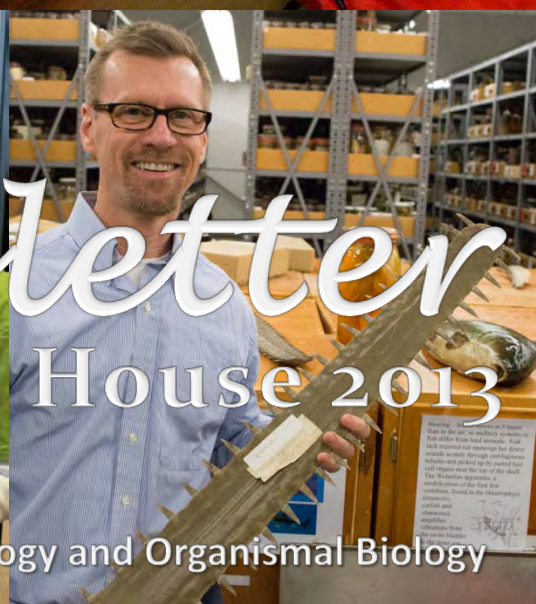
The Ohio State University

Museum of Biological Diversity



Newsletter

Open House 2013

College of Arts and Sciences. Department of Evolution, Ecology and Organismal Biology

Dear Readers:

Welcome to this special edition of the **MBDNewsletter!** This issue is entirely dedicated to the 2013 **Museum Open House**! Dr. Hans Klompen, chair of this year's event, opens with a summary of the event. After that, the staff and students of each collection report on their specific activities and provide insight on their approach to this year's theme: "Everybody Eats!". We hope you will enjoy this issue of our newsletter! We'd love to hear your comments and suggestions.

Please note: The Ohio State University moved to semesters and to adjust to the new academic calendar we have changed the timing and frequency of the newsletter. From this issue on, the **MBDNewsletter** will be published every four months (**Spring**, **Summer** and **Fall Semester Issues**.)☘

In this issue:

And to all the volunteers of the 2013 Museum Open House:

Thank you! We could not have done it without you!

Cover *- from top left, clockwise: NMS Assistant Dean Andrea Ward Ross & Emeritus Professor Dave Culver[1]; guest with graduate student Ryan Folk in the DNA lab[1]; guest examines display at the insect collection[3]; Graduate School Associate Dean Scott Herness visiting the Fish Division[1]; EEOB Chair Peter Curtis welcoming guests[1]; graduate student Ben Titus with guests in the auditorium[1]; Emeritus Professor Chuck Triplehorn taking a well-deserved rest[2]; young guest drawing an insect[3]; NMS Divisional Dean Peter March with live walkingstick[1].*

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Museum of Biological Diversity
Discovery · Documentation · Interpretation · Education
Newsletter
Editor: L. Musetti

Museum Open House 2013 – Everybody Eats! – *by Hans Klompen*

During most of the year, the Museum of Biological Diversity (MBD) is strictly a research (and teaching) museum, not set up for public visits, but on February 9th, the MBD threw open its doors to the public once again. The Museum Open House offers everybody a chance to see (and sometimes hold) some of the treasures we have in our collections.

Sarah Bowman plays the fishing game with a young guest.

Developed in response to interest in knowing what we are doing, our goal with the Open House is to provide a combination of entertainment (lots of "gee whiz" specimens and facts), and science, specifically showing off some of the things that fascinate us. Perhaps science-light, but definitely science. This was the 9th iteration of this event, and we are clearly doing something right, as we counted 1,287 visitors in the 6 hours of the event (10am - 4pm). The Museum Open House is the largest outreach event in the department of EEOB, and one of the largest in the College of Arts & Sciences!

The event included a number of displays in the auditorium, special set-ups in some of the collection areas, and a space for hands-on activities mostly geared towards kids. The auditorium displays most clearly reflected this year's theme, "**Everybody Eats**". We had displays emphasizing adaptations to feeding, ways animals and plants avoid being eaten, and examples of "farming" of one group of animals by another species. In addition we had the always popular live arthropods from the Insectary, and the bird sounds from the Borror lab. Kids activities included making "bugs in goo", potting seedlings, and a fishing game. Details on experiences in the various collections are provided in this newsletter.

Organizing the Open House can be a bit of a challenge. Leading the charge is a job that has been rotating among faculty members at the museum, and this year was my turn.

