Carleton Geology Newsletter

Volume XLI 2016

Published by
The Department of Geology
Carleton College
Northfield, MN 55057

The cover drawing is the 2016 Geology T-shirt design by Forrest Williams ‘16

Photo Submissions:
Pictures submitted to the Newsletter can be either in traditional print or electronic formats, but electronic pictures should be medium to high resolution in order to reproduce well on paper. The file size of electronic pictures should be several hundred KB or more.

If you have a change of address or other correction to our address list you may edit it yourself and make sure your listing is done the way you prefer at http://apps.carleton.edu/alumni/directory/

If you have forgotten your username or password call the Alumni Affairs Office at 1-800-729-2586.

Or

You may notify:
Alumni Records
Carleton College
Northfield, MN 55057
(507) 222-4195
E-mail: addresses@carleton.edu

Department of Geology

Carleton College
One North College Street
Northfield, MN 55057

Dear Alums, Students, Friends and Family,

The Geology Department at Carleton College is thriving and growing. This June we graduated 16 Geology Majors, almost all of whom were above average. We have 24 rising Seniors for 2017, most of whom are off on summer adventures all over the world. Something like 30 Sophomores declared Geology this spring, so a good sized crop. We saw quite a few of you at Reunion this year, and even some at Commencement, as siblings or offspring graduated from Carleton; it's always great see you.

We continue to take students to work and study in the field at every opportunity. This year the Department went to the Badlands and Black Hills of South Dakota and to Baraboo, Wisconsin. We took 24 students to New Zealand for 10 weeks. Most of our courses use local field sites for weekly laboratories and many of us take students out on weekends to places slightly further afield (Taylor's Falls, the driftless area, the Minnesota River Valley, to name just a few). Our students continue to participate in off-campus programs in both Geology and the other humanities in record numbers. It's a vibrant department by any measure.

Our intro classes still fill up, so we can expect good crops of majors for the foreseeable future, unless of course, the demolition of Mudd Hall scuppers our enrollments (we are working hard to insure this doesn't happen, including planning some exciting, high profile field opportunities for students). It has been the generosity of our alums, parents and friends of the Department that continues to enable the field focus of our curriculum, and we realize what a privilege it is, indeed, to work, teach and learn here.

The Department enjoyed the help of two visiting faculty this year, Alice Newman '11 and Graham Hagen-Peter, who taught the courses Sarah Titus usually teaches (she being on sabbatical this year). Graham also taught a course on Antarctic Geology this past Winter Term (so the Carleton-Antarctic connection continues!). We appreciate all the hard work Alice and Graham put in, and they did a great job.

It was a year of sadness, too. Zach Mitchell '16 lost his battle with cancer this winter. He is missed. We also said goodbye to our Administrative Assistant Ellen Haberoth, when the admin positions for Chemistry and Geology were combined.

Inside this newsletter, you will read more about the goings on in the Department, and hear from individual faculty members. As always, Jonathon Cooper steers the ship through fair weather, storms and squalls, and drinks an enormous amount of my coffee without ever buying beans.

Yours in perpetual servitude,

Clint Cowan, Chair

DEPARTMENTAL NEWS

Faculty Update - Sarah Titus

I have enjoyed sabbatical this year, which afforded me opportunities to travel to meetings, to visit with colleagues and former students, and to go in the field.

This past fall, I was busy at three meetings. At the DRT meeting in Germany, I met Jacqueline Reber, the new structural geologist at Iowa State. Next fall, two Carleton alums – Tom Birren ’13 and Jeremy Randolph-Flagg ’15 – are starting Masters projects with her. Additionally, Emily Ross ’17 will be working on her comps project this summer in Jacqueline’s lab. At GSA, I co-led a short course with Joshua Davis on some interesting statistics that Josh has been adapting for the weird kinds of data that structural geologists use. We’re running that short course again at the Structural Geology and Tectonics forum in Sonoma later this summer. And at AGU, I presented a poster with most of my family (Fig. 1).

Last summer’s field work included a couple weeks in western Australia with alum Nicolas Roberts ’13, who is working on his Ph.D. project in the Pilbara. I could get used to field work in the outback (Fig. 2). I also got to go to the Apostle Islands with Emily Houlihan ’15 for field work related to her project on Midcontinent Rift sediments (Figs. 3 and 4). Her project wins the award for most advisors (which means there isn’t much advice, but it is fun) including Tony Runkel, Clint Cowan, and alum and magnetics wizard Joshua Feinberg ’97.

In December, I went to central California with Peter Lindquist ’18, Grace Pipes ’18, and Alice Newman ’11 (Fig. 4). For Peter and Alice, it was a return to some lovely blue sandstones. And for Grace, it was a different kind of return, since we stayed a couple of towns away from where she grew up. This coming summer, I’m heading back to Iceland with Will Chapman ’16, who is continuing his senior thesis work in Iceland as a fifth-year intern. Ella Fadely ’18 will be joining us for this project as well.

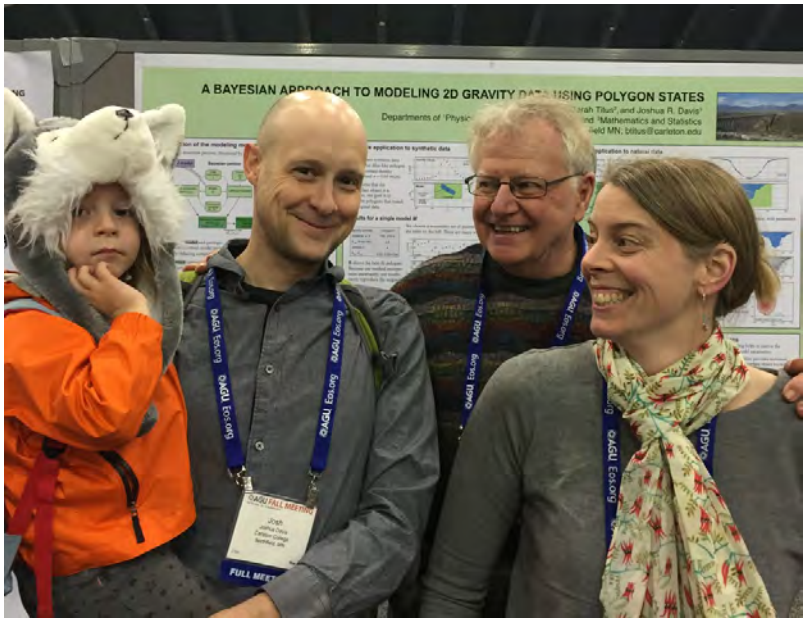


Figure 1: Freya and Joshua Davis, and Bill and Sarah Titus present their poster on Bayesian gravity inversion. Freya says oow-oow-oooww.

