17	Steven Reese (Julian, PA)	Limonite specimen
7/1	Joe Hendricks (State College)	Concretion mistaken for footprint
7/29	Christian Haake (email)	Calcite crystals
8/8	Robert Stupak (CA)	Penn State of fossils of Pterosaur
10/3	Dick Pennsak (State College)	Slag thought to be a meteorite
10/24	Bryan Small (Denver CO)	Bison/Cow remains from site
11/5	Kasi Carter (email)	Sedimentary rock
12/2	Jesi Raeburn (email)	Coal mine maps PA
12/2	R. Bruce McMillan (Missouri)	Radiocarbon dating
12/15	Jack Kroedel (email)	Fossil identification
1/19	Bill McHenry (Benton, PA)	Rock identification
1/19	Phone call	Info about millerite
2/3	Carissa Longo (PA DNR)	Neotoma Database question
2/18	Susan Bullington (Dubois teacher)	Loan of minerals
2/18	William McHenry (Benton PA)	Slag
3/8	Walk in	Quartz crystal
3/16	Barbara Crable (U of KS)	Mammoth jaw age
3/25	Shadi Nazarian (Penn State)	Request for basalt/research

PEER-REVIEWED PUBLICATIONS

- Simmons, J. E. (2013). Application of preventive conservation to solve the coming crisis in collections management. *Collection Forum* 27(1–2): 89–101.
- Simmons, J. E. and J. Snider. (2013). Image and Reality: Perception, Depiction, and Preservation of Nature. *Juniata Voices*, 13: 127–144.
- Snider, J. (2013). Exhibition studies: The construction of meaning. *Exhibitionist* 32(1): 72–76.

PRESENTATIONS

- Graham, R. W. (2012). Origin and Dispersal of Bison in North America during Prehistoric Times. *Program and Abstracts, International Bison Conference*, Quebec City, Quebec.
- Graham, R. W., H. G. MacDonald, C. Newton and J. Sertich. (2012). *Bison latifrons* from the Snowmass Site, Pitkin County, Colorado. *Program and Abstracts, Snowmass Scientific Meeting*, Denver Museum of Nature & Science, Denver, Colorado.

Graham, R. W. (2012) Taphonomy of Bone Assemblages from the Lake Margin Deposits along the Moraine at the Snowmass Site, Pitkin County, Colorado. *Program and Abstracts, Snowmass Scientific Meeting*, Denver Museum of Nature & Science, Denver, Colorado.

Simmons, J. E. (2012) Invited speaker, *Ethics Smackdown: Use of Funds Gained from Deaccessioning*. American Alliance of Museums annual meeting, Baltimore, Maryland.

Simmons, J. E. (2012) *Out of Site, Out of Mind—Offsite Storage for Museum Collections*. American Alliance of Museums annual meeting, Baltimore, Maryland, May 18–22, 2012

Simmons, J. E. and J. Snider (2013) *Observation and Distillation—Preservation, Depiction, and the Perception of Nature*. Bookends Seminar series, Juniata College, Huntingdon, Pennsylvania.

Snider, J. (2012) Invited panelist, *Meaning-Making Revisited—The Spring 2013 issue of Exhibitionist*. Knowledge Bar, American Alliance of Museums annual meeting, Baltimore, Maryland.

TEACHING & INSTRUCTION

Graham, R. W. (Fall 2012) Biotic Response to Climate Change (EARTH 103), Penn State.

Graham, R. G. (Fall 2012) Vertebrate Paleontology (GEOSCI 422), Penn State

Simmons, J. E. (2013) Collections management. Museum Management and Operations Class, Corcoran College of Art and Design, Washington, D.C.

Simmons, J. E. (2012–2013) Foundations of Museum Studies (LIS60700); Museums and the Law (LIS 50693); Museum Collections (LIS 60701), Kent State University, Kent, Ohio.

Simmons, J. E. (2012) Curation of Natural History Collections, National Park Service, Great Smokey Mountain National Park, Gatlinburg, Tennessee.

Simmons, J. E. (2013). Ministry of Heritage and Culture, Museum of Natural History, Sultanate of Oman.

Simmons, J. E. (2013) Fluid Preserved Collections, National Museum of Natural History, Washington, D. C.

Simmons, J. E. (2013) Care of Natural History Collections Academy of Natural Sciences, Philadelphia, Conservation Center for Art & Historic Collections.

Snider, J. (2013). Guest lecturer, EMS Freshman Seminar (EMSC100S)

Snider, J. and J. E. Simmons. (Spring 2013) Museum Education (AR 392), Juniata College.

PROFESSIONAL DEVELOPMENT

Graham, R. G. (2013). Western Interior Paleontological Society Symposium, Denver, Colorado.

Simmons, J. E. (2012) Development of Benchmark Standards for the Preservation of Wet Collections. The Natural History Museum, London

Simmons, J. E. and J. Snider. (2012) Society for the Preservation of Natural History Collections annual meeting, Yale University, New Haven, Connecticut.

Simmons, J. E. and J. Snider (2012). Rochester Institute of Technology, Image Permanence Institute. Sustainable Preservation Practices for Managing Storage Environments webinar series, January 9, February 6, March 6, April 3, May 1

Simmons, J. E. and J. Snider (2013). American Alliance of Museums annual meeting, Baltimore, Maryland

Snider, J. (2012) Save Pennsylvania's Past—Part A. Conservation Center for Art & Historic Artifacts. Preparing for the unexpected Disaster Planning for Cultural Collections, Harrisburg, Pennsylvania

Snider, J. (2012). Save Pennsylvania's Past—Part B. Heritage Preservation. Pennsylvania Alliance for Response statewide meeting, Harrisburg, Pennsylvania.

Snider, J. (Fall 2012). History, Philosophy, and Sociology of Science and Science Teaching (SCIED 551)

Snider, J. (Spring 2013) Engaging Children in the Practices of Science (SCIED 597c)

PRESS & LISTINGS

Centre Daily Times, State College. (2012) Art Events, Galleries & Organizations, June 6.

Huffinton Post. (2012) Antarctic was once home to rainforest, say scientists, August 4.

Smoke Signals—The Official Publication of the Canadian Bison Association. (2012). Presentation at International Bison Conference, October, Issue 9.