The process started in 2012, with the development of a theme and a logo fitting the theme. Special thanks to Elizabeth Alvarez (undergraduate student majoring in Art Technology at OSU and working at the Triplehorn collection), for designing our logo (*below*). Different research labs volunteered to develop auditorium displays that fit the theme; this year we also had groups from outside the MBD (toxicology, paleontology) develop additional displays. Most of the practical work was done by George Keeney, who has been at this for a few years now, and two graduate students, Paul Larson and Brandon Sinn. Help with finances and office support came from Melissa Marburger and Corey Ross. We thank Sandi Rutkowski for help with advertising. For me, it was coordinating it all and trying to solve the little problems that occur in greater numbers the closer you get to the event. Sometimes the process resembles the proverbial "herding cats", but overall, I was extremely impressed with how everybody came together and made it all work. We are all proud of the results.

Open House 2013 event t-shirt, with logo by Elizabeth Alvarez.

On the day of the event we had more than 100 volunteers – faculty, staff, students, and friends, who helped make it possible. From the folks in the collections explaining exhibits and answering questions, to those managing traffic in the hallways, assisting in the kids area or helping with the vital task of making sure volunteers are fed and watered. Unfortunately, I did not manage to see much of what was going on as I was busy in "mites and spiders" exhibit, but I was very impressed with the clean up. After doors were closed, volunteers from all areas gathered in the auditorium to disassemble all the displays and tables, and to bring all chairs back in. By 5PM the place was clean and ready to hold another activity: a meeting scheduled for the next two days. Exhausted but happy folks stumbled home to rest their vocal cords. Another successful Open House!☘

Mites & Spiders. *by Hans Klompen & Rich Bradley*

Showing off **mites** is a bit of a problem, given that most of them are rather small. We therefore have to use microscopes to show these organisms. Ticks can be shown using a standard dissecting microscope, but everything else was shown on a 40" TV hooked up to another dissecting microscope (right). With this set-up you can show mites in all their glory. This year we used exclusively live material, varying from dust mites and flour mites to soil mites from fresh extractions, and of course, the infamous eyebrow mite, *Demodex*. Yes, it grosses some people out if you scrape your forehead in front of them showing your companions on the screen, but it often elicits follow-up questions, and we got some good discussions with various visitors. And kids really, really like microscopes.

Hans Klompen using a microscope and big -screen TV to show off tiny mites.

"Who are you calling mite-face?!"

Mites were also the stars in an interactive display based on an image of an Eriophyoid mite, *Rhyncaphytoptus* n.sp. (*left*). These mites form a very common group of plant feeding mites. Rumor has it that that display was successful.

The **spider area** was staffed by Ryan Bell, Rich Bradley, and Robin Taylor. We had a variety of displays including living spiders representing about a dozen species (provided by Rich as well as George Keeney), model spiders, books, many photos, posters and mounted spider webs. We provided free copies of the Common Spiders of Ohio: Field Guide (2010, Ohio Division of Wildlife, written by Rich Bradley).

We featured living as well as preserved spiders on the video display connected to a dissecting microscope, which was a big hit with the visitors. People also ooh'd & aah'd over a display copy of the new book "*Common Spiders of North America*" (2013, UC Press, R. Bradley). We provided discount coupons for purchase to those who asked.☘

Animals sounds: Borror Lab of Bioacoustics. *by Dee Bolen & Erica Szeyller-Macolley*

The Borror Laboratory of Bioacoustics set up its voice display in the auditorium as well as two sound kiosks where people could listen to food calls of various animals. Dee and Erica report:

Dee Bolen showing a voice print on the computer screen.