Figure 2: Nick Roberts and Sarah Titus in the Pilbara, after many days without showering.

Figure 3: Clint Cowan and Emily on a water taxi.

Figure 4. Emily and Josh Feinberg examining rocks in the Apostle islands.

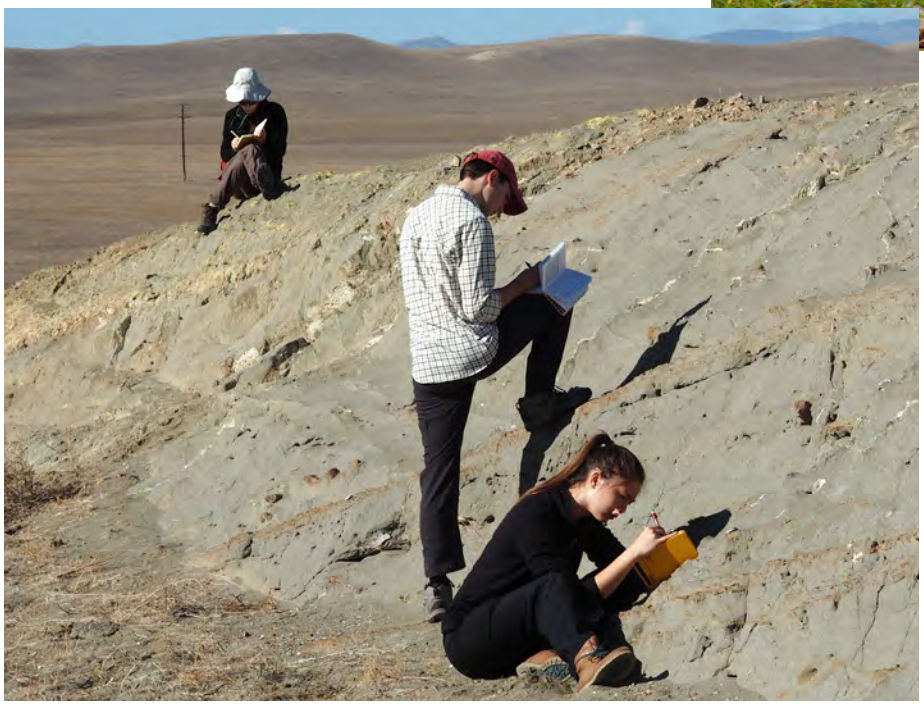


Figure 5: Alice Newman, Peter Lindquist, and Grace Pipes hard at work in central California.

Faculty Update - Cameron Davidson

Perhaps one of the highlights of teaching this past year was helping run the New Zealand off campus studies program for the first time. We had a terrific group of 24 geology majors, with Nick Roberts '13, Tom Birren '13, and Emily Houlihan'15 as the ever capable and enthusiastic TA's. Two of the students on the program brought home a small collection of the Alpine schist and turned it into their rock suite project in Petrology. Main finding: the Alpine fault has a significant dip slip component bringing rocks up from 35 km depth.

Research in Alaska is still going strong, but we are in our last year of funding. John Garver (Union College) and I took four students to Yakutat, Alaska in June and July to help fill an important gap in our understanding of the Chugach Prince William terrane. Haley Olson '17 and Erin Arntson '18 are in the throes of mineral separation now and will be working on these rocks through the next year. As for me, I'll be busy working on manuscripts (two in revision now) and working with John to figure out what's next in Alaska.

Haley Olson '17 taking notes on the schist of Nunatek Fjord

Yakutat Formation turbidites, Erin Arntson '18 for scale

Lunch Coma on the beach

Faculty Update - Clint Cowan

This has year has flown by. The 4th iteration of the Geology of New Zealand Off-Campus Studies Program was by all accounts pretty successful; I ran the North Island half and Cam Davidson ran the South Island half. We had three GREAT teaching assistants: Tom Birren '13, Nick Roberts '13 and Emily Houlihan '15, without whom the program could not have run. I have already started booking the Winter '18 program, which Sarah Titus and I will share. It is really a never-ending cycle.

Research this year has been focused on local rocks even more than usual. I was peripherally involved in Emily Houlihan's ('15) Allensworth Internship trying to use paleomag to date sediments in the Midcontinent Rift around Minnesota, Wisconsin and Michigan. Sarah Titus really did most of the advising here, and Josh Feinberg '97 at the University of Minnesota was the driving force behind the science, with Tony Runkel of the Minnesota Geological Survey being the field guy and in fact, he was the originator of the whole concept. The highlight of that study for me was a trip to the Apostle Islands to try to track down and verify possible trace fossils in the sandstones (which would have helped to date them) but alas, they were clearly firm sediment deformation when viewed in situ. Darn. But that was an exciting trip with all the faculty involved, and it was impressive how Emily naturally took the lead in the field even though she was outnumbered by old folks. The other main project I worked on was a pilot study, again with Josh Feinberg and Tony Runkel, with senior Noah Anderson. We were trying to use Josh's new portable XRF in the field, to use it to help decipher regional correlations in the Platteville-Decorah-Galena system. We also ran some Corg stable isotopes, using Steve Dworkin's lab at Baylor (lucky Noah got to spend a week in Waco, Texas, in August), and those worked better for determining how time was distributed stratigraphically better than the pXRF data. Altogether it was a fairly comprehensive study, and we're working on writing up the results.

Other than that, teaching has gone as usual. Sed-Strat saw 24 students enrolled, and Paleo had 36, so I've been pretty busy.

It's always good hearing from alums. I ran an Alumni Adventures trip to the Inner and Outer Hebrides of Scotland this past summer, and we only saw "a bit" of rain. I will try to get to AGU this year (meetings are tricky, in that I won't give up any Sed-Strat days in the fall to attend GSA, and NZ usually interferes with AGU- but this year I hope to get back into meeting mode).
- Clint

Emily, Nick & Tom our three fantastic TA's in New Zealand

Faculty Update - Mary Savina

We've just graduated another group of outstanding geology majors. Some of the best moments of the year involved working with these senior students – on comps, as lab assistants, and in many other ways.