Triennial Report, Illinois State Museum, Springfield, IL. (2013). Graham at Neotoma Database Workshop, page 4

Smithsonian Magazine (2013) Kimmswick, February issue. <http://www.visitpa.com/pa-museums/earth-and-mineral-sciences-museum> (2013) March 26

FUNDING

Institute of Museum and Library Services Museums for America Collections Stewardship

National Science Foundation: Pleistocene Extinctions

National Science Foundation Collaborative Research: Geoinformatics Building Blocks

National Science Foundation Collaborative Research Earth Cube Geoinformatics

Chip Steidle

Steidle Family

Drs. Hu and Mary Barnes

Russell and Sue Anne Graham

MATERIAL DONATIONS

Ms. Linda Carpenter (Cape Coral FL)

Mr. and Mrs. Dennis Reese

EMPLOYEES

Laurie Eccles

VOLUNTEERS

Jane Allard
 Al Bailey
 Cory Bailey
 Mike Bailey
 Hu Barnes
 Pernille Sporon Bovig
 Don Brandenburg
 Niki Brandenburg
 Sue Brown
 Medora Ebersole

Laurie Eccles
 Maureen Feineman
 Kendall Free
 David Glick
 Sue Anne Graham
 Eric Grimm
 Maria Grimm
 Ken Hickman
 Nick Holshuh

Dena Hunter
 Mark Hunter
 Klaus Keller
 Akie Lloyd
 Bill Markey
 Angela Mathias
 Don McCuan
 Kathy Miles
 John Nese

Lee Ann Nolan
 Melissa Pardi
 Julia Plummer
 Ron Redwing
 Colleen Reese
 Zachary Santangelo
 John Simmons
 Greg Smith
 Howard "Chip" Steidle, Jr



After conservation treatments, a panel of Hiram Draper Williams' untitled mural hangs on an art storage rack in the EMS Museum's climate-controlled collections storage facility.

NEW EXHIBITS

- Antarctic Coal, Rock & Minerals—Byrd Antarctic Expedition II: Specimens from the EMS Museum collections
- Flora, Fauna, Fossils, Fuel Hydrocarbons—Petroleum, Asphalt, Tree Resin, Peat, Coal, Oil, Gas: Specimens from the EMS Museum collections
- Mapping Oil & Gas in Pennsylvania: 1864–2013
- Pennsylvania’s Oil History—Seventeen Scratchboard Illustrations by Hermann L. Suter: illustration from the EMS Museum Steidle Collection of American Industrial Art
- Salt or Oil? Salt Core from Avery Island. Specimen from the EMS Museum collections
- Trinotite & Fused Radioactive Sand: Specimens from the EMS Museum collections
- EMS Library, Deike Building: The Drama of Steel. Paintings from the EMS Museum Steidle Collection of American Industrial Art

COLLECTIONS ACTIVITY

Loans made:

- Jennifer, geological specimens for grade school class, 1/2014
- Max Christie, geological specimens for class, 2/2014
- Valerie Alstadt (Penn State Chemistry), orthoclase specimen for research, 3/2014
- Russ Graham, geological specimens, for school visit, 3/2014
- Russ Graham, geological specimens, for Nittany Mineralogical Society Junior Ed Day, 4/2014

Conservation:

- C. Frank Schweg, *Casting in a Foundry*, 1936, oil on canvas, 18" x 16"
- James Bonar, *Lucy Furnace on the Allegheny River Dismantled*, 1932, oil on canvas, 20" x 24"
- Carrie A. Pattison, *Bituminous Coal Plant: Sample Run Mine*, ca. 1935, oil on canvas, 33" x 23"
- Aaron Henry Gorson, *Open Hearth and Rolling Mill*, n.d., oil on canvas, 20" x 24"

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/5	Rebersburg Elementary (3 rd grade)	26
6/6	Port Matilda/Bald Eagle School District	45
6/21	Tyrone Area summer camp	88
6/26	ABC Childrens’s Center	15
10/11	State College Friends School	41
4/1	Juniata Valley Elementary School	23
4/11	Pennsylvania History (HIST 012)	52
5/29	Philipsburg/Osceola School	38
5/30	Bald Eagle School	72

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
	IMLS 2013 Grant Recipients Congressional Workshop, Washington, D. C., September 17–18, 2013	586
	Exploration U—Bellefonte, November, 21, 2013	325

	Shake Rattle and Rock (State College (5 th grades), 1/6	153
	Shake Rattle and Rock (State College (5 th grades), 5/12	72
	Nittany Mineralogical Society Junior Education Day, 5/5	300

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
1/21	Matt Maley (Cincinnati Museum NH)	Identification of fossil
1/22	Amber Amelingmeier	PA State Mineral
1/25	Katherine Bannick (Trinity University)	Information on Texas caves
1/29	Sandro Mantanari (Italy)	ID vert fossils (Italian cave)
1/30	Jason Woratyła (Pottsville, PA)	Slag ID
3/13	Marek Petrik (University of Marburg, Germany)	Genth Collection
3/14	Shirley (State College)	Meteorite ID
3/18	Bruno Trpia (Italy)	Slickened side (mistaken for bird fossil)