Each year for the Museum's Open House, the Borror Lab has an interactive voice print display. The voice print display shows guests how researchers use animal recordings to generate visual representations of the recorded sounds. These visual representations are used by the researchers to collect a variety of data, such as length, frequency, and amplitude of notes or songs. Guests were encouraged to choose their favorite animal from a list of species. Among the most popular were the African lion, Common Loon, and Northern Cardinal. We played the sound and displayed the voice prints simultaneously so that guests could both hear and "see" the sounds. Guests were then given the opportunity to create their own voice prints. Many participants met the challenge and gave their best renditions of various animal sounds, including some very convincing lion roars, wolf howls, and chicken clucks. While recording, guests could see their voice print being produced in real time. To the delight of many kids, we could play their voice recordings both forwards and backwards. The kids also enjoyed hearing their own voices played at different speeds. Speeding up their voices increased the pitch and made them sound small like a mouse, while slowing down the playback speed decreased the pitch and made them sound huge like giants. The laughter was contagious and attracted the attention of other kids in the room, many of whom came back to record their voices again and again.☘

Fish Division. *by M. Kibbey*

This year we added an activity in the auditorium to match a fish's mouth to its prey; this turned out well if the high number of participants was an indication of its popularity. Many thanks to Morgan, Brian, Charles, Justin and Maira and others who pitched in to produce the displays and/or staffed our area. The auditorium displays serve to whet our visitor's appetites for more offerings down the hall, but the Fish Division's location at the back of the Museum of Biological Diversity requires guests to travel a goodly distance after having viewed all the rest of the Museum's fine offerings. Therefore as the most distant stop on the circuit we must provide some interesting displays to keep the attention of the visitors who may be tired by the time they reach us (okay, we also put some chairs out to tempt them to stay longer). To address this need we produced some informative panels that went into more detail than previous events. Many folks seemed to appreciate this and spent lots of time reading the text...hope they didn't hurt their backs as they bent over to read some of the panels. As with past Open Houses, our guests had some interesting and sometimes challenging questions for those of us who staffed the event. Surprisingly one of the most often asked questions is whether the preserved specimens are alive, which provides an opportunity to teach the children some biology, alleviating the fears some of the children have that the fish might hurt them. Another common theme was the propensity of several of the children to wrinkle their noses at the odors from the mixture of ethanol and fish oil, particularly given this years decision to leave the stainless steel tanks open that hold our biggest fishes, but their distaste was for many participants outweighed by being able to easily view the specimens. Two of the biggest draws contained in the tanks include the Atlantic sharpnose shark that was found along the banks of the Olentangy River (raising the inevitable question as to whether it could have survived in the freshwater river, a nice teaching opportunity), and the five foot long electric eel.

Electric eel.

Stonefish.

A return engagement for the deadly stonefish produced an unforeseen reaction from one of the children; when the poor youngster saw the ominous picture accompanied by the ghastly appearing specimen in a jar she ran out of the Fish Division crying. I must admit I wondered whether this occurrence may actually serve as a draw for those folks that were curious about what could have been so frightening. Perhaps we'll need to put a warning sign outside of the range next year.

Herbarium. *by J. V. Freudenstein & C. Dassler*

Graduate student Ryan Kitko explains how carnivorous plants work.

Although they do not have teeth, plants and fungi also have to deal with obtaining energy. As primary producers, plants can capture energy directly from light through photosynthesis; they are then eaten by many other organisms that do not have this ability. Fungi obtain their nutrition by decomposing dead organic matter or by parasitizing live organisms.

The **Herbarium's** exhibits this year focused on the unusual ways in which plants and fungi address special challenges. One of these is a group of plants that grow in soils that have low nitrogen availability. An unusual adaptation that plants have developed to overcome this limitation is to capture and digest animals. Such "carnivorous" plants are always popular subjects for our visitors, maybe because we can somehow relate to their need to "eat". They are not truly obtaining energy from their prey, just a source of nitrogen, but the ways in which they do this are still fantastic, including the snap trap of the Venus Flytrap and the pitfall traps of the Pitcher Plants. We had the chance to explain how these plants work to adults and children alike.

Long time Volunteer Preparator Donna Schenk with Curator Mesfin Tadesse.

Some plants follow a more "sinister" path and do not obtain their energy from sunlight. Like us, they depend on other organisms for energy compounds. They are the *parasitic plants* and we featured a number of these in our displays, everything from Beechdrops that can be found at the base of Beech trees in central Ohio to the largest flower in the world – *Rafflesia* from Borneo and Sumatra. Even orchids are parasitic on other organisms – fungi – at least when they are seedlings.

Visitors had the opportunity to see actively growing yeasts feeding on sugar and converting it to alcohol – all of us who eat bread or consume fermented beverages depend on them, but how many of us have ever seen these single-celled fungi going about their business?