Three highlights of the year:
A gallery exhibit, "Mediterranean Rivers Chained and Unchained" opened in the Perlman Teaching Museum in the Weitz center in September. I collaborated with colleagues Victoria Morse (History), Laurel Bradley and Christina Chang (Perlman Teaching Museum) and others to curate an exhibit of beautiful original maps and books from 16th and 17th century Italy. In all, students in four of my geology courses and four of Victoria's history courses helped with creating the exhibit. You can see some of the results at https://apps.carleton.edu/museum/mediterranean_rivers/.

I've also had the joy of working all year with Jayne Pasternak, a "fifth year educational associate." Generous funding from the parents of Gina Michl '91 permits the Geology Department to hire one or two graduates each year to work with faculty members on their research. Jayne's primary focus, one she started last year as a comps project, is reanalyzing some of the geophysical data collected in Grevena, Greece by alums Jeff Bartlett, Tom Upshaw, Mary Pyott Freeman and Suzanne Savanick Hansen in the late 1980s. Nancy Wilkie and I are writing away on the publication for the multi-year archaeological survey. Megan Anderson ('95) who teaches geophysics at Colorado College has been a huge help to both Jayne and I.

I spent much of winter term in Australia, first scouting for an off-campus program in Tasmania (that Arb Director Nancy Braker and I will run next academic year) and then tagging along with 24 Carleton biology students for their two Tasmania weeks. The 2016-17 Tasmania OCS program involves two weeks in Tasmania over winter break (December) 2016 sandwiched between on-campus courses in fall 2016 and winter 2017. We will focus on conservation, geology and natural history in the incredible laboratory that Tasmania provides: at the same latitude as Minnesota, with similar land use tradeoffs as the upper Midwest (agriculture, water quality, preservation, energy, mining, forestry, urban development, etc.) but different in almost every other respect. The first "Greens" party in the world started in Tasmania and it also has the world's third oldest National Park. Tasmania was also the last bit of continent to separate from Antarctica and some of the geology is similar.
And next year. . .
Speaking of Antarctica - if you are a careful reader of faculty blurbs in this newsletter you may recall that I was scheduled to help with an alumni trip there in January-February 2016. Well, the boat had a "small" fire in November and ultimately the Carleton trip was postponed to 2017. (The boat is Le Boréal if you want to google it and watch the evacuation). Thanks to schedule rearranging, I'm able to travel with the 2017 group, and I'm looking forward to the trip. Also in July 2017, Dave Lefkowitz (class of '85, studio art faculty) and I will be leading another trip to Iceland. We had a blast in 2014 (quite literally, because Bárðarbunga volcano began erupting while we were there). Maybe we'll get to see the young lava on next year's trip.

5th Year Intern - Emily Houlihan

Thanks to the Allensworth Fund, I've spent the past year continuing my comps research on paleomagnetic analysis of Mid-Continent Rift strata. I conducted summer fieldwork in Wisconsin and Michigan and spent the fall analyzing samples at the Institute of Rock Magnetism at the University of Minnesota. I presented my results at the Baltimore, Maryland GSA meeting in November, where it was great to meet Carleton geo grads both young and old. In between writing and lab work, I've been lucky enough to go on two departmental field trips (Black Hills, SD and Baraboo, WI) and also tack on a trip to New Zealand as one of the TA's for the 2016 Carleton Geology program there. The Black Hills might have sparked my interest in metamorphic rocks but New Zealand sparked an even more important obsession with fine cheese. We did some fun geology there too, in between all the cheese consumption. Jayne – my lovely office-mate, roommate, and fellow fifth-year – and I had lots of fun providing impromptu office hours, life advice, and endless gossip to all residents of ground-floor Mudd. I'll be going to UC Davis next year to pursue a M.A. in structural geology in sunny California – sad to leave Northfield but excited for what's ahead!

5th Year Allensworh Intern - Jayne Pasternak

As an Allensworth Educational Associate in Geology during the 2015-16 academic year, I was given the chance to continue contributing to the Grevena Project by summarizing the results of geophysical ("remote sensing") surveys carried out at 18 of over 300 archaeological sites identified in northwestern Greece by the project team between 1987 and 2001. Under the guidance of Mary Savina and Nancy Wilkie, my work this year has been an expansion of my comps project, propelled onward in a huge way by my attendance at a National Park Service workshop held in May 2016 in Apalachicola National Forest, Florida, entitled "Current archaeological prospection advances for non-destructive investigations of Fort Gadsden, a War of 1812 Fort and Fight". The chance to spend a "post-grad" year at Carleton continues to blow my mind and inspire my heart to gratitude on the daily (major shout out to supporters of the Allensworth fund!). A lot of learning, teaching, babysitting, and fun was had traveling with the department to the Badlands and Black Hills of South Dakota, the exposed strata of Decorah, IA, a nearby (frozen) Lake Elmo, the structures of Baraboo, WI, and the fields/Bald Spot ice rinks of Carleton IM broomball and frisbee...all while living with some amazing fellow '5th-year' housemates. I'll be heading to Denver in late August 2016 to spend a year of service with a Roman Catholic community ("Christ in the City") that seeks to know, love, and serve the homeless and poor of Colorado's capital city through encounter and relationship. I'm excited to see how geology will come back around in the years ahead, and I feel confident that it will after a small deviation into the life of a missionary. If you're looking for a good read, check out Pope Francis' "Laudato Si': On Care for Our Common Home," which has ignited in me a desire to pursue and bring together these passions for truth, humans, and the Earth--and reconciling our collective and individual relationships with each! Thank you, Carleton Geology, for being the fantastic family I never expected to stumble into.

Jayne H. Pasternak

Jayne, Corrie & Phillip-Peter working in the Badlands - October 2015

Visiting Faculty Update - Graham Hagan-Peter

I had great winter and spring terms teaching at Carleton. I've taught at several different colleges now, and I'm especially impressed by the Geology Department here at Carleton. I've received great mentoring from the permanent faculty and staff, and have been provided with tremendous resources for my classes. During the winter term, our Antarctic Earth Science class cored a lake near Northfield to reconstruct Holocene climate and vegetation changes in southern Minnesota. The project guided by the experts from the UMN LacCore group was a fantastic learning experience for the students and myself, and was also lots of fun! Teaching Introduction to Geology in the spring was also a great experience. Teaching a group of young (1st- and 2nd-year) geology students largely unexposed to earth science is always challenging, but the Carleton students were eager and bright, and it was a great term!

