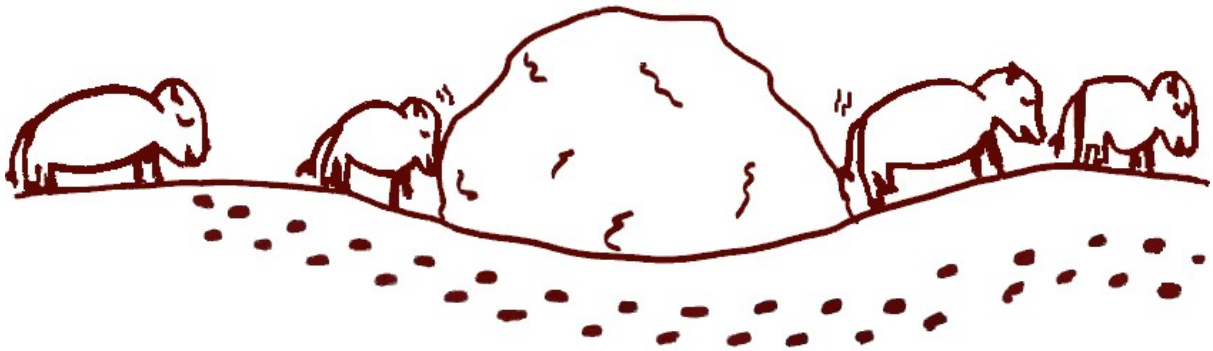


THE BUFFALO ROCK

The newsletter of the
Department of Geosciences,
North Dakota State University
Volume 16, February 2015

NOTES FROM THE CHAIR:

Greetings GeoAlums and Friends!

It's been another great year here in the Department. We remain bustling with ≈50 Geology majors, and our service courses to the rest of campus are populated with hundreds of students. Our undergraduates and faculty have been involved in various community and outreach activities. Our faculty (and some of our undergraduates) have been traveling to various continents for their research. We've added some new faces to our faculty and some new "geo-babies" to our faculty's' families (see page 4!)

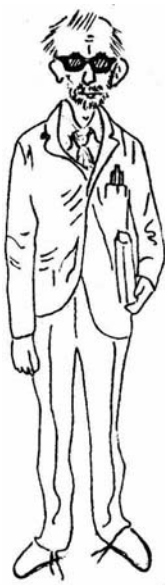
I have been especially grateful this year to the many and generous donations from our GeoAlums in support of scholarships and field training support for our undergraduates. It has been satisfying to increase both the number and level of scholarships available to our majors. When these donations are directed toward our Geo-Alumni Endowment, they provide support in perpetuity: a gift that truly keeps on giving. Many of you generously donated toward the new Allan C. Ashworth Scholarship. And John and Peggy Brophy (still thriving in Corvallis, Oregon) announced the establishment of an endowment to support a new undergraduate scholarship. On behalf of our students, now and into the future, thanks to all of you for your support!

Now, with some degree of sadness I announce that this will be my last time as editor-in-chief of *The Buffalo Rock.* After having spent 37 years here at NDSU, my plans are to retire in Summer, 2015. Like Allan Ashworth, I plan to stay resident on campus to work on research and writing. Best of all, I will get to keep in contact with our students.

Beginning July 1st, Peter Oduor will become Chair – and, hopefully, next editor of *The Buffalo Rock*! Peter will do a great job, and it's exciting for us to see him assume this position.

It was in1972 that John Brophy first launched *The Buffalo Rock*. In the inaugural issue, Brophy announced our continuing editorial policy of the newsletter being *"completely uncopyrighted. Any material herein may be abused, torn up, passed on, spindled, mutilated . ."* That mimeographed first edition (3 pages) included stories of the

department's three faculty (Brophy, Ashworth, and Metzger) and former students including Ken Harris, John Hoganson, Irv Rustad, Don Berg, Ragnar Skarsaune, and Jim Ulmer (see Jim's updated story on page 5 of this issue). Gracing its cover (and those of several subsequent issues) was this image:



The Typical Geology Prof

This drawing, of unknown origin, had been posted onto a hallway bulletin board in Stevens Hall, where it resided for decades (I have the now-crumbling original safely hidden away in the archives).

It's interesting now to reflect on how times have changed: there's a ≈50% chance that our "*Typical Geology Prof*" today at NDSU is female. Nearly half of our Geology majors are women, and our majors come from many races and ethnic backgrounds. It's been interesting and wonderful for me during my career here to have witnessed this diversification in the geosciences.