PEER-REVIEWED PUBLICATIONS

- Uhen, M., A. D. Barnosky, B. Bills, J. Blois, M. A. Carrasco, M. T. Carrano, G. M. Erickson, M. Fortelius, R. W. Graham, E. C. Grimm, M. O’Leary and A. Mast (2013). From card catalogs to computers: databases in vertebrate paleontology. *Journal of Vertebrate Paleontology* 33: 13–28.
- Fulton, T. L., R. W. Norris, R. W. Graham, H. A. Semken, Jr. and B. Shapiro (2013). Ancient DNA supports a southern refugium for Richardoso’s leming (*Dicrostonyx richardsoni*) during the last glacial maximum. *Molecular Ecology* 22: 2540–2548
- Graham, R. W., E. L. Lundelius, Jr. and L. Meissner (2013). Friesenhahn Cave: Late Pleistocene paleoecology and predator-prey relationships of mammoths and an extinct scimitar cat. *The Geological Society of America, Field Guide* 30, Austin, Texas
- Graham, R. W., E. L. Lundelius, Jr. and L. Meissner (2013). Introduction to field trip. P. 16. IN *Friesenhahn Cave: Late Pleistocene paleoecology and predator-prey relationships of mammoths and an extinct scimitar cat*. The Geological Society of America, Field Guide 30, Austin, Texas.
- Graham, R. W. and E. L. Lundelius, Jr. (2013). Stratigraphy and paleontology of Friesenhahn Quaternary cave-fill sediments, Bexar County, Texas. Pp. 17–29. In *Friesenhahn Cave: Late Pleistocene paleoecology and predator-prey relationships of mammoths and an extinct scimitar cat*. The Geological Society of America, Field Guide 30, Austin, Texas.
- Latham, K.F., and J.E. Simmons, 2014. *Foundations of Museum Studies: Evolving Systems of Knowledge*. Libraries Unlimited, Santa Barbara, xvi +155 pp.
- Almendáriz, A., J.E. Simmons, J. Brito, and J. Vaca-Guerrero. 2014. Overview of the herpetofauna of the unexplored Cordillera del Cóndor of Ecuador. *Amphibian & Reptile Conservation* 8(1) [Special Section]: 45–64.

PRESENTATIONS

- Graham, R. W. (2013). Rats! The Small Mammal Perspective on Environmental Change during the Late Quaternary. Symposium on Ice Age Climates and Faunas Western Interior Paleontological Society, Golden, CO, March 15–16
- Graham, R. W. (2013). Pleistocene Extinctions, Southern Methodist University, Dallas, Texas

TEACHING & INSTRUCTION

- Graham, R. W. (2013). Guest lecture. EMS Freshman Seminar, October 14, 2013
- Graham, R. W. and J. Snider (2014). Ichnofossils, Saturday Science, teacher professional development - Center for Science Teaching in the Schools and Center for the Performing Arts
- Simmons, J. E. (2013). Making the Dead Come Alive. Collections care workshop, Carbon County Environmental Center, Summit Hill, Pennsylvania
- Simmons, J. E. (2014). Guest lecture. Collections management. Museum Management and Operations class, Corcoran College of Art and Design, Washington, D.C.
- Simmons, J. E. (2014). Integrated Pest Management for Cultural Institutions workshop. Conservation Center for Art and Historic Artifacts, Philadelphia, Pennsylvania
- Simmons, J. E. Foundations of Museum Studies (LIS60700), Museums and the Law (LIS 50693), Museum Collections (LIS 60701), Kent State University, Kent, Ohio
- Simmons, J. E., Principios de la Administración de Colecciones y Sistemas de Información, Universidad Nacional, Bogotá, Colombia
- Snider, J. and J. E. Simmons (Spring 2014) Museum Education (AR 392) Juniata College, Huntingdon, Pennsylvania

PROFESSIONAL DEVELOPMENT

- Simmons, J. E. and J. Snider. (2014). Small Museums Association annual meeting, Ocean City, Maryland
- Snider, J. (Summer 2013). The Illustrated Science Book before 1800. Rare Book School, University of Virginia, Charlottesville, Virginia
- Snider, J. (Fall 2013). Science Teaching and Learning (SCIED 552), Penn State

PRESS & LISTINGS

- LL Bean Catalog*, EMS Museum: a place to visit, 2014
- Nittany Mineralogical Society Bulletin*, article on Junior Education Day, 2014

FUNDING

- Penn State Institutes of Energy and the Environment Seed Grant: Test excavations in caves on St. Paul Island
- National Science Foundation Research Grant: Paleocology and Paleoenvironments of St. Paul Island, Alaska
- John Ritzenthaler Company
- Steidle Family
- Russell and Sue Anne Graham

EMPLOYEES

Laurie Eccles

VOLUNTEERS

Jane Allard	Nick Holshuh
Al Bailey	Dena Hunter
Cory Bailey	Mark Hunter
Mike Bailey	Akie Lloyd
Hu Barnes	Klaus Keller
Pernille Sporon Bovig	Angela Mathias
Don Brandenburg	Bill Markey
Niki Brandenburg	Don McCuan
Sue Brown	John Nese
Medora Ebersole	Lee Ann Nolan
Maureen Feineman	Julia Plummer
Kendall Free	Ron Redwing
David Glick	John Simmons
Eric Grimm	Greg Smith
Sue Anne Graham	Howard "Chip" Steidle, Jr.
Ken Hickman	



Petrified wood from the collections of the Earth and Mineral Sciences Museum & Art Gallery

NEW EXHIBITS

- Oil & Gas: From Seeps to Shale in Pennsylvania
 What is the Marcellus Shale? Art, Artifacts, and Science
 Sinclair & Dinosaurs: Marketing Petroleum
 Up from the Wells: Crude Oil Samples from the EMS Museum collections
 Storied Images: Marcellus Shale. Documentary Photographs by Penn State Students
Nittany Mineralogical Society Exhibit, science gallery: Volcanic Rocks and Minerals
EMS Library, Deike Building: Mastodon Tusks: Specimens from the EMS Museum collection
EMS Library, Deike Building: Mines and Minerals: Specimens from the EMS Museum collection
President's Office, Old Main: Selections from the EMS Museum Mineral Collection and Steidle Collection of American Industrial Art
Provost's Office, Old Main: Paintings from the EMS Museum Steidle Collection of American Industrial Art

COLLECTIONS ACTIVITY

Loans made:

- Russell Graham, specimens of fish bones, for vertebrate paleontology lab, 9/2014
 Melissa Pardi, fossil woodrat specimens, for research, 10/2014
 Russell Graham, amphibian and reptile bones, for vertebrate paleontology lab, 10/2014
 Russell Graham, invertebrate fossils, for outreach in Alaska, 10/2014
 Kristen Richter (Penn State Biology), invertebrate fossils, for outreach, 10/2014
 Irene Schaperdoth (Penn State Astrobiology) stromatolite, for outreach, 1/2015
 Max Christie, paleontology specimens, for paleontology class, 2/3/2015
 Russell Graham, rock and mineral specimens, Nittany Mineralogical Society Junior Ed Day, 4/10/2015
 Kendall Hunt Publishing, image of painting, 4/2015

Conservation:

- Christian Jacob Walter, *Mills at Pittsburgh—A Study in Angles*, n.d., oil on canvas, 32" × 36"
 Hiram Draper Williams, untitled mural, 1950, oil on masonite, 34" × 53"
 John Willard Raught, *Black Diamond Breaker Dismantled*, 1911, oil on canvas, 20" × 40"
 Alfred H. Bennett, *Rhythm of Structural Steel*, 1934, oil on canvas, 40" × 30"
 Edmund Marion Ashe, *Finishing the Heat Open Hearth Furnace*, n.d., oil on canvas, 34" × 30"
 Everett Longley Warner, *As the Sparks Fly Upward*, ca. 1940, oil on canvas, 40" × 36"
 Edwin Zoller, *Old Quarry*, ca. 1953, oil on canvas, 30" × 50"
 Carl A. Walberg, *Dredging the Monongahela*, ca. 1935, oil on canvas, 50" × 60"

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/20	Tyrone Summer Camp	123
6/25	YMCA Summer Camp	35
7/28	Palmer Museum summer interns	12
2/10	Marcellus Shale Outreach Center	15
4/7	Home School (State College)	16
4/8	Geoscience Grad Students (CERC tour)	12

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
9/23	<i>Storied Images Marcellus Shale</i> student photography exhibition opening	22
10/2	Gallery Crawl: Penn State Marcellus Shale exhibits	20
10/29	Marcellus Shale documentary film series <i>Triple Divide</i>	12
11/6	Marcellus Shale documentary film series <i>Gas Rush Stories</i>	13
11/13	Marcellus Shale documentary film series <i>Split Estate</i>	15
1/7–8	Shake, Rattle, and Rock: Bone Picking	210
4/11	Nittany Mineralogical Society Junior Education Day	179

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
6/18	Dan Guelich (State College)	Lepidodendron
6/18	Tom Thorne (Berks campus)	Slag
6/27	Daniel Larkin (Ridgway, PA)	Lepidodendron
6/27	Joshua Baker (Lancaster, PA)	Slag
6/27	Bob Elsworth	Al on Mars (question)
8/13	Tony Castellano	Presumed meteorite
8/13	Derek Williams	Rock and mineral ID
8/19	Toney Castellano (Centre County)	Slag presumed meteorite
9/17	Mark Neuffer	Concretion presumed fossil
10/23	Christian Krempaski (NE PA)	Fossil horse tooth from PA
11/6	Anne Rose (Penn State)	Obelisk question
11/19	Marilyn Huffman (Snow Shoe)	Geology of PA
1/20	Paula Titzler (Penn State Altoona)	Fossil ID
2/6	Thomas Jesso (email photo)	Rock presumed brain endocast
3/11	Thomas Jesso (email photo)	Rock presumed brain endocast
3/25	Charles La Rue (email photo)	Large sandstone block
4/7	Greg Smith (Penn State)	Bison/cow axis vertebra
4/17	Kara Stahl (email)	Ivory hairpins Roman era
5/12	Dennis Pasquale (New Brighton, PA)	Paleozoic invertebrates
5/15	Steven Reese (email)	Slag
5/19	Shadi Nazarian (Penn State Architecture)	Materials
5/20	Charles Miller (State College)	Mastodon vs. mammoth
5/28	Patty (email)	Miocene phosphate mines

PEER-REVIEWED PUBLICATIONS

- Carr, J. L., A. Almendáriz, J. E. Simmons, and M. T. Nielsen. (2014). Subsistence hunting for turtles in northwestern Ecuador. *Acta Biologica Colombiana* 19(3):401-413.
- Goring, S., Dawson, A., Simpson, G. L., Ram, K., Graham, R. W., Grimm, E. C., & Williams, J. W. (2015). Neotoma: A Programmatic Interface to the Neotoma Paleocological Database, 1(0), Art. 2. DOI: <http://doi.org/10.5334/oq.ab>
- Shapiro, B., R. W. Graham, and B. Letts. (2014). A revised evolutionary history of armadillos (*Dasybus*) in North America based on ancient mitochondrial DNA. *Boreas* DOI: 10.1111/bor.12094 1-10.
- Simmons, J.E. (2014). *Fluid Preservation, A Comprehensive Reference*. Rowman & Littlefield, Lanham, 347 pp.
- Simmons, J.E. (2015). Collections management: history, theory, and practice. In C. McCarthy (editor), *The International Handbook of Museum Studies, Volume 4: Museum Practice*. John Wiley and Sons, Ltd, London, iii + 652 pp.
- Simmons, J.E. (2015). *Herpetological Collecting and Collections Management, Third edition*. Society for the Study of Amphibians and Reptiles Herpetological Circular number 42, 206 pp.

OTHER PUBLICATIONS

- Penn State Museum Consortium (2015). *White Paper*. PSUMC Subcommittee, J. Snider, K. Hickman, D. Kletchka, C. Milner.

PRESENTATIONS

- Simmons, J. E. (2015). panel participant, 50 Years From Now: Training the Museum Staff of the Future. American Alliance of Museums, Atlanta, Georgia.

TEACHING & INSTRUCTION

- Graham, R. W. (2015). Polar Center. teacher professional development workshop.
- Graham, R. W. and J. Snider. (2015). Rock Cycle. Center for Science Teaching in the Schools. Saturday Science, teacher professional development.
- Simmons, J. E. (2015). guest lecture, Museum Registration, Museum Studies (ART 409), Penn State.
- Simmons, J. E. (2014–2015). Foundations of Museum Studies (LIS60700), Museums and the Law (LIS 50693), Museum Collections (LIS 60701), Kent State University, Kent, Ohio.
- Simmons, J. E. and J. Snider (2014). Exhibitions for Cultural Collections, Conservation Center for Art and Historic Artifacts, Philadelphia, Pennsylvania.
- Snider, J. and J. E. Simmons, (Spring 2015) Museum Education (AR 392) Juniata College, Huntingdon, Pennsylvania.

PROFESSIONAL DEVELOPMENT

- Simmons, J. E. (2015). American Alliance of Museums annual meeting, Atlanta, Georgia.
- Snider, J. (Fall 2014). Foundations of Education Research (CI 597e); Family Literacy (ADTED 561), Design-based Research (LDT 576), Penn State.