Next, I'm off to Aarhus University in Denmark to start a post-doc. I hope that I have opportunities to return to the Carleton geology department in the future!

Practicing "buckethead" (Antarctic survival training)

Extracting a section of core

Okay, so I told my students to pose for the photo...

AGU Annual Meeting 2015

The following Carleton Geology Department people presented papers in technical sessions at American Geophysical Union annual meeting in San Francisco, CA in December. The Carleton people are indicated in bold face type, and students and alums are indicated with their class years. The presentations listed are only those which involved a current Carleton student or employee; many other Carleton alums, too many to list here, also presented papers at the meetings.

Scott, Chelsea P. '10, **Titus, Sarah J.**, **Davis, Joshua R.** A Numerical Kinematic Model for Deformation Near a Ridge-Transform Intersection in the Troodos ophiolite, Cyprus Based on Gabbro Paleomagnetic Rotations and Sheeted Dike Orientations

Penprase, Shanti B. '16, Kimball, B.E. Acid mine drainage simulated leaching behavior of goethite and cobalt substituted goethite.

Anderson, Noah T. '16, Steenberg, J., **Walters, Andrew '14**, Retzler, A., Frahm, E., **Feinberg, Joshua '96**, Dworkin, S., **Cowan, Clint '83**, Runkel, A. High-resolution Chemostratigraphy Through a Nearshore, Mixed Carbonate-shale Succession of Late Ordovician Age (Sandbian-Katian) in the Laurentian Cratonic Interior.

Swanson-Hysell, Nick '05, **Maloof, Adam '98**, Condon, D.J., Park, Y., Maclennan, S. A., Schoene, B., Tremblay, M.M., Alene, M., Antilla, E., **Haileab, Bereket**, Tesema, T. Early Neoproterozoic Global Change Through the Lens of the Tambien Group, Northern Ethiopia.

Park, Y., Antilla, E., MacLennan, S.A., **Swanson-Hysell, Nick '05**, **Maloof, Adam '96**, Schoene, B., **Haileab, Bereket**. Newly Discovered Exposures of Neoproterozoic Diamictite within the Samre Fold-Thrust Belt of Northern Ethiopia

Titus, William J., **Titus, Sarah**, **Davis Joshua R.** A Bayesian approach to modeling 2D gravity data using polygon states

Davis, Joshua R., **Titus, Sarah**, Giorgis, S.D., Horsman, E.M. Markov Chain Monte Carlo Simulation to Assess Uncertainty in Models of Naturally Deformed Rock.

Michels, Z.D., Kruckenberg, S.C., **Davis, Joshua R.**, Tikoff, B. Determining Grain-scale Vorticity Axes from Crystallographic Orientation Data.

Roberts, Nicolas '14, **Davis, Joshua R.**, **Titus, Sarah**, Tikoff, B. Harnessing Multivariate Statistics for Ellipsoidal Data in Structural Geology.

Carleton Geology Present Papers at GSA and AGU Annual Meetings

The following Carleton Geology Department people presented papers in technical sessions at meetings of the Geological Society of America in Baltimore, Maryland; as well as Geological Society of America regional meetings. The Carleton folks are indicated in bold face type, and students and alums are indicated with their class years. The presentations listed are only those which involved a current Carleton student or employee; many other Carleton alums, too many to list here, also presented papers at the meetings.

GSA Annual & Regional Meetings

Houlihan, Emily '15, Runkel, A., **Feinberg, Joshua M. '96**, **Cowan, Clinton '83**, **Titus, Sarah**. Paleomagnetic Age Constraints of Mid-Contintent Rift Strata, Northern Minnesota.

Titus, Sarah, **Newman, Alice C., '12**, **Yourd, Amanda R. '12**. Fold Development at Kettleman Hills, Central CA: Implications for Off-Fault Deformation in the San Andreas Fault System.

Freimuth, William, J. '18, Varrichio, D.J., Martin, A. J. Using Invertebrates Traces to access Sedimentation at a Rich Terrestrial Vertebrate Locality from the Cretaceous of Montana.

Chatzaras, V., Tifkoff, B., **Titus, Sarah**, Kruckenberg, S., Withers, A., Teyssier, C., Drury, M. Mantle deformation and Strain Localization at an Oceanic Paleotransform Fault: The Bogota Peninsula Shear Zone.

Suarez, K., Garver, J.L., **Davidson, Cameron**. Natural and Laboratory Examples of Annealing Radiation Damage in Zircon.

Keller, C.B., **McCulloch, Callum '14**, Schoene, B. New Constraints from Field Mapping and U-PB TIMS Geochronolgy on the Magmatic Histroy of the Needle Mountains Proterozoic Complex, Southwestern Colorado.

Garver, J.L., **Davidson, Cameron**. Detrital Zircon Ages From Conglomerate of the Douglas Islands, Narragugus Bay, Maine: A Newly Recognized Neoproterozoic-Cambrian Basement Unit.

Students discussing outcrops on the North Island, NZ.

Geology visits New Zealand Winter Term 2016

Clint Cowan and Cam Davidson led an off campus study program for 24 students this past winter, on both the North and South Islands of New Zealand.
Mallory Mintz ’18 had this to say about about the program: “I really enjoyed the experience. As a Carl, and someone who hopes to pursue a career as a research scientist, and member of a globally-connected culture, I feel an obligation to expand my horizons as widely as possible through such formative experiences in order to better inform my thoughts and actions. Leaving campus encouraged me to embrace my own independence in ways that the comfortable environment of Carleton just cannot; I was thrilled to travel independently before and after the program, as well as during midterm break. Academically, I found that there simply are no textbook equivalents to learning in the field—a million glossy photos in a textbook or a series of well-rehearsed classroom lectures just can't compare to walking across a ocean-side outcrop to better understand the concepts involved in the geology of a region. Missing the Minnesota winter was quite a perk as well!"

