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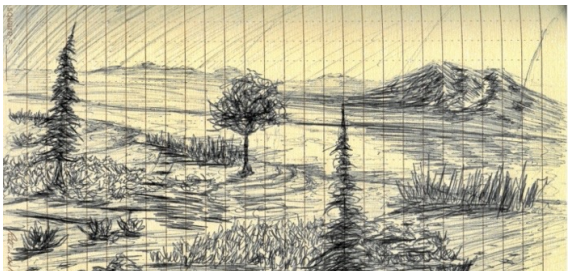
WHEATON COLLEGE
For Christ & His Kingdom

CONTACT

The Alumni Newsletter of Wheaton College's Department of Earth and Environmental Science

2023 Grand Canyon Expedition taking a rest stop on the Bright Angel Trail.



Sunset Crater, Arizona. Sketch in field notes by Carson Frear.

2023 Grand Canyon Expedition on the Bright Angel Trail, first tunnel.

All current students on the 2023 Grand Canyon Expedition.

INSIDE THIS ISSUE:

BACK TO THE GRAND CANYON

ESTHER LAM, ENVR '24

This last month, a group of current Geology and Environmental Science students, alumni, professors, and families had the opportunity to take the first Spring Break (GEOL332) trip since 2020 – to the Grand Canyon! We look forward to many more trips like this thanks to the Richard House Fund for field experiences.

Our first stop was the Frenchman Mountain, where all the strata of the Grand Canyon were turned on their sides. We got an up-close-and-personal view of the Vishnu Schist and took a few samples. Additionally, we saw many worm trace fossils. We were also able to visit the Hoover Dam, where Dr. Luhmann shared about the bathtub ring around Lake Mead left by the drought and overuse, and Doc Mo pointed out the local stratigraphy.

The canyon itself was absolutely beautiful – everyone is entirely right when they say that pictures cannot do it justice. The sheer size is near impossible to grasp. On all of our hikes, the ground was icy and snowy, and occasionally very muddy, which was beautiful but potentially dangerous. Ice spikes (crampons) that we attached to our boots were essential for our hikes down into the canyon, especially on the second and third days. Along this trail we had the opportunity to see for ourselves crossbedding and fossil footprints in the Coconino Sandstone, as well as many other geological features.

Ethan Emerson ('23), who couldn't join us, organized a birding competition over Spring Break and even President Philip Ryken participated! Keeping up with the Spring Break birding challenge was difficult in the Grand Canyon, as it was still early in the season for many birds. But in the end, we collectively saw 24 species. My personal favorites were the Mexican Jay, Western Bluebird, and the Anna's Hummingbird.

Since the Grand Canyon is a Dark Sky Park, our group enjoyed some good stargazing one night. We had a good view of Orion and the Pleaides; however, the moon was full. The true wonder that evening was watching the moon rise and slowly light up the canyon.

Other places we went in this week included Meteor Crater, Sunset Crater (actually a cinder cone volcano), and Red Rock Canyon. Sunset Crater held some amazing basalt flows, and Meteor Crater brought me back to Earth History and Stratigraphy when we make our own craters with sand and projectiles. For our final day, Red Rock Canyon held Joshua trees, rain in the desert, an antelope squirrel, crossbedding in the Navajo Formation more beautiful than the Grand Canyon's, and a magnificent rainbow.

I am always in awe of the newness of nature, and I am eternally grateful to this department for providing its students with the opportunity to experience Creation.

Want to see the photos in this issue in color? Download pdf versions of CONTACT at **wheaton.edu/geology**

From the Department Chair

STEPHEN O. MOSHIER

Garrison Keillor opened his Lake Woebegone monologues with, "It's been a quiet week in our little town…" Can't say that for the past six months or more here in the little town of Wheaton College. Or, for that matter, the Department of Earth and Environmental Science.

President Philip Ryken sent alumni (you) an email/letter in November 2022 delivering the following ominous news: "The College has projected an annual deficit growing to 10% of our operating budget by 2028—due in part to national lower enrollment trends affecting higher education across the country, including at Christian institutions…. we are making difficult but prudent decisions now to reshape our services, operations, and specific academic programs."

Dr. Ryken went on to explain that ten untenured faculty positions would be terminated over the next two years, among other cuts in programs and services. That number does not include many more faculty positions vacated by retirements over the past three years that will not be filled.

No department or program was untouched by the reshaping. Our department experienced the following:

- Following my retirement in June, one full-time-faculty position in the department is lost. We are provided with one permanent, part-time lecturer position to replace lost teaching load resulting from my retirement. The job is posted at wheaton.edu.

- Earth and Environmental Science will be supervised by the Chemistry Chair, even as EES and Chemistry remain distinct departments. This saves the load devoted by one of the four in current EES for chairing duties.

- We will lose our Office Coordinator position and will share office management with the current Chemistry Office Coordinator.

Currently, our four full time faculty and Lab Associate provide courses for two majors, Christ at the Core (general education) curriculum, our Environmental Sustainability Certificate, leadership and mentorship in the Aequitas Sustainability Fellowship, leadership and teaching for Wheaton in the Black Hills, and mentor our majors in collaborative research. We are grappling with how to continue offering quality programs in this new reality.

But department life goes on and there are good things to report here, too. Next year, Richard House's $1 million endowment gift will begin to enhance field experiences for geology majors. The biannual Student-Alumni Field trip returned with an expedition to the Grand Canyon over Spring Break. Dr. Luhmann's karstographers presented papers at the AGU meeting in December. Dr. Maneiro gave birth to baby Bristol, and they headed to the University of South Carolina for a pre-tenure research sabbatical. Dr. Keil published his manual of industrial hygiene. We have been graced this year with the assistance of our new Office Coordinator, Christine Utley. "Prof" Lisa Heidlauf finished well after over 20 years of leading and offering our intro lab curriculum. Lab Coordinator "Prof" Katy Foltz grabbed the baton from Lisa and is rockin' it in the labs.

Please keep reading!

R-L: Carson, Chloe, Esther, Marc, Emma, Matthew on the Rim Trail of (Geological) Time.

2023 Expedition to the Grand Canyon. Chilly but visible.

DOC MO'S MEMOIRS

STEPHEN MOSHIER,
PROFESSOR OF GEOLOGY

Dr. Moshier and Pastor Jonathan Old Horse with Nature, Environment and Society students on Mato Paha (Bear Butte).

Author Robert Wolgemuth refers to the "gun lap" as a person's next chapter after retirement (Gun Lap: Finishing Your Race with Grace, B&H Books, 2021). I started clearing out my office and research room last year, filling a recycling dumpster with reprints and journals that are now eternally available in cyberspace. A professor and doctoral student at Michigan State graciously received samples from my doctoral work on microporosity in carbonate reservoirs. Boxes of specimens from field trips over 40 years are finally curated in our ever-growing collection of rocks and minerals. I even found some folders with overhead transparencies that are now cluttering a landfill somewhere in Iowa.