- Snider, J. (Spring 2015). Place-based Education (CI 597b); Qualitative Research Methods (CI 596); Science Education Colloquium (SCIED 590), Penn State.

PRESS & LISTINGS

- Penn State News* (2014). "Marcellus Shale Documentary Project" Opens Sept. 23, September 16.
- Penn State News* (2014). Marcellus Shale Gallery Crawl Will Feature Students' Photography. September 22.
- Penn State News* (2015). Polar Center Offers Climate Change Guidance to Middle, High School Teachers. February 12.

FUNDING

- National Science Foundation APPLES—Arctic Plant Phenology—Learning through Engaged Science.
- National Science Foundation PIRE. ExTerra Field Institute and Research Endeavor (Maureen Feinmann).
- National Science Foundation. EarthCube Geoinformatics Howard "Chip" Steidle.
- Steidle Family.
- Hu and Mary Barnes.
- Russell and Sue Anne Graham.

EMPLOYEES

Laurie Eccles

VOLUNTEERS

Jane Allard	Nick Holschuh
Al Bailey	Dena Hunter
Cory Bailey	Mark Hunter
Mike Bailey	Akie Lloyd
Hu Barnes	Jonathan Mathews
Don Brandenburg	Angela Mathias
Niki Brandenburg	Bill Markey
Jacob Cipar	Linda Musser
Stacey Davidson	Jon Nese
Medora Ebersole	Carlo Pantano
Laurie Eccles	Melissa Pardi
Maureen Feinman	Julia Plummer
Kendall Free	Colleen Reese
David Glick	Zachary Santangelo
Sue Anne Graham	John Simmons
Eric Grimm	Greg Smith
James Guyton	Howard "Chip" Steidle, Jr.
Ken Hickman	

NEW EXHIBITS

- 1893 Relief Map of Pennsylvania: History & Conservation of Historic Plaster Map
- Coal Forest Trees of the Pennsylvanian Period: Specimens from the EMS Museum collection
- Giant Salamanders Walked this Way: Specimen from the EMS Museum collection
- Ocean Acidification and the Effect of Marine Life Sonification of Data
- Topography and Hydrology: Augmented Reality Sand Box
- EMS Library, Deike Building: Quarries, Kilns & Crushers: Paintings from the EMS Museum Steidle Collection of American Industrial Art
- EMS Library, Deike Building: Inuit Visions of the Arctic: West Baffin Eskimo Cooperative Prints, Cape Dorset, Nunavut, Canada
- James A. Michener Art Museum, Doylestown, Pennsylvania, July 11-October 31, 2015: Iron and Coal, Petroleum and Steel: Industrial Art from the Steidle Collection.

COLLECTIONS ACTIVITY

Loans made:

James A. Michener Museum. Fifty four (54) Steidle Collection paintings, for exhibition

Conservation:

- Edmund M. Ashe, *Changing the Bit*, 1939, oil on canvas, 90" x 54"
- Edmund M. Ashe, *Changing Shift*, 1939, oil on canvas, 90" x 54"
- Edmund M. Ashe, *Work*, 1939, oil on canvas, 48" x 48"
- Harold Brett, *The Broadway Limited, Passing through the steel district, Pennsylvania Railroad*, 1924, oil on canvas, 36" x 60"

SCHEDULED MUSEUM TOURS

date	affiliation	number of participants
6/3	Port Matilda 3 rd grade	46
7/8	Elmhurst Retirement Village	16
8/10	Governor's School for the Agricultural Sciences	18
10/2	Isabella Stine & grandfather	2
2/26	Penn State Education group	4
3/30	SC Friends School	35
3/30	Learning Sciences Class (College of Education)	24
4/19	State College Cub Scouts (Geology Badge)	16
4/20	Science Curriculum Class (College of Education)	23
4/20	Science Curriculum Class (College of Education)	24
4/21	State College Girl Scouts	16
5/6	Port Matilda	35
5/9	Penns Valley 3 rd grade	47

VISITS TO SCHOOLS

date	school	number of participants
6/3	Port Matilda	52

PROGRAM & EVENT PARTICIPATION

date	organization	number of participants
9/9	Alumni Relations/Steidle Family Reception, James A. Michener Art Museum, Doylestown Steidle Exhibition	35
10/22	<i>Bilingual Bluegrass</i> : Abigail Washburn and Penn State Classical Music Club presentation	52
1/6–8	Shake, Rattle, and Rock: Bone Picking	150
3/30	Research in Learning Science and Technology	28
4/9	Nittany Mineralogical Society Junior Education Day	250
3/22	Polar Day: Inuit Art Exhibition	200

IDENTIFICATIONS, QUESTIONS & CONSULTATIONS

date	inquirer	topic
7/2	Mark McCandles (Sarver, PA)	Deer (<i>Odocoileus</i> sp.) metacarpal from yard
7/6	Tom Henning (Alum)	Concretion
7/31	Monette Bebow-Reinhard (email)	Copper artifacts in collection
9/16	Mike Korb (Wilkes Barre)	Information about Dean Steidle
10/16	John Rivers (phone call)	Information about meteorites
10/16	Gary Dreibelbis (Beech Creek)	Solution features on rock
10/19	Heather Hottle (MISU)	Question about mastodon foot print
10/26	Erich Barrett (Wyalusing PA)	Slag identification
11/3	Alexandria Tops (England)	Neotoma Database question
11/5	Daniel Rause (email)	Identification of an ammonite
12/1	Jeff Partyka (email)	Identification of mud cracks
1/5	Rick Nicometo (email)	Rock thought to be meteorite
1/6	Richard Pytco (email)	Mining lamp publications
1/18	David Dickson (email)	Identification of fossil mollusks from Saudi Arabia
1/22	Don Glass (Quakerstown, PA)	Partial trilobite
2/2	Chris Ondishko (email)	Identification of minerals, rocks and fossils
2/9	Daniel DeAntonio (central PA)	Identification of meteorite
3/1	Michael A. Kenfield (Yorktown, VA)	Questions about career for daughter
3/3	Abbie Spackman (email)	Identification of river cobble or hammer stone—forwarded to anthropology
3/3	Jerry McCoy (Duncansville PA)	Hours for museum
3/24	Thomas Davanzo, Sr. (Mercer PA)	Granite rock
3/30	Ray Frye (State College)	Identification of limestone with Fe nodules
4/4	Scott Miller (U of Utah)	Pictures of Scotia Fe mining
4/11	Michael Hatley (Ft. Lewis College)	Pollen data for CO
4/12	Daniel Borick (Portsmouth VA Children Museum)	Topographic exhibit
4/15	Allen Conrad (Elizabethtown)	Limestone thought to be artifact
4/18	Tara Scott (email)	Questions about obtaining rocks & minerals from the museum for kids' collections
4/19	Allen Conrad (Elizabethtown)	Question about rocks formed as a result of Permafrost action during the ice age