Carleton Geology People Awarded NSF Fellowships

We are proud to report that two Carleton Geology majors and one pseudo-geology/chemistry major have been honored or awarded a National Science Foundation Graduate Research Fellowship for their graduate work. The fellowship provides a graduate student with three years of support worth a total of over $100,000. The fellowships also carry annual stipends of $30,000 plus a onetime allowance of $11,500 for education. Galen Gorski, a pseudo geo/chemistry major ’13, won a fellowships this year and Carleton geology program graduates Nicolas M. Roberts ’14 and Emily Houlihan ’15 received honorable mentions.

GALS - Girls Adventures Learning Science

We ran another iteration of GALS this past summer, a week-long program for middle-school-age girls focused on outdoor, experimental learing. Counselors this year included Ilana Crankshaw '16, Emily Houlihan '15, Jayne Pasternak '15, and Haley Olsen '17. Highlights for the week included fieldtrips to the Little Chicago gravel pit, Cannon River Wilderness Park, Wangs Corner, and Cannon Falls outcrops.

Fossil investigations in the museum

Constructing topo map exercises

Discussing how glacial outwashes formed and what clues geologists use to determine the extent of recent glaciation

Senior Comprehensive Integrative Exercises - 2016

Graduating geology majors, their hometown, and title of Integrative Exercise ("comps") projects

Ilana Crankshaw, Menlo Park, CA. Analysis of Continuous Multi-Year Baseline Hydrothermal Monitoring Data for the Cascade Range Volcanism.

Sally Donovan, Minneapolis, MN. The Effects of Historic Charcoal Production on Soil Morphology and Geochemistry in Northwestern Connecticut.

Benjamin "Max" Longchamp, Cornwall, VT. Exploring Dynamic Models of Ridge-Transform Intersections in Oceanic Lithosphere.

George McAneny, Santa Cruz, CA. Design, Creation and Use of an Interactive Stream Table.

Noah Anderson, Olympia, WA. High-Resolution Chemostratigraphy Through A Near-shore, mixed Carbonate-Shale Succession of Late Ordivician Age through the Laurentian Cratonic Interior.

Elizabeth Davis, Buffalo, MN. A Preliminary Study of the Soils of the Mazi Plain, Northwest Attica, Greece.

William Chapman, Saint Paul, MN. Paleomagnetic Analysis of Deformation and Rotation Associated with the Husavik-Flatey Fault, Northern Iceland.

Charlotte Beal, Cambridge, MA. Characterizing Delta13 C In The Southwest Atlantic During Marine Isotope Stages 5 and 6: Insights Into The Behavior Of The Atlantic Meridional Overturning Current During Deglaciations.

Sarah Jordan, West Bath, ME. Strain Path and Thermal History of Quartzite in the Deep Crust of Orogenic Plateaus: A Case Study From the Wood Hills, NV.

Philip-Peter Maxeiner, Bronxville, NY. The Origins of Cretaceans and Observational Based Lessons.

Shanti Penprase, Claremont, CA. Acid Mine Drainage Simulated Leaching Behavior of Geothite and Cobalt Substituted Goethite.

Nelson Bandy, Loudonville, OH. Determining the Evolutionary History of a Hyalocastite Ridge and the Compostion of its Parent Magma, Leirhnjukur, NE Iceland.

Caroline Lauth, Minneapolis, MN. An Integrated Stratigraphic Analysis of the "Problem" of the Oligocene-Miocene Boundary at Monte Conero, Italy.

Elaine Rock, Minneapolis, MN. ArcSWAT Modeling of Heath Creek Watershed.

Forrest Williams, Manton, MI. Rainfall-Influxed Turbidity and Nutrient Fluxes in Rice and Heath Creek.

Class of 2017 Geology Majors

Josie Arcuri, Bloomington, IN
Peter Barron, Montgomery, NY
Sam Blackburn, Ann Arbor, MI
Pete Boerma, Watertown, SD
Kyra Bornong, Minneapolis, MN
Willie Friemuth, Waunakee, WI
Andrew Keene, Simsbury, CT
Evan Lahr, Monticello, MN
Mara MacDonell, Grand Marais, MN Rebecca McGehee, Denver, CO Spencer O'Bryan, Cooperstown, NY Haley Olson, Weybridge, VT
Erin Patrick, Harleysville, PA
Max Rohde, Arlington Heights, IL
Emily Ross, Niwot, CO
Chloe Rouhandeh, New York, NY
Jesse Rubin, Stevenson, MD
Leah Sacks, Oak Park, IL
Aaron Schwab, Elk River, MN
Perrin Stein, Newton, MA
Anna Thompson, Eugene, OR
Erin Young-Dahl, Bozeman, MT

Class of 2018 Geology Majors

Mayte Aldrett, Houston, TX
Erin Arntson, Grand Rapids, MN
Alexa Botelho, New Hope, PA
Aidan Burdick, Durham, NC
Alex Bynum, Norwich, VT
Jonas Donnenfield, San Rafael, CA
Ella Fadely, Salem, OR
Katie Grosh, Ann Arbor, MI
Megan Harder, Libertyville, IL
Victoria Jolly, Lawton, OK
Konrad Krogstad, West Richland, WA
Stephanie Levine, Belmont, CA
Peter Lindquist, Boise, ID
Emma Link, Cleveland, OH
Corrie Lucchesi, Chicago, IL
Lauren Michael, Minnetonka, MN
Mallory Mintz, Macedon, NY
Chris Parsons, Auburn, AL
Stefan Payne-Wardenaar, Northfield, MN Ian Peters, Duluth, MN
Grace Pipes, Dennison, MN
Theodore Reinhardt-Ertman, Belmont, MA Kaya Stitzhal, Seattle, WA
Eliza Thomas, Jamaica Plain, MA
Preston Wallin, Edina, MN
Yijun Wang, Yangzhou, China
Miranda Wiebe, Oakland, CA
Ying Zhang, Taiyuan, China

Professional and technical talks given in the Geology Department this year included:

Dr. John Lufkin '62, President, Golden Publishers, Golden, CO, "Geology & Pegmatites of the Black Hills, SD"

Dr. Scott Linneman '83, Professor of Geology, Western Wshington University, "Large Landslides in Washington – Deadly Fast or Slow"