As always, we always enjoy hearing from GeoAlums and hope you will drop a line, become a fan of the department's Facebook page, or stop by for a visit! On behalf of the students and faculty, thank you for your support – and best wishes for 2015 from all of us at NDSU Geosciences!

Don Schwert

NDSU Geosciences Faculty, 2014-15. Left-to-right: Stephanie Day, Peter Oduor, Lydia Tackett, Scott Wood, Bernhardt Saini-Eidukat, Kenneth Lepper, Adam Lewis, Jessie Rock, Donald Schwert, and Debasree Chatterjee-Dawn.

MEET OUR NEW FACULTY:
LYDIA TACKETT

Greetings GeoAlums and GeoFriends! I am Lydia Tackett, the new Assistant Professor of Geology at NDSU. I grew up in Philadelphia, where I did my undergraduate degree at Temple University. After I graduated, I worked at the youth hostel for a year before moving to Los Angeles to work on my PhD at the University of Southern California. I have now moved to Fargo with my dog (Emma) and fiancé (Josh).

I became interested in geology and paleontology in a very round-a-bout way. I never had any exposure to those topics in grade school, and it wasn't until I became an Anthropology major as an undergraduate student that I started becoming really interested in science. Luckily, as long as you are passionate about science, it is okay to be a late bloomer! I first became interested in evolution and earth history during a course in Biological Anthropology, when I learned about the "Island Effect" – and specifically, about the multiple migrations of mammoths that swam to the Channel Islands and became pygmies over many generations. I decided to follow my interests and took more classes in evolutionary topics, but as a student in Biological Anthropology. I decided I wanted to study mass extinction events during a Primatology class, when we were learning about how primate proliferated after the dinosaurs became extinct 65 million years ago. I was fascinated by the idea that asteroid impact events and other catastrophes could influence evolutionary processes! I graduated from Temple University with an Anthropology degree and joined the Earth Sciences program at USC soon after.

I like a lot of different types of research, but I spend the most time working in the field of paleoecology, the study of past ecosystems. In particular, I study marine communities of the Triassic Period, which was 250-200 million years ago. Interestingly, the animals in the ocean at that time were very similar to the animals in the ocean today – a lot of clams and snails. Because of this, we can learn quite a bit about how our own marine ecosystems might respond to a catastrophic environmental perturbation. A lot of interesting events occurred during that time, including big volcanic eruptions, the break-up of a supercontinent, and even a large asteroid impact. I travel to places where marine sediments and shells were buried in layers during those intervals of time, and take samples in a sequence of sediment layers, and determine if the kinds of animals in those samples change during those big events. This is to determine how the ecosystems were affected by changes in the oceans caused by those volcanoes or asteroid impacts.

I have big plans for the next few years, including field trips to study the fossils of New Zealand and Italy, and projects involving the changing patterns of marine predation during the Triassic Period. My goals are to correlate some of the major events with fossil deposits all over the world, including the northern and southern hemispheres.

Finally, one thing that everyone should know about me is that the only sport in which I am somewhat decent is squash, and I just found out that there is a convertible court at the NDSU gym. So, if you see me there, or here – say hello!

“GEO-BABIES” OF 2014

Left: On February 22nd, Jessie Rock and Mike Armstrong welcomed Hazel Rock Armstrong, shown here with proud big brother Oscar. **Right:** On May 23rd, Stephanie Day and Ryan Niemann welcomed John Elden Niemann.

GEOLOGY CLUB

The Geology Club continues its activities of outreach, field trips, and public service – including the clean-up along Interstate 29 south of Fargo. Shown here during the May, 2014 clean-up are Kathryn ("Kat") Vall, Benjamin Munson, Cheyanne Jacobs, Kilynn Sandberg, Jackie Wrage, and Kristen Lorenz.

NATIONAL FOSSIL DAY

National Fossil Day events were held at the downtown Fargo Public Library on October 15th. NDSU paleontologist Lydia Tackett presented a talk on shell-crushing organisms that impacted life in the late Mesozoic. Kids “dug” for fossils, which they got to keep. The event was sponsored by the North Dakota Chapter of the Association of Women Geoscientists and by NDSU Geosciences.