Slime molds, once thought to be fungi, but now placed in their own group, were also a popular stop. In fact, after hearing about them from other guests, some guests actively sought them out to observe the bright yellow, net-like veins formed by the creeping, multinucleate, single cell of the plasmodial slime molds. Slime molds typically eat by digesting detritus and other dead material as they creep along the substrate, but the slime mold on exhibit was fed oatmeal. Many awed visitors had never imagined that such an organism as a slime mold existed, let alone right under their noses on the mulch of gardens. Others had observed them in their gardens and were fascinated by the appropriately descriptive names of some; such as the *scrambled eggs slime mold*, or the *dog vomit slime mold*. The capstone of the exhibit was the close-up view of the slime mold in the compound microscope where visitors observed cytoplasm flowing inside the plasmodium, like a unidirectional busy highway, through the veins. Ultimately, visitors left with the knowledge that we are closely related to fungi and slime molds, at least more so than we are to plants.☘

Visitor looks at slime molds with graduate student Jessie Wallace.

Tetrapod Collection *by L. Calhoon, A. Champagne, T. Fries, R. Denton & M. Holding*

Graduate students Tony Fries, Alex Champagne & Liz Calhoon.

Like every year the doors to the **Tetrapod Collection** were wide open and people could marvel at animals preserved in jars and in lifelike postures with glass eyes. This year for the first time visitors could also interact with live "herps", reptiles and amphibians, which two graduate students in EEOB put on display. Thanks to the presence of many knowledgeable volunteers (undergraduates, graduate students, long-time volunteer John Condit) not a single visitor's question remained unanswered. The students report:

In the **tetrapod collection**, we observed the theme of "Everybody Eats" by devoting our main display to the types of seeds and feeders that attract birds.

Undergraduate students Stephanie Malinich & Sarah Focht.

Because this particular year is an "irruption year" for many northern bird species, we included displays on the foods that determine whether a bird will stay in the north for the winter, or disperse southwards. Several guests used these displays to ask questions about how to get a feeder system set up at their home, or how they could go about adding an elusive Great Gray Owl to their life list, all while commenting on the tiny size of hummingbirds or the innovative bill shape of crossbills.

Visitors also showed a keen interest in learning to identify the hawks that visit their backyards, and we were able to assist them with this identification challenge using the hawk mounts in the range. To broaden visitors' experience beyond birds, we also included displays on turtles and bats, and these displays sparked discussion about pet turtles and bats in the attic. Finally, many guests came with special requests that we were able to accommodate. A young girl wanted nothing more than to see an Ostrich, while we opened the vaults for at least three people who wanted to lay their eyes on the extinct Ivory-billed Woodpecker.

Matt Holding & Rob Denton.

The **live amphibian and reptile display** included representatives of all the Ohio mole salamanders that interbreed with the unique "unisexual" salamanders that are studied in Dr. Lisle Gibb's lab. Many guests were amazed at the unusual genetic makeup of these animals, and more than one family began planning their own trip to a vernal pond for the upcoming spring.

Next to the salamanders, a live Western Hog-nosed Snake was available for guests to look at. The snake was fed freshly-thawed frogs, by hand, which amazed many children. Feedings drew in large and enthusiastic crowds, demonstrating the remarkable adaptations of snakes for limbless feeding on food items larger than their own heads, and was further confirmation that "Everybody Eats". In addition, Museum guests could look at freshly-shed snake skins, rattle a rattlesnake's rattle, and learn about the status of Ohio's endangered Eastern Massasauga rattlesnake.

Seeing the salamanders and snake close-up was a first for most children and many adults. Often, the shift from caution, to interest, and finally excitement was evident on their faces.☘

Everybody Eats: Molluscs *by G.T. Watters & C. Bey*

Kids were interested in what molluscs looked like before they made it to restaurants (*above*). The squid to calamari transformation proved to be the most interesting (*below*).

The 2013 Open House was a success on all counts in the **Mollusc range**. Children were drawn in with wide eyes as they gazed on the Giant Man-Eating Clam, and giggled when they were told it was named "Bob".