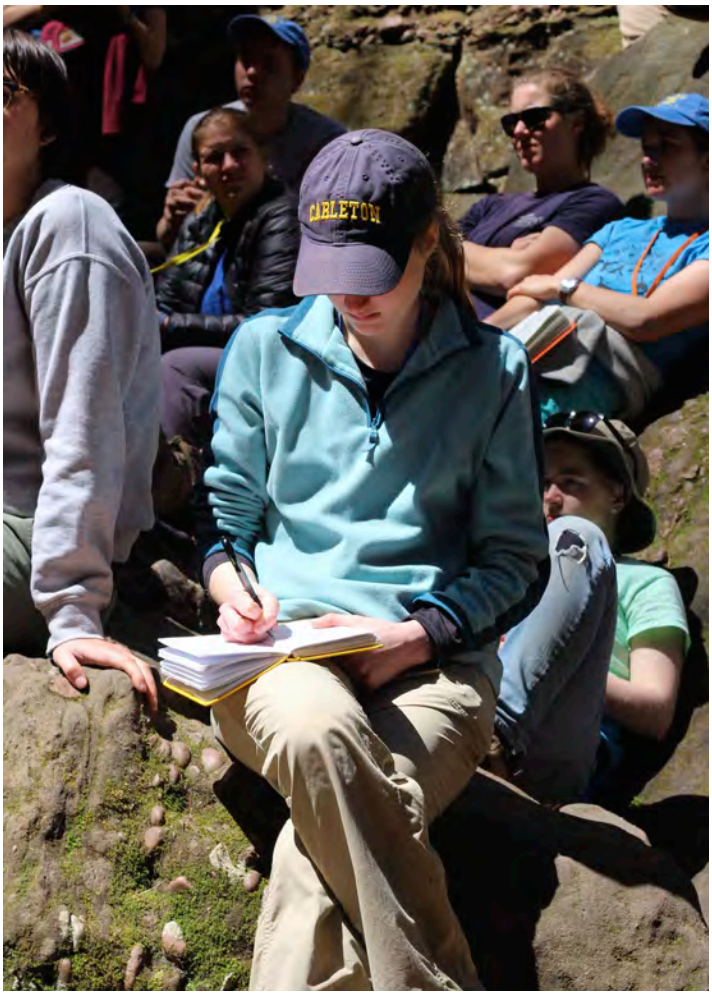
Nick Holschuh '11, Pennsylvania State University, Ph.D. Candidate "Structures, Radars, and Antartic Adventure – Understanding Earth's Ice Sheets using Geophysics".

Dr. John Goodge '80, Professor of Geology, University of Minnesota – Duluth, "Exploring Antartica's Ice Sheets and Subglacial Geology"

Jonathon Wells, "Landscape and Geology"

Jabari Jones '15, USGS, Columbia Environmental Research Center, "Sediment transport, channel morphology, and habitat dynamics in Ozark streams".

2016 Awards



Distinction in Geology Comps

Noah Trawicki Anderson '16 William
Alan Longhurst Chapman '16 Sarah
Margaret Donovan '16
Sarah McCook Jordan '16
Caroline Anna Lauth '16
Forrest Williams '16

Mortar Board

Elizabeth Rae Davis '16

Phi Beta Kappa

William Alan Longhurst Chapman '16
Sarah McCook Jordan '16
Caroline Anna Lauth '16

Sigma Xi

Noah Trawicki Anderson '16
William Alan Longhurst Chapman '16
Ilana Marishka Crankshaw '16
Elizabeth Rae Davis '16
Sara Margaret Donovan '16
Shanti Bhattacharya Penprase '16

Laurence McKinley Gould Prize in Natural Science

Elizabeth Rae Davis '16

Kolenkow Reitz Fund for Undergraduate Research

Josephine Li Arcuri '17
Eleanor Celia Fadely '18
Grace Mae Tien Oi Wong Pipes '18
Emily Odessa Ross '17

Update - SERC at Carleton College

Written by Krista Herbstrith

California needs 11 trillion gallons of water to relieve the current drought, NASA says, and there's 1.5 million tons of debris floating across the Pacific Ocean, a side effect of the 2011 earthquake and tsunami that struck Japan.

These are merely two examples of the types of massive, global issues that students currently in high school and college will face in the coming years and decades. Environmental issues such as water scarcity, climate change, environmental degradation, and mineral extraction, require broad-based geoscience literacy and a robust geoscience workforce to ensure we are equipped to deal with the challenges that lie ahead for our planet.

With an eye towards preparing students to learn the necessary skills to solve these problems head on, the National Science Foundation (NSF) awarded a five-year, $10 million grant to Carleton College's Science Education Resource Center (SERC - http://serc.carleton.edu/serc/about/index.html) just over four years ago. The focus: increasing the Earth literacy of undergraduate students and preparing more graduates who will bring an interdisciplinary understanding of Earth processes to bear on the environmental issues confronting our society today and in the future.

The grant established a Science, Technology, Engineering and Mathematics Talent Expansion Program (STEP) Center to reshape undergraduate education about the Earth. Called InTeGrate (Interdisciplinary Teaching about Earth for a Sustainable Future), the program's first goal was to develop new kinds of teaching materials to be utilized in a variety of settings, using cutting edge teaching practices. The first set of teaching modules have been completed, tested, and released, and are available on the InTeGrate website (http://serc.carleton.edu/integrate/teaching_materials/modules_courses.html). They range from units where students explore short-term climate variability resulting from atmosphere-ocean-ice interactions to exploring how hurricanes connect the ocean-atmosphere-terrestrial systems and society.

"Throughout the module I observed students discussing how to make decisions about science and society based on data and their recent past experiences." says Lehigh University professor Joan Ramage Macdonald '93, co-author with Montclair State University professor, Josh Galster '96, of one of the modules that uses data to track historic hurricanes and compare the impacts from different hurricanes. "It was great to see the students learning to grapple with data sets and how to make choices with limited information. Many students rose to the occasion in thinking about how hurricanes impact both communities and individuals."

Scott Linneman '83, Western Washington University and co-author of Exploring Geoscience Methods, reflects on using InTeGrate materials in his classroom: "Students developed more sophisticated understanding of what geoscientists do, how geoscience can differ from a simple model of experimental science, and how it is relevant to many questions of human sustainability."