After some vain attempts to finish the Perry Mastodon book back in September, I decided to put the project on hold until probably next September. I was working on the final chapter that focuses on how our Perry fits into the natural history of mastodons and the last glacial episode. Instead, my creative energy turned to creating two new displays in the Meyer Science Center exhibit hall, now pretty much known as the "Geology Museum."

Over the summer, Carol and I spent two weeks at the Science Station as I contributed to our CORE course Nature, Environment and Society. A particular treat for me and our students was having Jonathan Old Horse, pastor of the Woyatan Lutheran Church in Rapid City, join us to provide the Lakota Native American perspective on our subjects of study. We spent a memorable day hiking part of the way up Mato Paha (Bear Butte) during the June season of spiritual renewal.

As my retirement draws nigh, I find myself incapable of adequately expressing in words the appreciation I have for my years at Wheaton College. My personal and professional journey here was clearly a succession of stumbling through doors that only God could have opened (or closed) along the way. The path was lighted by the support of Carol and my sons, fruitful team work and mentoring by remarkable colleagues, and marvelous associations with students. I am most blessed.

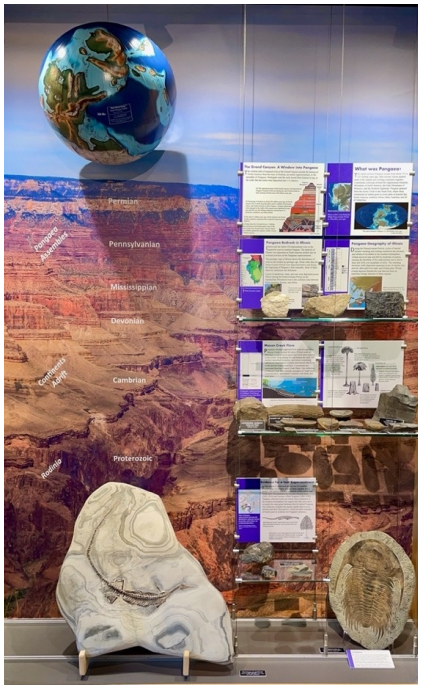
TA Josh Bissel asked if he could teach an entire lab! Doc Mo watched in utter amazement.

NEW DISPLAYS IN THE MEYER SCI CENTER EXHIBIT HALL

The now world-famous Glen Ellyn fulgurite is on display in the Meyer Sci Center Exhibit Hall. Along the more massive glass forms and multiple fragments, the display features other examples of natural and not so natural glass, such as obsidian, a glass sponge skeleton, moldovite (glass tektite from Germany), and trinitite (glass from the Trinity atomic bomb test site).

Pangaea Illinois is the theme for another new display. The Grand Canyon provides the stratigraphic background for the geology of North America from the earlier Rodinia supercontinent to Pangaea. Specimens from the Art Smith and A. L. Inderbitzen collections include the fossil reptile Mesosaurus (from Brazil) and glossopteris leaves (from Antarctica), used by Alfred Wegener to argue for united Gondwanaland.

Fulgurite display in the Geology Museum features the now famous Glen Ellyn specimen and other examples of natural glass.



Pangaea display in the Geology Museum features specimens from Gondwana continents and Mazon Creek.

NHK film crew in the department "dirty lab" with Benjamin Hess, as he prepared to reenact sawing the fulgurite.

Dr. Moshier describes the restored fulgurite in screen shot from NHK documentary (Japan's public network).

JAPAN PUBLIC TELEVISION FEATURES FAMOUS FULGURITE

Japan's public television network, NHK, visited campus in August to include the Glen Ellyn fulgurite in a program on lightning. The director and writers for the program discovered the recent article in Nature Communications by Benjamin Hess '19 featured in the previous issue of CONTACT. In brief, Benjamin discovered that the fulgurite contained the mineral schreibersite ($(Fe,Ni)_3P$), and their article proposed that this mineral produced at the earth's surface by lighting could have provided phosphorous that was necessary for organic molecules early in its history.

The crew included the director, videographer, sound recorder, and a journalist-translator. Benjamin returned to campus from Connecticut for interviews. Dr. Moshier had spent several weeks restoring the fulgurite from the multiple fragments he excavated in May 2016. The film crew also visited the Glen Ellyn property where lighting struck the backyard garden to create the specimen. The Electric Planet was broadcast in Japan in December. An English-language version may be available on the Curiosity Stream subscription video streaming service next year.

LUHMANN'S LETTER

ANDREW LUHMANN,
ASSOCIATE PROFESSOR OF GEOLOGY

I hope this letter finds you well this year. It is bittersweet to no longer have Lisa Heidlauf teaching in our department and to know that Steve will soon be retired, but it has been wonderful to be mentored by both of them and be their colleague over the past few years. We will certainly miss them dearly in the day-to-day operations of our programs.

Hydrogeology field trip to Mammoth Cave, November 2022.

My research efforts over the past year have been focused on karst hydrogeology and geologic carbon sequestration. We now have manuscripts submitted for publication that are focused on geophysical signals that arise from flow processes in karst aquifers, and we presented five presentations at the AGU Fall Meeting that was in Chicago this year (and it was great to catch up with many alums there!). Ethan Emerson ('23), Julia Baer ('22), and Samuel Dunbar ('25) were instrumental in the completion of our interactive museum exhibit (see picture at lower right and you can watch a video of the exhibit in action, created by Donovan Michel '25, at https://sites.google.com/site/andrewluhmann/florida-karst-project). Emily Kranendonk ('22) began analyses this past summer on our FL hydrologic data and continued as a postbac researcher this year. Samuel Otu completed his MS thesis at New Mexico Tech, where he found that flow of a CO_2-enriched brackish solution through sandstone cores did not lead to creep deformation, suggesting that sandstones with early diagenetic quartz cements are good targets for geologic carbon sequestration.

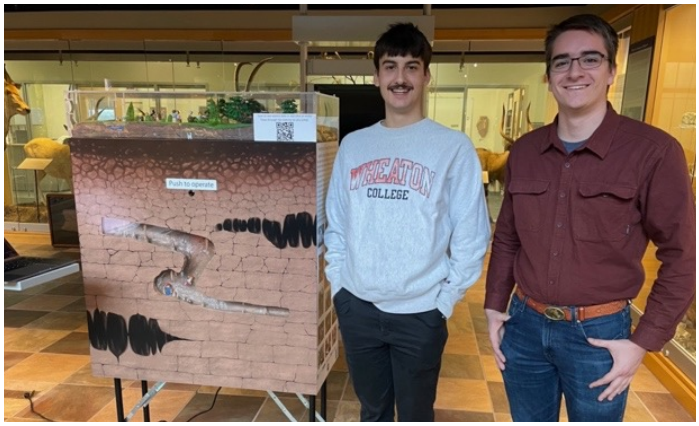
At the Black Hills this past summer, I taught one week of the Nature, Environment, and Society class. I team-taught the class with Dr. Keil, Doc Mo, and Pastor Jonathan Old Horse. My week again focused on water resources, and it was a treat to have Pastor Jonathan join us on some of our field trips while incorporating and engaging with Lakota perspectives. We also were able to go on a tour in Wind Cave with several people from Pastor Jonathan's church.