This year's theme "Everybody Eats" provided material for a great display and treasure hunt questions. Volunteers had great conversations with children and adults alike about the molluscs they had eaten before. The experience ranged from those who had not eaten any molluscs, to those who had enjoyed all the options, even the least-eaten escargot. Most everyone was impressed by the physical size of the range, and by the size of the collection. Visitors were allowed a glimpse at the contents through open drawers. Lots of children who had traveled to a beach before had many questions for Dr. Watters about what shells they had picked up and what other animals they might find. The zebra mussel display also caught lots of attention and sparked many interesting conversations. The most popular attraction, however, was the box of free shells. The shells were various marine specimen with no locality data, and everyone had the opportunity to walk out with handfuls, even though most were restricted by their parents to one or two each.

Insects: Megadiversity and Mega Appetite. *by L.Musetti, N. Johnson, S. Hemly & J. Cora*

"Everybody eats!" What a great theme for an entomologist! Insects are a MEGA diverse group (there are millions of species) and they feed on almost any organic matter, in almost any environment on Earth. Desert plants? Check! Trees in the forest? Check! Roadkill? Check! Blood, skin, feathers? Triple-check! Poop? Nectar? Fish? Fungi? Dog food? All check, and so much more! Yes, we admit, insects are not the most polite of guests: *flies* will spit on their food and walk all over it, *roaches* will eat and run, *fleas* will bite the host, and on top of that, they all have the habit of coming in uninvited. What a lot! But no matter what they eat or how they eat it, or how unnerving they might be at times (try sleeping with a mosquito buzzing around your ear, looking to suck your blood), they sure are some of the most amazing living creatures in the world. Our great team says so (*left*).

Awesome team! *Front L-R*: Caitlin, Andrea, Sara. *Back L-R*: Alejandro, Dave, Kelsey, Edwin, Elizabeth, Liv. *Far back L-R*: Joe, Norman, Brad, Matt and Kim.

"The Museum Open House is a chance for us of the **Triplehorn Insect Collection** to declare our unbridled love and respect for insects, and to see again, through the eyes of our guests, young and old(er), just how fascinating, beautiful, and sometimes downright bizarre insects can be", says Dr. Norman Johnson, Director of the collection. "It is also a chance to see old friends, acquaintances, colleagues and former students. And we cannot forget the friends we made among the visitors, many of whom return year after year to the event (thinking of you, Gabe!)."

For Sara Hemly, "the Open House is an important opportunity to share our magnificent specimens with the public, but being collection staff means keeping our charges safe is always foremost on our minds." Sara is the Curatorial technician of the insect collection and after participating in all but two of the previous Museum Open Houses, she has plenty of experience under her belt. "We take great care with our displays before and after the event to guarantee our specimens remain intact", she says. "Sturdy foam blocks and liberal use of duct tape firmly prop up our drawers at a good viewing angle, preventing people from having to lean over the displays. Most drawers are set up the day before the event, but especially delicate/rare specimens like the *endangered* Karner Blue butterfly are brought out the day of the event and put away first to minimize exposure to light and moisture. Afterwards the displays are treated in our -40°C freezer to prevent infestation from pests that may have found their way in. After this treatment the drawers are returned to their cabinets, ready for the next excuse to show them off."

After insects, we at the Triplehorn collection really like to explore technology, as it applies to research and education. Our website (*http://osuc.osu.edu*) has been running since 1994. That's less than one year after the first graphical web browser, Mosaic, was introduced! Our online database (*http://hol.odu.edu*) was launched in 1995 and has been running (and growing) ever since.

One question we have had for a while now is "*how many people can we accommodate during Open House?*" This year we addressed that question by applying the scientific method and making good use of technology. Joe Cora, Museum Biodiversity Informatics manager, came up with an ingenious solution to address that question: "Augmenting our existing database tools, we created an interface to easily count the number of incoming and outgoing guests to the insect collection. On our website (*http://osuc.osu.edu/open_house_visitors_current.html*) we provided real-time statistics for the number of visitors within the collection at any given time, a visual measure of congestion, a time-graph displaying the concentration of guests over time, and a live stream, on our web site . Guests were given cards with collection information as well as a QR code leading directly to the open house statistics page. These tools were designed to easily accommodate additional units for upcoming open houses and will allow us to have a better grasp on our capacity for years to come."