These modules are designed to reach a diverse array of students, including those traditionally underrepresented in the geosciences as well as students whose primary field of study lies outside the geosciences.
"InTeGrate's success is predicated on the development of an interdisciplinary community that shares its expertise. Working together to create model materials and to demonstrate how they can be used in new ways, we are creating needed opportunities for students to understand the environmental and resource issues we face as a society. By reaching out to engage our colleagues in this work, we hope to create a citizenry and workforce that can succeed in addressing these challenges," said SERC director Cathy Manduca.
InTeGrate infuses Earth literacy across disciplines, engages younger students in the geosciences, and provides a new vision for how geoscience is positioned in higher education. Learn more at the InTeGrate website.

The Science Education Resource Center (SERC), an office of Carleton College, works to improve education through projects that support educators. The office has special expertise in effective pedagogies, geoscience education, community organization, workshop leadership, digital libraries, website development and program and website evaluation.

Our daughter Laura is expecting another son in August so we will be twice blessed. Having grandchildren is the most fun ever! We've heard from friends, and this might just have a grain of truth to it, that if we could have had our grandchildren first, our children might never have been born. As grandparents, you get the fun of watching the grandchildren grow and explore but very little of the real work and responsibility. Of course, once you are a parent, you always are a parent and the resource of last resort for your children and other descendants for the rest of your life. But it's a fulfilling relationship that we love and enjoy, and, fortunately, no one has crashed and burned yet.

Regarding Mudd - My first major project when I started working in the Geology Department in 1975 was to move the labs from Leighton into Mudd during December, so seeing Mudd demolished will be poignant for me. The building is not close to being used up as a piece of infrastructure - it is still sound and well-functioning. It was bad enough seeing it overhauled in the late 1990s! The reasons for its demise relate more to changing needs and expectations and a need for more space for utilities between the floors than to any critical failure of the building itself. I hope the new building works as well for the Geology Department as Mudd has. Now Jonathon will be the only one who knows where EVERYTHING is. Best wishes to everyone!
-Tim Vick

Spring fieldtrip to Baraboo, Wisconsin would not be complete with out a group shot at Baxter Hollow.

NEWS FROM ALUMS

Faculty and Staff Updates (Retired and very happy updates!)

MUDD HALL

With a near perfect name who couldn't love a geology building called "Mudd." When I came to Carleton in late summer of 1967 geology and chemistry were located in Leighton Hall of Chemistry along with History(?) and a basement full of the financial offices of the College.

The Geology Department consisted of one large room for intro labs and the paleontology collection, a small library, a small chemistry/rock preparation lab, an x-ray lab/Eiler Henrickson office and room with an office for Duncan Stewart, the geology map collection, and me, Ed Buchwald. The best part of the whole set-up was the spiral-slide fire escape that doubled as an amusement park ride for majors and occasionally their fathers.

When Eiler and I found out that the Mudd Foundation was going to foot the bill for a new building we were ecstatic. One of the first things we did was to start visiting new geology buildings around the country. Much to my dismay they all were designed for specific kinds of laboratory exercises with things like separate desks and chairs for each student. One of the colleges had a building designed with corridors located on the outside walls of the building and all the rooms with no windows! Scary!

Very early in my career at Carleton I had convinced Eiler, and later Shelby Boardman, that the best rooms were ones wherein students sat in small groups at rather large, movable tables. This design immediately told students that they were supposed to converse with one another, perhaps even so far as to help one another to figure out the problems at hand. This simple rearrangement led to an entirely new pedagogy; one in which a kind of teamwork was involved in discovery and learning. So with that in mind, Eiler and I thought about how to design a building that would urge us to have learning and teaching that reflected the new pedagogy.

Mudd was the result. Some of the rules we developed for ourselves included, never nail anything to the floor. If a space was specialized it had to be for good reasons such as safety or cleanliness. The place had to be inviting: displays in the hallways, windows in the doorways, doors colored to help people remember where they were going, windows to the outside, and so on. Because field work was an important part of the pedagogy there should be an easy way to load and unload vehicles and an obvious way to bring samples into the building.

Mudd Hall has been a magnificent place for the Geology Department. We had to do some minor changes to accommodate a larger faculty and staff and to adjust to a change from geochemistry to a major emphasis on the use of computers, but it seems to have worked well. I look forward to seeing how the new building will influence the teaching of geology.

Ed Buchwald

1937 ***Allan F. Matthews*** MS. Antioch College 1939. Editor Minerals Yearbook U.S. Department of Interior 1947-50. Geologic advisor to two presidential resources commissions 1952 and 1980. UN delegate on global modeling at Paris 1982, program officer U.S> Agency if International Development 1954-75, including tours in Germany, Liberia and Yemen.

1938 ***Mary-Hill Kueffner French*** I will celebrating my 100th birthday in November with plans to get together with family and friends. No memories of Mudd Hall. Leighton was where I studied with great teacher, Larry Gould, and tried to keep up with long legged Dunc Stewart. I was the assistant lab instructor, ran the geology library, and started Thursday afternoon tea, using Larry's automatic coffee pot to boil the water, the pot available because he didn't like coffee.

1954 ***M.E. "Pat" Bickford*** I am too old to have "memories of Mudd". Geology was in Leighton when I studied with Dunc Stewart and Eiler Henrickson!! Today I remain active in geochronology and isotope geochemistry, with current projects in India and in the ancient gneisses of the Minnesota River Valley. I am also editing yet another "GSA 125th anniversary" special paper.

1960 ***Mike McLanahan*** Mudd Hall was built after I graduated in 1960, so have no memories of it. In fact, I don't remember it being open during any of the alumni reunions. Maybe I did not look hard enough since it held no memories for me. Old Gridley Hall, where I was a scullion back in the day, is long gone too. Oh well, such is progress.

1961 ***Don Davidson*** Have given a series of powerpoint lectures at local state park on "Geology of Arizona" and "How the Earth Works" working on Geologic-Hazards". I remember Leighton Hall with perverse fondness.

1964 ***Peter Rowley*** Dawna and I are fine- she still managing two Utah conservation areas for BLM, and I still managing our ranchette and my consulting business. My most fun, however, is for free with the Utah Geological Survey—mapping our 21 m.y. old Markagunt gravity slide (the size of Delaware) and a new smaller one we found last summer, the 23 m.y. old Sevier gravity slide.