In Hydrogeology last fall, the students completed weekly readings or watched a couple of videos that highlighted groundwater challenges in the world today (in addition to readings assigned about groundwater science). These readings/videos clearly demonstrated the need for groundwater expertise and was a frequent point I emphasized in our class discussions. It was also a treat to have Riley Mulhern ('10) join us for one day at the end of the semester where he shared about his research on water quality in private wells. One other highlight from the class was a weekend field trip to explore Mammoth Cave and the surrounding region. Jason Polk at Western Kentucky University gave us a wonderful tour of a portion of the massive Mammoth Cave, and we had a fun weekend exploring while learning about karst systems. Liuan Huska ('09) joined my Environmental Geochemistry class this spring to discuss her recent article on the legacy of radioactive waste in West Chicago and its impact on the community.

One of the requirements at Wheaton to receive tenure is to write a "Faith and Learning" paper, where we engage our Christian faith with our field of study. I completed my paper titled *Water is life: Justice and equity and the God who sees*. The paper gives a brief overview of many ways that water makes life possible, highlights the stories of Hagar and the Samaritan woman at the well and God meeting needs and providing hope, reminds us of our call to places of great need in our baptism, and calls us to follow Jesus in our work with water resources while exploring six examples of water injustice and inequity in the world today.

One more highlight for me this year is that I was granted tenure and promoted to Associate Professor. I am grateful for this and hope that Wheaton is a place where I can remain to teach and work with students with the goal of understanding and caring well for this wonderfully created world that God loves and continuously sustains.

Students discuss water management issues with Andrew Luhmann at Hoover Dam, Nevada (or was it Arizona?).



Ethan Emerson and Samuel Dunbar with the interactive karst model.

GRADUATING SENIORS 2022-2023

- Bennett, Trevor – Receiver of the John Muir Outstanding Environmental Science Senior Award, going to work for Montrose Environmental in Elk Grove Village, Illinois.
- Emerson, Ethan – Accepted a position at Stantec Environmental Consulting
- Fink, Madeleine – Wheaton College Honor Society, finishing coursework this summer in the Black Hills and then moving back to the Chicago area for work.
- Hooker, Abbey – Taking summer courses in the Black Hills and doing an internship in the fall.
- Neuckranz, Katherine – Going to Honey Rock to finish classes and then interning there in the forestry department.
- Richards, Danica – Internship at Quest Energy, Phoenix, Arizona, then moving to Germany with her husband.
- Harvey, Jacob – Accepted a position at Stantec Environmental Consulting

KEIL'S CORNER

CHRIS KEIL,
PROFESSOR OF ENVIRONMENTAL SCIENCE

It's been another great year for the Environmental Science Program and we have the usual batch of strong students. Our graduates from last year are either in the workforce or graduate school. Many of our seniors already have jobs lined up after graduation.

Classes in the Black Hills went well last summer with lots of great learning and personal growth. We were very happy to have Jonathan Old Horse team-teach one of our courses. His partnership is one of the steps we've taken recently to connect our teaching and learning in the Black Hills with the cultural history of the region. This includes the regrettable history of interactions between European Americans and the Lakota and other Indigenous people of the area. In the same vein, we had a Lakota youth organization come up to the station to hike, swim, and have lunch with us. Several of us regularly attend church with a primarily Lakota congregation. These connections and others deepened the summer experience for many students and staff.

We were able to make some upgrades to the Science Station kitchen last summer. The stove/oven was well over 20 years old. In 2021, we had repair people out three times. So, in 2022, it was time to get a new one and it's been wonderful. Also, we not only replaced the walk-in cooler, but moved it outside onto the loading dock. That really opened up space in the kitchen. These improvements removed some stress from the kitchen staff. And when the kitchen staff is less stressed, life on station is happier.

I'm sad to have lost my Science Station co-director Dr. AJ Poelarends. AJ has moved on to a new position at Anselm House in Minneapolis where he is working to bring Wheaton-like faith and learning opportunities to University of Minnesota students. He promises he'll be back some summer soon to teach his incredible "Dakota Skies" course again.

Back at Wheaton, we have a student-run water quality sampling campaign in progress. It's been going on for a year and a half. One student takes the lead for a semester and coordinates sampling and analysis of local water bodies for a variety of water quality indicators. The lead student trains other student volunteers and manages the data collected. One of the volunteers then steps into the leadership position the next semester. The leader gets academic credit for all the work they do. This initiative has a couple of goals. One is to help students build their "technical toolbox" of environmental skills and develop them as young professionals. Also, as many of you probably know, environmental equipment is "happiest" when it is used regularly. So the equipment we previously used only occasionally for classes and projects is now being used and maintained regularly. Thirdly, in class when we looked at online data sources of water quality data, students realized that the water bodies closest to campus aren't monitored that frequently by regulatory agencies. Now we have a growing database of measurements that we will use in our classes.

As environmental science grows and changes, we continue to offer challenging and thought-provoking coursework to our students both on campus and at the Black Hills!

Dr. Keil and students observe bison on the grasslands near the Badlands.

KATY'S KOMMENTARY

KATY FOLTZ, LAB ASSOCIATE

Hello dear friends! Another year has come and gone, and I have a new job title. I am now the full-time Lab Associate in addition to my role as Black Hills Program Manager. With the retirement and departure of our long-time lab instructor Lisa Heidlauf, her responsibilities and coordination of our Introductory lab sections falls to me. She calls it "passing the torch," but the amount of work and Lisa's special brand of enthusiasm is a hard act to follow. I am so grateful to have worked alongside her for these past two years, and I look forward to carrying on her legacy and passion for geology and environmental science. Please see Page 13 for a special tribute article in honor of Lisa's retirement!

In the Fall A-quad, I had the opportunity to revive our Introduction to Soil Science class. It was last offered by Emeritus Dr. Jim Clark in 2017, so it had been a while since students had this elective option. As this was my first time teaching a lecture-lab course, I was grateful to have a class of six students, five for credit and one auditor. It was a whirlwind of a semester, as in many universities Soil Science is a full semester course; however, I was able to highlight the most important principles of the subject. It was also a most perfect fall, and we were able to spend many of our labs outside in beautiful weather.

I am now looking forward to Wheaton in the Black Hills this summer as I will take on another new challenge as Western Trip Leader for our brand-new course, GEOL 206: Geology of the National Parks. We hope this course will be a fun and exciting option for non-majors to experience the wonders of geology within the National Parks system. The Western Trip portion will follow the traditional route of the Geology Field Course, with stops at Devil's Tower, Yellowstone, Grand Tetons, and as many other places we can visit within a week.

With the addition of our Alumni-Student Field Trip to the Grand Canyon in March, we've been quite busy this year! As always, we love seeing you in person or hearing from you.

Prof Katy, living her best life, with students on the Fox River.

Katy Foltz re-introduced our Soil Science course including a field trip to the nearby Morton Arboretum.