By J. Cora

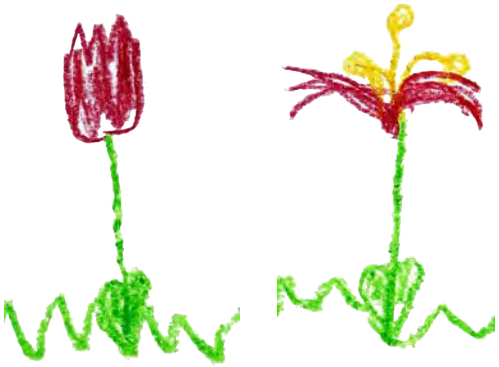
Screen shot of our statistics page. QR for quick connect.

To see more *event photos* and the *best insect drawings of 2013*, as well as some cool *historic photos of our collection*, please join us on Facebook: *https://www.facebook.com/TriplehornInsectCollection*.

Our heartfelt appreciation to all newsletter contributors!

Frequent Contributors: (ordered by last name)

- Marc Kibbey, Associate Curator, Fish Division.
- Luciana Musetti, Curator, Triplehorn Insect Collection.
- Angelika Nelson, Curator, Borror Lab & Tetrapod Division.
- Mesfin Tadesse, Curator, Herbarium.
- G. Tom Watters, Curator, Division of Molluscs.



Other contributors in this issue: (ordered by last name)

- Clarissa Bey, Collections Manager, Division of Molluscs.
- Dee Bolen, EEOB, Graduate Student.
- Richard Bradley, Emeritus, Spider Collection.
- Liz Calhoon, EEOB, Graduate Student.
- Alex Champagne, EEOB, Graduate Student.
- Joe Cora, Museum Biodiversity Informatics Manager.
- Rob Denton, EEOB, Graduate Student.
- John Freudenstein, EEOB, Professor, Director, Herbarium.
- Tony Fries, EEOB, Graduate Student.
- Sara Hemly, Curatorial Technician, Triplehorn Insect Collection.
- Matt Holding, EEOB, Graduate Student.
- Norman Johnson, EEOB, Professor, Director, Triplehorn Insect Collection.
- Hans Klompen, EEOB, Professor, Director, Acarology Laboratory.
- Erica Szeyller-Macolley, EEOB, Graduate Student.

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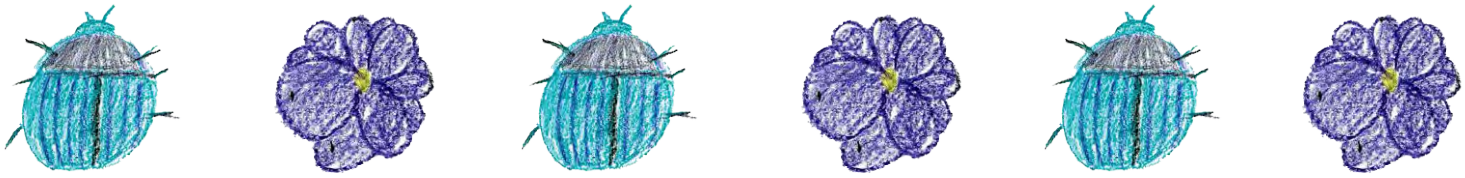

Next issue of the MBDNewsletter coming up July 2013

We greatly enjoy hearing from our readers!

Please send your feedback to the Editor

at *osuc-curator@osu.edu*

ABOUT US

The **Museum of Biological Diversity** (MBD) is a research facility in the *Department of Evolution, Ecology and Organismal Biology, College Arts & Sciences, The Ohio State University*. The Museum houses all of the OSU's biological collections, except fossils. The main focus of the collections is the discovery, documentation and interpretation of biodiversity. The collections are an irreplaceable repository of specimens and information on the biodiversity of Ohio, the USA and the world. We provide extensive information about our holdings to the scientific community and to the general public through publications, websites and online databases.

The Museum is not regularly open to the public. Once a year, during our Annual Open House, we invite the community to tour our facilities and to interact with the faculty, staff and students. We host visits from classes taught at OSU and the individual units also welcome local school and community groups for guided tours by appointment. Links to the collections websites are available on the Museum website at ***mbd.osu.edu***.

Museum Address: 1315 Kinnear Road, Columbus, OH 43212-1157.

The **MBDNewsletter** is a publication featuring news and information on the collections at the **Museum of Biological Diversity**. The newsletter is produced by the Curators of the collections, with contributions from faculty, staff, students and associates of the collections. The **MBDNewsletter** is available **online** at ***mbd.odu.edu/newsletter***.