- 4/28 Peter Wolfe (Penn State) Nautiloid
 4/30 Denny Walizer (Penn State) "Icnofossil" from Red Hill
 5/2 Chris Tombasco (Penn State) Quartz rock (thought to
 contain gold)
 5/4 Randall Raugh (Bloomsburg PA) Piece of shale
 5/5 Raymond Bugler (email) Fossil identification

PEER-REVIEWED PUBLICATIONS

Graham, R. W., C. Zembal-Saul, M. Merritt, and E. Hufnagel (2016). A case study in collecting, analyzing and interpreting scientific data from a paleoecological research project to better understand the impacts of climate change on past and modern biota. IN R. A. Duschl and A. S. Bismack (eds.), *Reconceptualizing STEM Education: Teaching and Learning in Science Series*, Routledge, NY

Zembal-Saul, C., M. Merritt, E. Hufnagel and R. Graham (2016). Fossil mammals and biotic response to climate change. IN R. A. Duschl and A. S. Bismack (eds.), *Reconceptualizing STEM Education: Teaching and Learning in Science Series*, Routledge, NY

Simmons, J. E. IN PRESS. Fluid preserved collections. In L. Elkin and C. Norris (eds.), *Storage of Museum Collections: A Preventive Conservation Approach*

Simmons, J. E. IN PRESS. History of Museums. In *Encyclopedia of Library and Information Sciences*

Simmons, J. E. IN PRESS. *Museums: A History*. Rowman and Littlefield, Lanham, 350 pp

PRESENTATIONS

Graham, R. W. 2016. *Novel ecosystems in the late Quaternary: implications for the future*. Novel Ecosystems Mini-symposium, Ecology Institute, Huck Distinguished Lecture Series, Pennsylvania State University

Simmons, J. E. (2015). *Eye of Newt, Toe of Frog, And Aldrovandi's Dragon. A Brief History of Herpetological Collection and Preservation Techniques*. International Society for the History and Bibliography of Herpetology, University of Kansas, Lawrence, Kansas

Simmons, J. E. (2015). *What on Earth is SPNHC?* Association of Registrars and Collections Specialist (ARCS) meeting, 15 November 2015, New Orleans

Snider, J. (2015). *Steidle's Vision: Art as Education*. Guest Lecture Series, James A. Michener Art Museum, Doylestown, Pennsylvania

TEACHING & INSTRUCTION

Graham, R. W. (Fall 2015), Vertebrate Paleontology (GEOSCI 422), Penn State

Graham, R. W., J. Snider, and J. E. Simmons (Fall 2015). Geosciences Graduate Seminar: The Role of Science Museums in Science Education (GEOSC 597F), Penn State

Simmons, J. E. (2015). Housekeeping for Historic Collections, Conservation Center for Art & Historic Collections, Cliveden, Philadelphia

Simmons, J. E. (2015). The Deaccessioning Dilemma: Laws, Ethics, and Actions, Connecting to Collections Live webinar

Simmons, J. E., (2015). Guest lectures, Diversity and adaptations of Lissamphibia and Reptiles Vertebrate Paleontology (GEOSCI 422), Penn State

Simmons, J. E. (2015-2016). Foundations of Museum Studies (LIS60700), Museums and the Law (LIS 50693), Museum Collections (LIS 60701), Kent State University, Kent, Ohio

Simmons, J. E., (2016). Principios de la Administración de Colecciones y Sistemas de Información, Universidad Nacional, Bogotá, Colombia

Simmons, J. E. and B. Sutley (2016). Guest lecture. Museum Registration. Museum Studies (ART 409), Penn State

Snider, J. and J. E. Simmons (Spring 2016). Museum Education (AR 392) Juniata College

PROFESSIONAL DEVELOPMENT

Graham, R. W. (2015). Neotoma Paleoecology Database Educational Workshop

Graham, R. W., J. Snider, J. Simmons, and EMS Museum Advisory Board (2016). webinars 1–3, Small Museums Accreditation Academy, American Alliance of Museums

Simmons, J. E. (2015). Association of Registrars and Collections Specialist (ARCS) board meeting, 04–07 June, New Orleans

Simmons, J. E. (2015). Association of Registrars and Collections Specialist (ARCS) meeting, 11–15 November, New Orleans

Simmons, J. E. (2015). Society for the Study of Amphibians and Reptiles, University of Kansas, Lawrence, Kansas

Simmons, J. E., and J. Snider. (2015). International Society for the History and Bibliography of Herpetology, University of Kansas, Lawrence, Kansas

Snider, J. (Fall 2015). Qualitative Research Methods II (CI 503); Applied Statistics in the Behavioral Sciences (EDPSY 406), Penn State

Snider, J. (2015). Museum education and accessibility: Bridging the gaps. International Council of Museums, international Committee for Education and Cultural Action annual meeting, Washington, D. C.

Snider, J. (Spring 2016). Survey of Research in Learning Science and Technology (SCIED 597a); Assessing Informal Science Learning (SCIED 596), Penn State

Snider, J. (2016). Identifying and Supporting Productive STEM Programs in Out-of-School Settings. National Academies of Sciences, Engineering, and Medicine webcast conference

Snider, J. (2016). National Association for Research in Science Teaching annual meeting, Baltimore, Maryland

Snider, J. (2016). International Council of Museums National Committee for the United States annual meeting, Washington, D. C.

Snider, J. and J. E. Simmons (2016). American Alliance of Museums annual meeting, Washington, D. C.