GIVING TO THE DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCE

Anyone wishing to give to the ongoing work of the Department is invited to consider donating to any of the listed funds. Please clearly indicate which fund or funds for which your gift is designated. Many employers match gifts. We thank you for your consideration.

1. **Boardman Black Hills Scholarship** - An endowed fund providing scholarships for geology majors attending our field course in the Black Hills

2. **Geology Major Scholarship** - An endowed fund providing financial aid for geology majors

3. **Jeffrey Greenberg and James Clark Endowed Research Fund** - Promoting faculty-student research, such as expenses primarily related to collaborative geoscience research, or interdisciplinary research, for undergraduate geology or environmental science majors, including conference costs for students who have been selected to represent Wheaton College at professional conferences to present their findings.

4. **Dr. Stephen O. Moshier Endowment Fund** - Provides funds to promote the visibility of the geology program on campus and support alumni engagement with students. A generous donor has already committed $50K with the hope of it being matched to celebrate the retirement of Dr. Stephen Moshier.

WHEATON.EDU/GIVING

We thank all the recent donors to these funds, which provide tangible and substantial assistance and encouragement to our students. Please be sure to designate, in writing, which specific fund to which you would like your donation applied.

Publications

Wheaton people in bold

Awolayo, A.N., C.T. Laureijs, J. Byng, **A.J. Luhmann**, R. Lauer, and B.M. Tutolo. 2022. Mineral surface area accessibility and sensitivity constraints on carbon mineralization in basaltic aquifers. *Geochimica et Cosmochimica Acta* 334, 293-315, doi.org/10.1016/j.gca.2022.08.011.

Bilek, S.L., **A.J. Luhmann**, R. Grapenthin, H.B. Woo, and J.A. Gochenour. 2023. Capturing seismic signals from karst aquifer injection experiments and a natural recharge event. *Journal of Geophysical Research-Solid Earth 128* (4), e2022JB025635, https://doi.org/10.1029/2022JB025635.

Kavousi, A., T. Reimann, T. Wöhling, S. Birk, **A.J. Luhmann**, J. Kordilla, T. Noffz, M. Sauter, and R. Liedl. 2023. Joint inversion of groundwater flow, heat, and solute state variables: A multipurpose approach for characterization and forecast of karst systems. *Hydrogeology Journal*, https://doi.org/10.1007/s10040-023-02631-8.

Simmons, J., A. Rinehart, **A. Luhmann**, P. Mozley, J. Heath, and B. Majumdar. 2022. Using petrographically observable microstructure to predict hydromechanical changes in a complex siliciclastic storage site during CO_2 injection. *International Journal of Greenhouse Gas Control* 119, 103724, doi.org/10.1016.j.ijggc.2022.103724.

Abstracts

Wheaton people in bold

Bilek, S.L., J.A. Gochenour, **A.J. Luhmann**, H.B. Woo, R. Grapenthin, and J.B. Martin. 2022. Site characterization and seismic noise correlation with hydrologic data using a dense nodal seismic array deployed within the Santa Fe Sink-Rise, FL, USA karst aquifer system. Abstract S13B:03 presented at the 2022 Fall Meeting, AGU, Chicago, IL, 12-16 Dec.

Emerson, E.B., **J. Baer**, **S. Dunbar**, S.L. Bilek, J.A. Gochenour, H.B. Woo, R. Grapenthin, J.B. Martin, **B.J. Luhmann**, and **A.J. Luhmann**. 2022. Interactive museum exhibit illustrating seismic responses during flow through karst conduits. Abstract ED12A:02 presented at the 2022 Fall Meeting, AGU, Chicago, IL, 12-16 Dec.

Kranendonk, **E.A.**, **A.J. Luhmann**, H.B. Woo, J.A. Gochenour, A.J. Rinehart, S.L. Bilek, R. Grapenthin, J.B. Martin, M.K. Flint, and M.D. Covington. 2022. Three-dimensional hydraulic characterization in a karst aquifer using cross correlation analysis of water level data. Abstract H52P-0685 presented at the 2022 Fall Meeting, AGU, Chicago, IL, 12-16 Dec.

Luhmann, **A.J.**, H.B. Woo, J.A. Gochenour, **E.A. Kranendonk**, M.D. Covington, S.L. Bilek, R. Grapenthin, J.B. Martin, and M.K. Flint. 2022. Cross correlation hydrologic analysis to determine water exchange between conduits and the surrounding rock matrix in karst aquifers. Abstract H42D:1289 presented at the 2022 Fall Meeting, AGU, Chicago, IL, 12-16 Dec.

Simmons, J., S. Wang, **A. Luhmann**, A. Rinehart, D. Crandall, and J. Moore. 2022. Geochemical and mechanical evolution of Bluff and Entrada Sandstone due to CO_2-fluid-rock interaction. Geological Society of America Abstracts with Programs, Vol. 54, No. 5, Paper No. 151-3, doi: 10.1130/abs/2022AM-380266.

Tutolo, B., J.C. de Obeso, A. Awolayo, Q. Zhang, C. Brown, T. Kirschner, J. Byng, A. Mitton, C. Laureijs, D. Syverson, M. Nightingale, **A. Luhmann**, and R. Lauer. 2022. Designing experiments and models to predict carbon dioxide mineralization in basalts at the field scale. 2022 Goldschmidt Meeting, Honolulu, Hawai'i, 10-15 July.

Tutolo, B.M., A. Awolayo, J.C. de Obeso, J. Byng, and **A. Luhmann**. 2022. CO_2 mineralization in basalt from nanopore to global scales. Abstract presented at the 2022 ACS Spring Meeting, San Diego, CA, 20-24 Mar.

Woo, H.B., S.L. Bilek, J.A. Gochenour, **A.J. Luhmann**, R. Grapenthin, and J.B. Martin. 2022. High frequency ambient noise seismic data processing and quality control towards monitoring changes in spatio-temporal seismic velocities. Abstract S15D:0231 presented at the 2022 Fall Meeting, AGU, Chicago, IL, 12-16 Dec.

Books

Wheaton people in bold

Keil, Chris, Ph.D., C.I.H. A Case-Based Introduction to Modeling Occupational Inhalation Exposures to Chemicals. *AIHA*.https://www.aiha.org/education/marketplace/case-based-modeling.

Faculty members Andrew Luhmann, Lisa Heidlauf, Stephen Moshier, Katie Maneiro, Chris Keil, Katy Foltz.

RECALLING THE GRAND CANYON TRIP OF 1975

RICHARD ARAM, GEOL '76

Wheaton Geology folks have visited the Grand Canyon many times through the years. Here are a few tales and photos from the 1975 trip.