WHERE ARE THEY NOW?
JIM ULMER, CLASS OF 1969

The study of geology could be summarized in many ways, but if one were pressed, a strong candidate might be the notion of change: the process by which one thing develops into another, by which one shape or form changes into a different form. The idea that nothing is fixed or static suggests that all life is, on some level, transformation. One implication of this notion is that it is difficult to predict where a person will end up, where they will go, what they will do. Such is the case of Jim Ulmer, who graduated from NDSU in Spring, 1969 with a B.S. degree that included a minor in Geology and Geography.

Jim would eventually earn a M.S. degree in Geology from UND, but the seeds of that pursuit were sown as an undergraduate at NDSU. To fulfill an art and science requirement, Jim enrolled in a geology course, a learning experience that, in his own words, "rocked my world." The class fundamentally re-formed his understanding of earth, time, and change, motivating him to become a more serious student. He enrolled in every geology course offered, which, at the time, were taught Drs. John Brophy, Charles Metzger and Allan Ashworth. Jim ended up supervising the geology lab with fellow rockhound John Hoganson.

While in graduate school, Jim discovered an activity situated at the crossroads of art and geology—pottery. Pottery allowed him to make use of his scientific knowledge of the Earth while also satisfying deeper artistic impulses. And so, in 1973, Jim and his future wife, Ann Gerlach, bought a 40-acre farm near Detroit Lakes, Minnesota, and established a ceramics studio, Springwood Pottery, eventually re-named Ulmer Stoneware (*ulmerstoneware.com*).

Jim starts with a ball of clay—the stuff of Earth—and forms it into a pot, which is then coated with a glaze made of silica, kaolinite, feldspar, and metal oxides. The pot is fired in a gas reduction kiln to 2300° F, which produces, in essence, a metamorphic rock used for both functional and aesthetic purposes – a product otherwise known as Ulmer Stoneware. For over 30 years, Jim has traversed the United States to sell his wares at arts and crafts shows.

Change never ceases. Jim and Ann have raised two sons, Jesse (Felicity) and Matt (Stephanie). Also, for the past 20 years or so, Jim has maintained an intense fascination with wine and winemaking. About six years ago, he decided to plant a vineyard with a red wine grape called Marquette. Today, Jim splits most of his time between his pottery studio and his vineyard.

Like his earlier mutation from geologist to potter, winemaking incorporates the skills and knowledge of Jim's previous vocations. His knowledge of geology informs the notion of *terroir*, a modern French word that refers broadly to the geography, geology, and climate of a specific place, but whose Latin root, *terre*, means "land" or "earth." Understanding the composition of the earth and soil in tandem with the climate is key to grape growing, lending credence to the common enological maxim that "wine is made in the vineyard." Pottery and wine have, historically, gone hand in hand. The first "glass" of wine ever drunk was surely no glass at all: it was likely a ceramic vessel.

And so the paradox proposed at the opening of this story—that change is the only constant—continues to shape the course of Jim's life. If you happen to stop by to visit Jim in the summer, you'll probably find him walking the vineyard, marveling at nature and the process of change, hand in hand with his granddaughter, Dakota Lilly.

DUST RESEARCH AT NDSU GEOSCIENCES

The expanded oil related activity in western North Dakota has raised concerns in local populations and workers about increased particulate matter generated by traffic on unpaved roads. NDSU geologist Bernhardt Saini-Eidukat and a graduate student Danijela Ljepoja are collaborating with faculty from across NDSU on a state-funded project to quantify the concentration of particulate matter in road dust, along with its mineralogical identity, elemental composition and environmental impacts. Shown here are Research Specialist Mohammed Borhan (NDSU Agricultural & Biosystems Engineering (left) and Ljepoja measuring dust generated by road traffic in Dunn County, ND.

2014 SUBARU MINORITY STUDENT SCHOLARSHIP

NDSU Geology major Cheyanne Jacobs was named one of four national recipients of the 2014 Subaru Minority Student Scholarship. Cheyanne's heritage is deeply rooted in the Stockbridge Munsee Band of Mohicans. The award recognizes both Cheyanne's heritage and her outstanding academic record at NDSU. Cheyanne is shown here receiving the award from Dr. Francisca Oboh-Ikuenobe in a ceremony during the Geological Society of America annual meetings in Vancouver, British Columbia.

NORTH DAKOTA PETROLEUM COUNCIL SCHOLARSHIPS

Three NDSU Geology majors were named as recipients of $2,000 scholarships from The North Dakota Petroleum Council. Shown, left-to-right, are Ben Munson, Sean Ternes, and Kristen Lorenz.