AWARDS RECEIVED

- EMS Museum, selected participant, Small Museum Accreditation Academy American Alliance of Museums.
- Simmons, J. E., Dudley-Wilkinson Award of Distinction, Registrars Committee of the American Alliance of Museums
- Snider, J., SAC Staff Centennial Award, EMS Staff Advisory Committee

PRESS & LISTINGS

- Centre Daily Times*. (2015). Communities the Care: Tips to beat summer heat for cheap. July 14
- The Intelligencer*. (2015). Industrial history on display in Michener art exhibition. August 2
- Penn State News*. (2015). Restored, historic plaster relief map on display. August 6
- Penn State News*. (2015). Historic map of Pennsylvania back on display. August 11
- Centre Daily Times*. (2015). On Centre–Penn State: Rejuvenated relief map shows up, downs of Pennsylvania terrain. August 15
- Bucks Local News*. (2015). 'Iron and Coal, Petroleum and Steel,' 'Veils of Color' on view at Doylestown's James A. Michener Museum. August 19
- Penn State News*. (2015). EMS Steidle Collection on display at Michener Museum through Oct. 25. September 3
- www.psu.edu/feature (2015). Science, Art, and History: The Penn State College of Earth and Mineral Science has restored a historic map depicting Pennsylvania's geology, geography, and extractive industry. September 3
- Penn State News*. (2015). Abigail Washburn to collaborate with Penn State Asian Classical Music Club. October 15
- Penn State News*. (2016). Earth and Mineral Sciences museum selected for accreditation academy. March 11
- Penn State News*. (2016). New, hands-on exhibit at EMS Museum teaches basics of topographical maps. March 29
- Museum*. (2016). Ten Museums Participating in Small Museums Accreditation Academy. March–April
- The Daily Collegian*. (2016). Earth Mineral Science Museum opens interactive Augmented Reality Sandbox. April 1
- Onward State*. (2016). Augmented Reality Sandbox Provides A New Way To Learn About Science. April 8
- Big Ten Network*. (2016) BTN LiveBIG: Penn State museum brings science down to earth. April 21
- Penn State News*. (2016). Traveling art exhibit explores Inuit culture through unique art style. April 22
- Nittany Mineralogical Society Bulletin* (2016). Junior Education Day. April:1–2
- The Centre County Gazette* (2016). Exhibit lets visitors 'play' in sandbox. April 21–27
- The Centre County Gazette* (2016). Interactive Topographic Exhibit. April 28–May 4

- Penn State News*. (2016). EMS Museum exhibit explores ocean acidification's impact of microscopic sea life. May 10
- 3Dprint.com* (2016). Graduate students 3D print exhibit highlighting climate changes effect on vulnerable ocean-based organisms. May 10

PARTNERSHIPS

- Pennsylvania Statewide Afterschool/Youth Development Network (PSAYDN)

FUNDING

- National Science Foundation. EarthCube IA Collaborative Proposal: Building Interoperable Cyberinfrastructure (CI) at the interface between Paleogeoinformatics and Bioinformatics
- National Science Foundation: Collaborative Research Neotoma Paleoecological Database
- Howard "Chip" Steidle
- Russell and Sue Anne Graham
- Hu and Mary Barnes

EMPLOYEES

- Laurie Eccles
Sarah Elder
Kim Foecke
James Oliver

VOLUNTEERS

- | | |
|--------------------|----------------------------|
| Jane Allard | Dena Hunter |
| Hu Barnes | Mark Hunter |
| Don Brandenburg | Brenda Johnson |
| Niki Brandenburg | Steve Johnson |
| Sue Brown | Jonathan Mathews |
| Jacob Cipar | Angela Mathias |
| James Cornette | Don McCuan |
| Carol Cota | Kathy Miles |
| Steve Cota | Linda Musser |
| Stacey Davidson | Jon Nese |
| Medora Ebersole | Matt O' Donnell |
| Maureen Feinman | James Oliver |
| Kathleen Gallagher | Carlo Pantano |
| David Glick | Julia Plummer |
| Sue Ann Graham | Bob Price |
| James Guyton | Jill Price |
| Ken Hickman | John Simmons |
| Nick Holschuh | Howard "Chip" Steidle, Jr. |
| | Shaokang Yuan |

2010–2011

March 18	Women in Science and Engineering	June 4	Hydrology Student Poster Session
March 19–20	Geography Program	June 4	Penn State Alumni Association Traditional Reunion Weekend
April 1	National Spelling Bee	June 24	Butch Eckley's Retirement Reception
April 11	Environmental Science Presentation Coffee	July 10	GEMS Breakfast
April 15	Shoemaker Reception	Sept 11	Ice Cream Social
April 19	Reception for All Faculty Meeting	Dec 18	Materials Science and Engineering Reception
April 20	Geosciences, Awards Ceremony	Feb 14	Hess Corporation Info Session Reception
April 21	UP Academic Dean's Lunch	Feb 15	EMS Career Reception
May 16–17	Poster Session	Feb 25	Graduate Student Reception
May 19	Colorado School of Mines	Feb 25	Graduate Student Luncheon
May 20	Associate Dean for Equity Office	Feb 25–26	EMEX
May 21	Associate Dean for Equity Office	March 15	Seminar and Reception
July 10–11	Astrobiology Teachers' Workshop Beyond the Edge, Science and Art	March 16	Seminar and Reception
		March 18	Graduate Student Luncheon

2011–2012

June 3	Poster Session	Jan 12	CAUSE Class
July 16	Arts Fest GEM's Breakfast	Jan 26	Jon Merritt Retirement Reception
July 20	Dean of Equity Ice Cream Social	Feb 7	EMS Student Career Fair
July 30	Tyrone Camp Visit	Feb 14	Donation Ceremony for Ryan Student Center
Aug 10	LEAP Course Presentation	March 16	Student Coffee Geography
Aug 25	Industrial Engineering Reception	March 30	Supporting Women in Geography
Sept 23	EMS Ice Cream Social	March 30	Grad Student Council Coffee
Oct 21	Geography Function	April 1	Geography Activities
Nov 3	Energy Reception	April 5	All Faculty Reception
Nov 4	GEMS Awards Ceremony	April 12	Electrical Engineering Reception
Nov 15	Geography Honor Society	May 21	Associate Dean for Equity Ice Cream Social
		May 28	Associate Dean for Equity Ice Cream Social