Open to majors, Intro students, and just anyone interested in the Canyon, 29 people attended the 1975 trip. Dr Dave DeVries and instructor Nancy Perrin led the trip (Nancy took a year out of her doctoral work to teach Paleo and Historical geology while Dr Boardman taught in Pakistan). We drove two 16-passengers with the luggage trailer built by Dr. Haddock, so quarters were tight. We drove straight through to a Denver KOA and enjoyed a surprise visit from Bob Mackenzie '74 who was studying for his geophysics MS at the University of Wyoming. We learned diverse stratigraphy at the famous I-70 roadcut when it was new and fresh. As we headed into the mountains, we met up with a common Colorado springtime phenomenon: a big snowstorm that followed us all the way to the South Rim. Doc DeVries was prepared with chains for both big vans and we made stops at the base of the many mountain passes to put them on or take them off. Those delayed us from reaching our reserved campsites. While we stopped at Pizza Hut in Gunnison, an enterprising student reached for the phonebook at their payphone (remember those things?). He called the first church that he found to ask if we could sleep in their basement. They knew Wheaton College as the Women's Chorale had recently sung there. They welcomed us to their warm, dry basement.

1975 Grand Canyon Expedition snow covered tents at Mather campground. Credit: Rich Aram

During a stop for groceries, some students played frisbee in the parking lot, and one student tripped into a pothole. So, Doc DeVries had to find an ER to get him stitched up. Ah, the carefree life of a geology professor.

The Black Canyon of the Gunnison was white! We also stopped at the Four Corners, Goosenecks of the San Juan, and Petrified Forest. The snowstorm caught back up with us as we pitched tents in the dark on the South Rim. I remember nearly a foot of new snow that first night. Some slept in the campground bathroom because it was warmer than tents. In the morning, we hiked through the snow to the South Rim overlook: no canyon! The snowfall and clouds erased them.

The weather improved after a day or so and most of us were able to hike to the bottom of the canyon in sunshine. Doc DeVries had to stay topside because all of the tire chain work strained his knee. He knew better than to attempt the Bright Angel trail with a bad knee! Doc liked CB radios, so we kept in contact from the trail for safety and to ask geology questions.

Doc DeVries during the 1975 Grand Canyon Expedition photographing Goosenecks of the San Juan River. Credit: Rich Aram

We stopped at Sunset Crater on the way back to Illinois. The ranger could guess that we'd just hiked the Canyon by the way we moved getting out of the vans.

All in all, we saw a great diversity of geology, sat cocooned together in the two vans for a lot of miles, experienced some challenges, so it was a GREAT trip, like so many others put on by Wheaton's geology profs.

A few final stories that don't fit anywhere else:

We advertised the field trip on campus, promising a special showing of a movie, "Rocking through the Rockies." In reality it was an old black and white Three Stooges movie with that name. I confess that was my idea.

Doc DeVries asked me to suggest the route and build a guidebook for the trip as my Independent Study. I loved pouring through the many roadlogs and guidebooks in the department library. The guidebook ended up over 100 pages, which was far more than Doc had expected. Oops. We saved all of the little circles of paper from cutting holes for three ring binders (that was a lot of holes) and dumped them on Doc's head during a pre-trip meeting. He was a good sport. As we cleaned them up, Doc Haddock saved a few and placed them in various corners and behind doors on third floor Breyer to test if the nighttime cleaning crew was doing their work properly. Those guys were characters! For many of us, the rocks and earth and outdoors attracted us to the geology major, but the personalities and dedication of our profs played a big role in that too. Everyone agree?

1975 Expedition to the Grand Canyon. But was it really there? Credit: Rich Aram.

STUDENT ARTICLES

Fiona Balfe, ENVR '24

Last summer, I received an incredible opportunity to intern at the National Energy Technology Laboratory (NETL) in Pittsburgh through the U.S. Department of Energy (DOE)'s Mickey Leland Energy Fellowship (MLEF) program. I learned very quickly that DOE loves acronyms as much as Wheaton! This internship enabled me to both practically employ the knowledge and skills from my coursework at Wheaton while developing new skills and expanding my knowledge of environmental science and geology. My mentor Dr. Eilis Rosenbaum, research advisor Mr. Rick Spaulding, and their Geochemistry group work under the Geologic and Environmental Systems (GES) directorate. The project they selected me to work on involved performing laboratory tests and data analysis to characterize geologic materials for abandoned/orphaned oil and gas well capping.

Abandoned oil and gas wells require a capping process to prevent fluid migration into surrounding rock formations and aquifers. Throughout the country, especially in Pennsylvania with its long history in the fossil fuel industry, many wells in the past were abandoned without properly completing this process. Uncapped wells pose multiple dangers to the environment and human health, such as leaking methane into the atmosphere, contaminating groundwater, and even presenting a risk of explosions. While cement has historically been used in well capping operations, the significant greenhouse gas emissions associated with its production have led companies to explore alternative materials. However, potential use of these alternative materials requires in-depth knowledge of their characteristics to engineer durable, effective well capping solutions.

My project was to characterize the viscosity of cement as it is hydrated by groundwater over time. We compared cement with solutions containing various concentrations of bentonite, a comparable but naturally occurring potential alternative. I appreciated how Eilis and Rick provided me with the broader context to understand the significance of these steps in the broader process of science and the intended contributions to society. Even as I developed practical laboratory skills like mixing cement and using a viscometer, I also grew in my understanding how sometimes seemingly minor, intricate steps converge to yield beneficial results. My lab experience, both from on campus and in the Black Hills, gave me an excellent foundation for this internship. Ellis and Rick mentioned that one of the aspects of my application that stuck out to them was my lab experience at Wheaton.

At the culmination of the program, all MLEF fellows traveled to the DOE headquarters in Washington, D.C. for a four-day technical forum where all the students gave presentations on their research. This experience illuminated the many fascinating topics within energy research, enabled me to build connections not only with fellow students with similar interests but also with professionals in the field, including the MLEF program co-founder, and experience an unforgettable week in the nation's capital. I was also provided the opportunity to present at the Geological Society of America (GSA) annual conference last October in Denver, CO. I enjoyed the process of summarizing a summer of work in a poster, talking with both other students and professionals who stopped at my station, and even connecting with another MLEF student from my cohort who was also presenting there. From Pittsburgh to D.C. to Denver, this internship broadened my horizons within the field, and I thank God for the opportunity to learn and grow in countless ways through it. I highly recommend MLEF to other students looking for an internship!

Elijah Owens, GEOL minor '23

How did a communication major end up in Mammoth Cave?

I came into Wheaton already set on my major; I wanted to be a Communication major with a concentration in Interpersonal Communication. My classes in this concentration fit in perfectly with my desire to work in fields that are directly involved with people. Little did I know that my Christian Liberal Arts education was about to take a turn. I decided to get my required lab science class out of the way during the spring of my sophomore year, and like many Wheaton students, I chose Dynamic Earth & Environment. Throughout the class, I was amazed by how applicable so much of the material was. My preconceptions that the class was solely about the functions of the earth were very quickly dismissed by lectures and videos about how the environment has been used to disenfranchise certain people for the benefit of others. This emphasis on the equitable stewardship of resources allowed me to see a clear connection between my study of people and our relationships with one another and the study of the earth and its resources. With just a little nudge from Dr. Luhmann, I decided to declare a geology minor. My time in the department has taken me on many adventures–working in the Black Hills for a summer and hiking in the Grand Canyon for spring break to name a few–but Mammoth cave has been by far the most interesting. After spending a majority of the semester learning about aquifers and groundwater, we had the opportunity to go and see groundwater up close. Standing on the bank of a river 400 feet under the surface opened my eyes to just how important water is as a resource. Where we were standing had very recently turned into dry land because of a lack of water recharging the system. The water that we use in our everyday lives is finite, regardless of whether it comes from surface water or groundwater. Those who have historically been marginalized are the most vulnerable to a lack of clean fresh water. To understand how groundwater works comes with the responsibility to ensure that it is used equitably. While my studies in communication are not required for this connection, my communication content had enhanced my understanding of good stewardship.