2014 NDSU GEOSCIENCES SCHOLARSHIP RECIPIENTS

Thanks to the generosity of our GeoAlumni and GeoFriends, six NDSU Geology majors received scholarships in recognition of their outstanding academic records. Recent donations will allow us to expand our scholarship program in 2015.

Kilynn Sandberg: GeoAlumni Scholarship

Benjamin Munson: Agassiz Scholarship

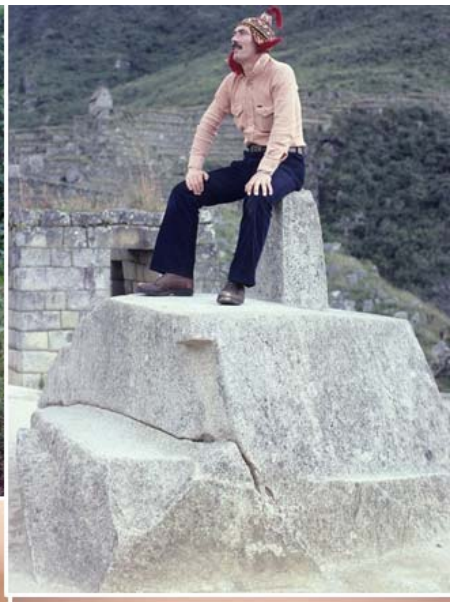
Amos Albert: Brophy Family Scholarship

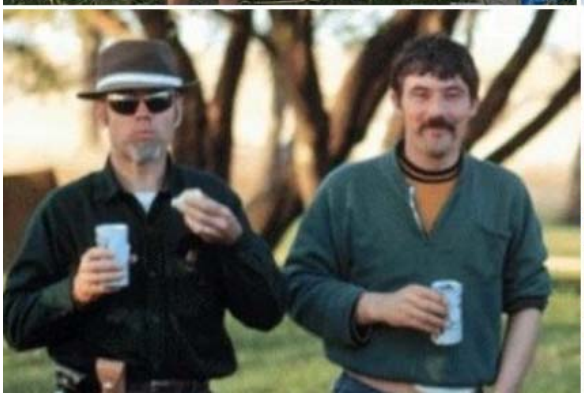
Jackie Wrage: Brophy Family Scholarship

Sean Ternes and Aurora Obembe: Green Hammer Scholarship

THE ALLAN ASHWORTH RETIREMENT RECEPTION, APRIL 29, 2014 . . .

. . . WITH SOME OF THE FUN PHOTOS SHOWN DURING ALLAN'S RECEPTION . . .





. . . AND FINALLY A POST-RECEPTION GATHERING WITH SOME GEO-ALUMS AT "THE BISON TURF."

Clockwise from the left: Jim Ulmer, John Hoganson, David Fischer, Keith Johnson, Melanie (Kompelien) Niday, Hazel Ashworth, Allan Ashworth, and Irv Rustad.

THE MANY FACES OF NDSU GEOLOGIST, JESSIE ROCK

NDSU Geology Lecturer Jessie Rock is fully immersed her fourth year of teaching. Aside from working with the dozens of students populating her intro labs, Jessie has been central in several recent outreach events – including Darwin's Cabinet of Curiosities, National Fossil Day, and a "Pop-up STEM Museum." Jessie is now working to establish an indexed digital fossil library. Her goal is to present a teaching collection that can be used for study by NDSU undergrads, and to share some of our rarer fossils to the research community, as well.

NEWS FROM OUR PAST FACULTY

GREGORY J. McCARTHY
(NDSU Geosciences, 1979 – 1993)

Greg and Denise McCarthy report that they continue to enjoy retirement in Milwaukee. *"Our travel (including a recent trip to Maui)* [photo], *concert attendance, singing (Greg), along with granddaughters' activities keep us hopping"*.

JOHN A. BROPHY
(NDSU Geology, 1959 – 1982)

John and Peggy write: *"2014 was (for us) quite a momentous year. I (John) reached my 90th birthday, and Peggy and I celebrated our 60th wedding anniversary. To top it all off, we had the joy of attending the wedding of our youngest granddaughter. We wish all of you a good and prosperous 2015."* In 2014, John and Peggy also welcomed visits to their home from NDSU geologists Allan Ashworth, Scott Wood, and Don Schwert.