2012–2013

June 1	Poster Session	Oct 17	Energy Engineering Celebration
June 16	Reception for Liz Larsen	Oct 19	Dean's Acknowledgement Reception
June 28	Associate Dean for Equity Ice Cream Social	Nov 15	Alumni Reception
July 14	GEMS Breakfast at Artfest	Nov 19	All Faculty Meeting Reception
Aug 7	LEAP Presentations by Associate Dean for Undergraduate Education	Feb 7	Graduate Student Coffee
Aug 23	EME Reception	March 15	Perspective Student Reception
Aug 27	Astrobiology Reception	March 19	Reception
Aug 28	Astrobiology Reception	March 21	Reception for Six Thousand Years of Solar Architecture
Sept 12	Geosciences, Emeriti Luncheon	March 22	Geography No Boundaries Conference Reception
Sept 13	Student Council Career Days	March 23	Geography Reception
Sept 21	EMS Ice Cream Social	April 1	All Faculty Meeting Reception
		April 12	The Waynick Memorial Lecture Series Reception

2013–2014

July 17	Alumni Reception, Colleen	Sept 19	Alumni and Industry Reception Geoscience
Aug. 21	Geoscience Graduate Student Reception	Sept 19	EMS Career Day reception
Aug 22	Energy & Mineral Engineering New Student Orientation	Sept 24	Exam for Geography
Aug 25	EMS Student Council	Oct 16	Dean's Reception
Sept 5	EMS Grad Council	Oct 29	Exam for Geography
Sept 6	EME reception	Nov 25	All Faculty Meeting Reception

Dec 5 Exam for Geography
 Jan 23 Reception for Industry Visitors
 Feb 11 Dean's Luncheon
 Feb 13 Alumni Reception
 March 22 Geography No Boundaries Conference
 March 26 Student Council Career reception

2014–2015

June 6 Alumni Reunion Weekend
 Aug 21 EME Graduate Student Orientation
 Aug 28 MATSE Graduate Student Coffee
 Sept 3 Library Movie
 Sept 4 MATSE Graduate Student Coffee
 Sept 10 Library Movie
 Sept 11 MATSE Graduate Student Coffee
 Sept 16 Retirement Reception for Deb Detweiler
 Sept 17 Library Movie
 Sept 17 Student Council Meeting
 Sept 18 MATSE Graduate Student Coffee
 Sept 19 Alumni Relations Seminar
 Sept 24 Library Movie
 Sept 25 MATSE Graduate Student Coffee
 Oct 1 Library Movie
 Oct 2 MATSE Graduate Student Coffee
 Oct 8 Library Movie
 Oct 9 MATSE Graduate Student Coffee
 Oct 10 United Way Fundraiser
 Oct 15 Library Movie
 Oct 16 MATSE Graduate Student Coffee
 Oct 20 Development Reception
 Oct 22 Library Movie
 Oct 23 MATSE Graduate Student Coffee

March 28-29 EME
 April 10 Coffee Hour Graduate Students
 April 11 Donor's Reception,
 April 28 Associate Dean for Equity Reception
 April 18 Reception
 April 22 Dean's Luncheon
 May 30 Geosciences Reception

Oct 29 Library Movie
 Oct 30 MATSE Graduate Student Coffee
 Nov 5 Library Movie
 Nov 6 MATSE Graduate Student Coffee
 Nov 12 Library Movie
 Nov 13 MATSE Graduate Student Coffee
 Nov 13 Student Center Lunch
 Nov 17 Ryan Family Center Discovery Night
 Nov 19 Library Movie
 Nov 20 MATSE Graduate Student Coffee
 Nov 24 All Faculty Meeting Reception
 Dec 3 Poster Presentation
 Dec 10 Dean's Office Reception
 Dec 17 MATSE Graduate Student Coffee
 Jan 23 Student Council
 Feb 19 Conference Associate Dean Research
 Feb 26 Meteorology Reception
 March 17 EMS Major Discovery Night
 March 20 Formal
 April 1 Student Center Reception
 April 10 SYWIG Day (Geography)
 April 11 Geography No Boundaries Conference
 April 23 Shoemaker Lecture Reception
 April 27 Dean's Reception
 April 28 EME Reception

2015–2016

July 1 NGaR for GE Meeting
 Aug 23 EMS Involvement Fair
 Sept 3 Alley Reception
 Sept 8 Undergrad Awards Ceremony
 Sept 9 Museum Seminar Class (GEOSCI 597F)
 Sept 10 EMS Military/Veteran Student Meet & Greet
 Sept 15 International Culture Night
 Sept 16 Museum Seminar Class (GEOSCI 597F)
 Sept 23 Museum Seminar Class (GEOSCI 597F)
 Sept 30 Museum Seminar Class (GEOSCI 597F)
 Oct 7 Museum Seminar Class (GEOSCI 597F)
 Oct 14 Museum Seminar Class (GEOSCI 597F)
 Oct 20 EMS Major Discovery Night
 Oct 21 Museum Seminar Class (GEOSCI 597F)
 Oct 28 Museum Seminar Class (GEOSCI 597F)
 Nov 4 Museum Seminar Class (GEOSCI 597F)

Nov 11 Museum Seminar Class (GEOSCI 597F)
 Nov 13 Geosciences CIC Conference
 Nov 18 Museum Seminar Class (GEOSCI 597F)
 Nov 18 National Education Week
 Nov 23 Reception for faculty meeting
 Nov 25 Museum Seminar Class (GEOSCI 597F)
 Dec 2 Museum Seminar Class (GEOSCI 597F)
 Dec 7 Erica Smithwick, Reception
 Dec 9 Materials Advantage, Holiday Party
 March 17–18 Graduate Student Poster Session—Geosciences
 March 19 Liberal Arts Undergraduate Council
 March 30 Matse Reception
 April 1 & 2 EME
 April 13 Linda Shope Retirement reception
 April 8 Shoemaker lecture reception
 April 20 SP16 faculty meeting reception

EARTH AND
MINERAL
SCIENCES
MUSEUM &
ART GALLERY

Earth and Mineral Sciences Museum & Art Gallery
Ground Floor, Deike Building (one half block south of Burrowes and Pollock Roads)
Penn State University Park Campus
814-865-6336
museum@ems.psu.edu
www.ems.psu.edu/outreach/museum

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