Hydrogeology field trip to Mammoth Cave, November 2022. Elijah is standing fourth from the right.

Once Upon a Time in the Early 90's
(My Tribute for Steve)

JEFFREY GREENBERG,
EMERITUS PROFESSOR OF GEOLOGY

Once upon a time in the early 90s, a struggling but hopeful little geology program that was all but exterminated a decade earlier, searched for a new faculty member to replace the heroic service of one Gerald Haddock. Among some good candidates was an experienced scientist with both an industry and teaching background. Coincidentally, he taught at the University of Kentucky, where I had gotten my MS, and I had also applied for a faculty position there before coming to Wheaton. Steve was our first choice for the job and, thank the Lord, he accepted it, even knowing that we were struggling to regroup and attract students. Little did we know that this man was truly a "space cadet," with a great love for the human trips into earth's orbit, on to the moon, and everything out there beyond.

We were only two when Steve began his Wheaton service. Later, we would add wonderful help with lab instructors, a departmental coordinator position, and another full-time tenure-track faculty position. Steve was the soft one (as in soft-rock geology), and I was the hard-rocker to cover all the courses required for Gen Ed and a viable major. It was not easy. However, Steve's devotion to our students and to partner in building the department were essential components of the coming success. Multi-tasking-r-us! Herr Professor Dr. Moshier evolved into a fine instructor, a scholar in archeological geology, and a super colleague in the work to demonstrate faith and science together in Christian education. Like myself and our more recent colleagues, Steve was diversified by the Wheaton experience. I am certain that no college faculty anywhere are met with more challenges and opportunities than at Wheaton. Nobody labors more strenuously or zealously than we do. Steve's record of involvement and achievement seems impossible. Looking back at some of those before us (including Haddock), the" tradition" is like a cult of over-achievers. My tribute for Steve is also a chance to honor remarkable sacrifice from him as a key component in a team, a family spirit.

Students, of course, are the mission and the ministry of our department in the kingdom of God. In my mind, I see Moshier counseling many, many students about academics and life. These folks include our dear geo-majors but also anyone from our classes and elsewhere on campus. Particular examples of Steve's service include relationships at the precious Wheaton College Science Station in the Black Hills, his advising of student research projects and internship assignments (like the college's HNGR interns), and even leading a team to deliver Christ's mercy in the wake of Hurricane Katrina. I can't help but think of Carol, the other half of 'Moshier,' in the context of relationships. Many wonderful evenings brought her kind, warm gifts of food and fellowship celebrating Christmas with the department family at the Moshier home.

Steve's very full spectrum of academic interests can be seen from his official CV. I can't attempt to describe all that he is and has done, but I can reflect that Dr. Moshier meshed with the program's needs whenever needed. He set an example that would be very difficult to emulate.

Moving so far away from the campus has been personally difficult. I hope and pray that Steve can manage to stay connected after retirement. I'm sure that he will also find it impossible to disengage from what was so much more than any 'job.' Steve, nor Jim Clark, nor I, can be satisfied with the elimination of Steve's faculty position. We all put too much of our souls into the program, to "go gently into that good night." It would be the best tribute for Steve Moshier and all the Wheaton College Earth and Environmental Science faculty to learn in the future that his position will be restored, preserving what has become a truly excellent undergrad geoscience major.

For our remaining super colleagues, Chris, Katie, Andrew, and Katy: may all your efforts be rewarded, bringing more wonderful relationships, successful scholarship, and all the help necessary to keep this thing of God's sustainability. For dear Lisa, you too became an essential part of the sweet family, nurturing students and colleagues. May your new days bring joy and forever memories of the unique service only you could provide. Steve, Jim, and I could not have moved the vision forward without all of you.

Steve came when he was so greatly needed. He was a wonderful part of a wonderful department. May the Lord oversee the Moshiers' transition into "civilian" life, keeping health, joy, love, and even adventure fresh for them.

Dr. Stephen Moshier's retirement celebration.

MANEIRO'S MUSINGS

KATHRYN MANEIRO, ASSISTANT PROFESSOR OF GEOLOGY

Greetings from a year of leave and adventure!

Last year in the *Contact* I shared that my husband, Anthony, and I were expecting a baby in June 2022. Bristol Maneiro (or "Brie" for short) surprised us and arrived six weeks early during finals week last spring. The department rallied to proctor and grade my 111 intro. students' final exams while I spent time with our tiny, feisty new arrival in the hospital. I was on maternity leave for the summer and also for fall semester 2022. I am so thankful for the time that I got to spend with Brie adjusting to life as a mom and helping her grow, explore, and learn many new skills. She is a blessing and a miraculous gift from God. In other family news, my husband's firm also opened a new office in Chicago last spring and transferred him to the new office, so we finally live in the same city full time as a new family of three.

Katie and Anthony Maneiro welcomed Brie in May 2022.

When I returned to work in January, I did not return to the classroom at Wheaton but instead headed to Columbia, South Carolina, for a semester of research leave. Support for this semester of research leave is provided by a SCIO/CCCU Supporting Structures grant to Wheaton's Natural Science Division. The grant provides three pre-tenure Wheaton STEM professors the opportunity to spend a full semester working on research in partnership with an R1 research university and additional funds to support increased engagement with the integration of faith and science. For my research leave, I am working at the University of South Carolina, where I have access to a clean lab facility and instrumentation that is allowing me to pursue several geochronology projects in parallel. One of the projects is a continuation of research started by Wheaton alumna Lauren (Breederland) Madsen ('22) for her completed senior honors thesis last year to provide a better constraint on the timing of metamorphism in the critical Archean Limpopo Belt of South Africa. Current Wheaton undergraduate Ethan Paul ('24) has started working on research with me and spent spring break visiting me at USC to develop ideas for a senior thesis next year. I am also working to confirm a garnet age of approx. 2.6 Ga for rocks from the Canadian Shield and starting a new project utilizing samples from the Isua Greenstone Belt in Greenland. For the Greenland sample, I am attempting zoned garnet geochronology to obtain separate ages from a chemically distinct core and rim within the garnet. Collaborators have proposed that the core may represent the oldest known garnet in the world at 3.6-3.7 Ga, and we hope to confirm that proposed age through direct dating. More to come as research continues!