CHARLES ("CHUCK") METZGER
(NDSU Geology, 1965 – 1975)

Chuck and Mary write, *"We continue to enjoy the outdoor life in Colorado and to travel to new places. This year it was the Balkans; Bosnia-Herzegovinian, Montenegro, Croatia, Slovenia,*

and then on to Austria and Germany with our daughter. Will be going to Columbia and Bolivia in 2015. I am volunteering at a nature center and teaching kids about the work of water on a stream table."

ELAINE HATZENBUHLER
(NDSU Geosciences, 1982 – 2011)

"Greetings from Arizona! We are still splitting the time between our Moorhead home and one in Arizona. It is good to be healthy enough to continue enjoying our favorite activities. Jim, with his best average ever (217), continues bowling on two leagues with great teammates he met here. Rock Club activities have kept me busy with field trips to collect specimens (marble, travertine, and a little turquoise) I had never before seen in the field. The Camaro continues to be at home in Moorhead. It always amazes me that when I get home that it will start right up after just sitting for months. Try doing that with a new car! When you visit give me a call and we will go cruisin'….. and we'll even stop at the Dairy Queen!"

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Adam Lewis' Structural Geology students spent a crisp, wet Fall weekend doing field measurements and producing geologic maps in the Duluth region. The group is shown here at Jay Cooke State Park.

DONATING TO NDSU GEOSCIENCES

Q: When I receive a mailing or that phone call from NDSU asking for a donation, can I target it to specifically support the educational and outreach programs in the Department of Geosciences?
A: Yes! Simply specify that your gift go to one of our three funds. All contributions to the fund are tax-deductible. Many employers will match the donations of employees; for information on how to provide a match, see: *www.ndsufoundation.com/annualfund*

Q: What is the purpose for each of the funds?
A: The *Geo-Alumni Endowment* supports field courses and student scholarships. Even a one-time contribution can generate income for years to come through interest accrued to the account.
The *Geosciences Fund* supports our outside speakers and outreach programs.
The *Mayflower Fund* (established by the late Dr. Warren D. Kress) provides scholarship and travel support for our students in Geography.

Please detach, and mail with your gift to:
NDSU Development Foundation
1241 N University Drive
PO Box 5144
Fargo, ND 58105-5144

Name(s): _____

Enclosed is my gift of $ _____ .

My gift is in honor of: _____

Please allocate my gift, as follows:
_____% Geo-Alumni Endowment (Fund #40092)
_____% Geosciences Fund (Fund #33238)
_____% Kress Mayflower Fund (Fund #25762)

Please make your check payable to:
NDSU Development Foundation

Thank you!

Payment options:
☐ Payment enclosed
☐ Please charge my credit/debit card
☐ AMEX ☐ Visa ☐ MasterCard ☐ Discover

Name on Card: _____

Card No. _____

Expiration Date: _____

Security Code: _____

Billing Address: _____

_____

Phone: _____

Signature: _____

TAX CREDIT OPPORTUNITY FOR DONATIONS TO THE GEOALUMNI ENDOWMENT

North Dakota residents and businesses that make gifts to qualified endowments (such as the NDSU GeoAlumni Endowment) may qualify for a state income tax credit, which amounts to 40 percent of the value of the gift, up to a maximum credit of $10,000 per year. Planned gifts by individuals qualify for an income tax credit of 40 percent for gifts up to a maximum credit of $10,000 per person, $20,000 for a married couple with any excess unused credit to carry forward 3 years. This credit is on top of your federal tax deduction for charitable donations. If a donor is in the 35 percent federal tax bracket, the tax benefit may look like this:

Gift amount	**$5,000**	**$25,000**	**$50,000**
Federal tax deduction	-$1,750	-$8,750	-$17,500
N.D. state income tax credit	-$2,000	-$10,000	-$20,000
Net cost	**$1,250**	**$6,250**	**$12,500**

Please be sure to consult your own attorney, accountant, or financial advisor for advice on your situation.

QUESTIONS ABOUT GIVING?

In September, we welcomed Monique Anderson as Director of Development for the NDSU College of Science & Mathematics. This position allows development efforts to be focused on the departments within the College, including the Department of Geosciences.

Monique has greatly enjoyed meeting our GeoAlumni. She shares, *"When I was a graduate student at NDSU, I benefitted immeasurably from the generosity of donors through scholarships. I am excited to help facilitate educational and research opportunities for students now and in the future."*

If you have any questions about your donation, maximizing its impact, or are considering making a planned gift, please contact Monique for further information.

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