Ethan Paul traveled to the University of South Carolina over Spring Break to work with Dr. Maneiro, processing garnets for geochronology.

While on leave, I have also continued to serve as the Theme Coordinator of the Aequitas Fellows Program in Sustainability. The first cohort of students are freshmen, and Doc Mo graciously agreed to teach their freshmen Aequitas seminar this past fall while I was on leave, even with a course design involving an alternative grading structure known as specifications grading. He will happily tell you that he enjoyed working with the students (even if he did not love having to navigate a new grading system). We are looking forward to sending our first cohort of Aequitas Sustainability Fellows to participate in the Sustainability Summer courses in the Black Hills this summer, where I will join them to teach part of the coursework during Session 1. I have also completed interviews to welcome our second cohort next year, and we are excited about the opportunities and growth in this program.

This summer, in addition to four weeks teaching at the Science Station, I will also attend a conference on faith and science integration at Oxford as a part of the SCIO/CCCU Supporting Structures grant. Then next academic year I will finally return to the classroom at Wheaton to teach Petrology and Structure ahead of the next time geology field camp will be offered in the Hills during Summer 2024.

TRIBUTE TO LISA HEIDLAUF

For the past 24 years, students have been welcomed into the department on Tuesdays and Thursdays with a joy-filled "Good morning, good morning!" from Lisa Heidlauf, our department's long-serving Adjunct lab (and sometimes lecture) professor. Lisa, who officially retired from teaching in December 2022, joined the Geology department in August of 1998. She laughs when she shares that she was signed up to teach at Wheaton without her knowledge by her husband, geology alum Dave Heidlauf ('82). At that time, extra lab instructors were typically Northern Illinois University graduate students, but that semester, the department was not able to hire anyone. A call went out to local alumni, and Dave contacted Dr. Jeff Greenberg (department chair at the time) to volunteer Lisa.

Lisa is a graduate from Smith College (BS Geology '83) and the University of Illinois (MS Geology '85), and she went on to complete additional coursework in Secondary Education at NIU. In 1998, she was a stay-at-home mom and was not seeking full-time employment. But semester after semester, she would walk into Breyer's (and eventually Meyer's) basement, faithfully setting up and teaching labs that reflected the lectures but added her own sparkle to the material. On occasion, she was also called upon to serve as the course lecture instructor. From the current faculty and staff, Andrew Luhmann and Katy Foltz were two of her lab students and/or teaching assistants ("TA's").

Lisa gives much of the credit for her teaching style to her mentor, Diane Greenberg. From shadowing Diane, she learned how to fully integrate faith and learning with devotionals at the beginning of classes and how to personally mentor students. Wheaton was a safe place for Lisa to learn how to wrestle with faith. Lisa became a believer in graduate school and grew in her early faith through participation in Bible study fellowship and through serving as part of the leadership team in women's ministry at her home church. Once she entered the Wheaton community, she shared her growing faith as an encouragement for and in a mentoring role to her students and co-workers.

Many of Lisa's former students, both majors and general introductory lab students, fondly remember her excitement for teaching, her care for her students, her deeply moving devotionals, and her unashamed passion for geology and Creation. Field trips were (and are) her happy place, where she was able to let loose with the joy of being outside, which was infectious to her students. Lisa has been instrumental in creating a robust introductory lab setting for hands-on learning of geology and environmental science material. Her mentorship is also reflected in how undergraduate TA's are utilized in the classroom.

Now, in her retirement, Lisa and Dave have been able to travel more often to visit and support their children on the East Coast. There was a hiking trip to the Grand Canyon, a visit to the Science Station this summer, and Sonoma in the fall. Lisa has a passion for photography and is investing in pursuing her artistic side. But more than anything, she has been thankful for the time to rest and recharge after so many years of service.

From the entire Earth and Environmental Science Department, thank you, Lisa, for your joy, love, wisdom, and service.

If you wish to contact Lisa in retirement, please ask the department for her updated contact information.

Lisa and Dave Heidlauf on the South Kaibab Trail.

Annika Watson interviews Lisa Heidlauf about her career as a geoscience educator.

REMEMBERING GERALD HADDOCK (1929-2023)

JEFF GREENBERG, EMERITUS
PROFESSOR OF GEOLOGY

And now, a great one has passed into Glory. It is easy to write some good things about our solid-as-a-rock brother, Dr. Gerald Haddock.

First, there is no doubt that Wheaton College Geology would have been long extinct if it were not for Jerry's devotion in serving beyond the reasonable call of duty. He didn't have to, but was essentially forced to undertake a Herculean load of course instruction just to provide for the majors who remained after the College withdrew adequate program support in the early 80s. The marks of his service are all over the Department and the Science Station, even decades after he retired.

Gerald Haddock preparing crystal form models

Jerry was 100% kind in his dealings with all others, even when they/we may have deserved less. If you had any kind of chore that he could handle, he never refused. Few who are humble have absolutely no guile, like our Dr. Haddock.

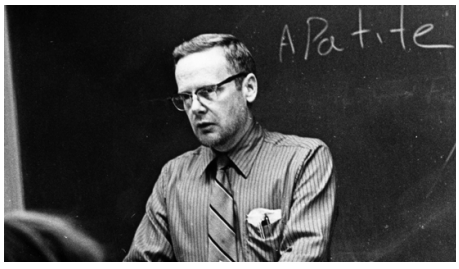
It took almost no excuse to get Jerry off on the road from campus to the Black Hills again. I remember his little pickup truck as the base for travel and his sleeping quarters away from Wheaton. Jerry's bad back made him use a plywood sheet as bed-base. He would go and fix anything that might need repair each summer before students and faculty showed up in May. The loving service was a big part of the man. He was also the product of some interesting times growing up on a Native reservation. A very simple lifestyle was his norm. The "wild west" of the Black Hills was just his kind of setting.

One field day with Gen Ed students taking our 4-week Geology in the Field class out in the old Airforce surplus Dodge Power Wagon, Haddock stopped suddenly in the middle of the road. This was down Hisega Road where it bent off at a local spring. Jerry hopped out with his cane, used when his back flared up, and played like a fencer with a big prairie rattler. He, Jerry that is, had a mischievous grin as the class watched. One student said, "doesn't he know that's a poisonous snake!?" Oh, Jerry probably even knew the snake's whole family.

All day or overnight field trips with Haddock could be a bit like boot camp. His austere up-bringing resulted in an instructor perfectly happy with just white bread, peanut butter and some jelly for lunch...every day. Especially the more recent students in the 1990s-2000s, were not so pleased with those rations.

For a long time before he retired, Jerry had suffered from very poor hearing, at least partially brought on by his Naval service post WW2 on an escort aircraft carrier (CVE-116 Badoeng Strait). This malady made teaching progressively more difficult for him. It was a terrible thing when I had to mention to our academic dean that Jerry couldn't any longer interact with students in classroom settings. That single fact was what finally slowed the good man down. After we hired Steve Moshier to fill his position, Jerry helped with the Mineralogy labs for an extra year and we were blessed to have him.

Being retired myself provides a sense of the emotional loss that comes from no longer teaching. I hope and pray that Jerry did know our love and great respect for him. It was fun and fitting that we named a road after him at the Science Station. He really was the last of an amazing group of faculty who built a foundation for Wheaton's successful Science Division. They (He!) really doesn't make them like Gerald Haddock anymore.



Gerald Haddock lecturing in mineralogy class

Dave Heidlauf '82
I have many memories of my times and interactions with Dr. Haddock. He was a quiet servant mentor whose actions and life example spoke loudly into my life and development as a young Christian geologist. Some, but not all, of the impactful memories I have of Dr. Haddock include:

Dr. Haddock's humble and diligent service in the Navy as a junior enlisted sailor during the Korean war, working below decks in a very hot ship in the Pacific. He did his duty and served his country in a humble way before entering Wheaton as an "older student" to study geology.

Dr. Haddock valuing the worth and service of all students and everyone in life, showing high regard for the ordinary many instead of just for the talented few or the academic superstars.

Dr. Haddock stepping up to fill the gap in a short, staffed geology department to teach paleontology, a topic matter rather foreign to a hard rock volcanologist.

The delight Dr. Haddock shared with his students when teaching crystal structure in mineralogy.

The wonders of God's creation that he showed the students during the most special western field trip to Bighorns, Yellowstone, and the Tetons during field camp. I will never forget walking up a hill with him at Yellowstone seeing one buried petrified forest horizon on top of another and Dr. Haddock commenting on how he had repeatedly tried to get the "Young Earth" geologists out here to see the wonders of God's creation and to understand that the rock record was built through many different processes through time versus the singularity of Noah's flood.

The trust Dr. Haddock put in the western field trip students when he allowed us to conduct a two-day backpacking trip up and around the Tetons without him.

The love he had for Wheaton, the Geology program, and for his students through the good times and the hard times – and his enduring servanthood to stay the course until he could hand off the reigns of the program to the next generation of Geology faculty.

In closing, Dr. Haddock never sought the limelight, never sought recognition for himself, but was a servant leader who has made a large impact in my life, in the lives of many of my fellow Wheaton geology alumni. He will be truly missed.

Stephen Moshier, Geology Professor
Jerry made sure my first years in the dept were a success. I will never forget a Sunday afternoon marathon field trip across the entire Black Hills to visit every stop for the 4-week course I was about to teach (starting the next day). He also took a van load of students and me to North Carolina over my first Spring Break, where

Jerry Haddock and family with WCSS students and staff during summer 1974. Credit: Rich Aram

we experienced snow on our tents and ice in our coffee cups. He was tireless and always content.

Most of all, I will never forget the day he took me down to the Perry Mastodon exhibit, unlocked the door, and handed me the keys. "She's all yours now," he said with a smile.

Dawn Wright '83

I had the great honor of knowing Doc Haddock, during my years at Wheaton. I declared for Geology as my major from the moment I stepped on campus in 1979 (it was in my life plan). And I graduated in 1983 during that difficult period when Geology, for the sake of its survival, had been merged with Physics. I so agree that Geology at Wheaton would have gone under were it not for the steadfast dedication of Doc Haddock and Doc DeVries to the college and program.

I admired Doc Haddock's quiet patience, as well as his amazing knowledge in both the classroom and in the field. He had a special twinkle in his eye when leading a field trip or in the Black Hills. Of course, I was in awe of him when I first met him as a freshman (along with being in awe of every other professor at Wheaton). I was further bemused when my mother (class of '56) told me that she and Doc Haddock were in the same class at Wheaton as students. They rarely crossed paths as she was a Speech major. So, it was with great amazement one morning at Wheaton for an Alumni breakfast that I was able to attend with my mom, that I witnessed Doc Haddock came in to join the class of '56 group wearing his freshman beanie, complete with an orange propeller, and a bright smile! It was terrific to see that fun side of him.

Rich Aram '76

Doc Haddock was one of my geo-heroes. The Bible is full of stories of the big flashy Bible heroes, but in the many generations in between those, there must have been quiet men who followed the Lord and taught their families and others to love and follow the Lord. Just like Jerry Haddock did so well.

At the Black Hills, Doc often brought son Ralph with on our field trips. I thought it was great for Doc to include his son and I did that later with my kids on field trips because of him. On our western trip, Doc drove us up the Beartooth Highway onto the Hellroaring Plateau because he wanted us to see an abandoned chromite mine. He drove his own International Harvester truck and tore off the muffler on a high spot. The nearest dealership to get it repaired was days later in Idaho, but he enjoyed revving the engine loudly occasionally.

In Yellowstone, he would pull over to climb up a hill to admire wildflowers as much as the bed rock. During field camp days, Doc predicated that during our careers, we would be offered beer. He taught that his simple solution was to say, "No thanks, I'm not man enough to handle that stuff." We majors wanted to thank Doc and his family at the end of the summer, so we took them out to a nice restaurant over near Lake Pactola. They looked a little uncomfortable and all ordered chicken, while we students ordered steaks.

Back on campus, there was a small study room on Breyer 3 next to the old dark room (Dr. Boardman did a lot of photography work) and I often studied there during the day. I knew to expect Doc Haddock to come sauntering down the hallway every day at 12:16 after he finished Paul Harvey News and Comment, to find someone to share a few of Paul's funny stories of the day. During field camp days, Doc always seemed to know which AM radio station carried Paul Harvey and turned it on at 12:00. I listened to Paul Harvey lunch for years after that.

Gerald Haddock, Geology student (seated center)

ICR made a movie on their interpreted mantracks with dino tracks in the Glen Rose limestone on the Paluxy Riverbed. They brought in a few expert commentators including a young Jerry Haddock. Doc said something like, "I guess I'm not convinced" and told us later that he wished he had been much more direct and firmer in his opinion that the mantracks were bogus.

Wheaton geology ran lots of field trips through the years. The department bought a simple enclosed box trailer to haul gear. As I understand it's history, Doc Haddock built the many shelves inside of it with specific dimensions to hold Coleman stoves, Coleman fuel, boxes for pots and pans, plates, silverware and cups, water coolers, sleeping bags, tents, back backs… It was very efficient and must have been quite a challenge to design and build.

Ever resourceful, Jerry Haddock shaves with his Brunton compass mirror, 1974. Credit: Rich Aram

Nancy Perrin taught Paleo and Historical Geology in 74-75 while Doc Boardman taught in Pakistan. Doc Haddock sauntered into our lab during one of Nancy's tests, stopped, picked up a sample, and said, "Isn't that a nice coral?" Nancy silently and desperately tried to wave him away. She had snuck in a ringer that didn't belong with the other fossils on the test. I don't think any of us noticed and I think we all got it wrong.

WHEATON
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DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCE

501 College Avenue
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Intro students in the gorge at Matthiessen State Park.

Students enjoying dinner at Andrew and Audrey Luhmann's backyard, a new autumn tradition.

Andrew and Sam Luhmann on the Bright Angel Trail