1971 ***Royston Kruse*** My wife and I welcomed our first grandchild in October 2015. I am driving buses for the Minnesota Valley Transit Authority in the Southern suburbs of the Twin Cities.

1972 ***Meg Hayes*** Pete Tryon ('73) and I just returned from an 8 person 23 day private float through the Grand Canyon. NPS had just released juvie condors, a bird I hadn't ever expected to see. They were showing off and flirting with each other & we had several upclose sightings of them.

Chris Rautman Frankly, I'm appalled that Mudd Hall is going away -- already. I'm not (really) all that ancient, and yet geology was in Leighton when I graduated. Eiler Henricksen spent a whole lot of his time on the design for Mudd during my tenure. <sigh>

What surprises me even more is that Terribly Tacky Olin Hall apparently gets to remain and inflict its "radiator" profile on the campus into the future. I would have thought that Mudd would be in much better shape than that early 60s-vintage Olin monstrosity.

Mark Taylor Spent part of May in the Pennsylvanian Section of the San Juan River in Utah. Working on an international project to drill a rhyolite magma chamber in Iceland!

1973 ***Dick Pautsch*** Mudd Hall wasn't even built when I graduated- I must be getting old. This years bucket list item is driving the Alcan Highway (which includes visiting the Yukon completing the Provinces/Terrioties of Canada). When not traveling, we hang out in Boulder, an excellent place.

1974 ***Peter S. Dixon*** Rock solid as one might say, now with a tangent to medicine in developing books and programs for people with dementia to read. Precambrian people come alive as they read & interact. Check us out on reading2connect.com

1975 ***Emily Wrubel*** How is it that a building that opened right after I graduated in 1975 is slated for demolition?? It is in synch with my retiring this June from teaching. Not sure what's in store next, but not waking at 5AM every morning to try to instill 8th graders with an appreciation for math and science!

1976 ***Jim Evans*** I was selected as the geology student rep for the building dedication and installing the time capsule. Laura Weiss was the chemistry student rep (both of us were class of 1976). I think the dedication ceremony was May 1975. The new space was ready just in time for my comps project, which was a real treat. My friends and I spent a lot of time repairing old lab equipment as part of the move, and there were great new things too. The new optics lab was a major step up (Shelby's baby) and we finally got the XRD out of Eiler's personal office ("I'm too old to care" he used to say). Ed Buchwald installed some tracks on the ceiling for moving lab equipment, and we (the moving crew) welcomed it by all swinging around like monkeys. Ed said--trying to break it,eh?

1977 **David Gambill** Left international consulting in environmental policy & conservation in 2007. Started Sonoma Chocolatiers & have been voted Best Chocolatier in CA's premier wine country since 2008. My wife Susan survived melanoma, but the treatment triggered early-onset Alzheimers 4 years ago. 12 year old daughter is into basketball, oboe and socializing with friends. Visit our chocolate and tea house in CA.

Bruce Nelson I just completed my first year as department chair. It's a position to put off if you can, but a challenge to embrace if you can't. We continue to look forward to great Carleton grads applying to our graduate program.

1979 **Mark Helpenstell** There was a great library, and a lot of quiet hours there - along with some great discussions. I cut a piece of quartzite that was about 15' across, into 8 bookend pieces, on the saws (took many, many evenings). Great discussions with Tim Vick, and prepping for field trips.... Oh - and Eric Simonson (now famous mountaineer!) doing one-armed pull-ups on the overhead crane tracks, all the time carrying on casual conversation - DAMN!

Dave Tolley I was fortunate to be able to retire a bit early- July 4, 2014 after 35 years in various I.T. roles in the oil and gas exploration industry. I now reside with my wife, Terry in Galveston, TX, where I'm rebuilding many parts of our historic 1886 home, between travels to national parks and visits with friends and family all across this great country.

Marie Del Toro Life is great! Our children, Holly and Wilder are both attending Santa Clara University and definitely enjoying the school & weather. We are taking a family trip to Alaska this August so are excited to see a new part of the country.

1981 ***Heyo Van Iten*** Spent a week in Madrid, Spain (University of Spain) examining Ordovician conulariids from Spain, Morocco, and Libya. Never imagined that field work in the Sahara required stocking up on live goats.

1983 ***Rob Alexander*** Here are a couple memories from the early 80's to consider:

Spring 1979(?) – Eiler "Lead-Foot" Henrickson's fast driving habit led some of his students to decide his "beater" car needed a new paint job, flames painted onto the sides! The students painted Eiler's car while it was parked mid-day in the faculty parking lot (now gone), well in-view of the faculty offices on the west side of the second floor of Mudd Hall. Evidently one of the more observant, but up-tight chemistry professors, Dick Ramette I believe, noticed the shenanigans going on and called Eiler: "Eiler, students are painting your car!!!" To which Eiler replied in classic fashion, "What color are they painting it?". Needless to say, Eiler loved the flames, and drove that car in fitting fashion and velocity. [This one was 1-2 years before I switched from chemistry to geology major, so I am relaying it as a "story to be vetted" by Mary Savina and others…]

Fall 1981(?) – Visiting professor Ken Collier was teaching a great course called Paleo-Biology. On the first day of class, he gave us a recipe for making seawater, to help us understand salinity/composition and its variations in open vs. estuarine marine environments. The course was fantastic and when the final arrived, one Clint Cowan '83 and other unnamed geos, decided to pull a prank on our well-liked visiting professor. The classroom in Mudd was the large one on the east side of the floor which had a cabinet divider with sliding blackboards/projector screens that divided the large room into 2 smaller classrooms. It had a nice hiding spot on top concealed by the sliding blackboards/projector screens. The idea was to mix up a bucket-sized batch of Ken's recipe for seawater, place it on top of the divider with Clint concealed, and then as Ken started to hand out the final exams from next to the room divider, the class would all yell "Hey Ken, the surf is up!", and Clint would launch the bucket of seawater down on to Ken from above like a big wave. Well, as many pranks go awry, so did this one. We neglected to plan for (1) the electrical outlets on the floor which collected some of the conductive seawater and tripped the circuit breaker and lights, and (2) the wet and very slippery waxed linoleum floors which collected the escaping Clint and the very wet Ken. In the end, no harm was done, but the geo department once again showed its true colors: work hard, play harder.

Winter 1983 – Snow was falling outside one winter afternoon during Adv. Structural Geology lab class, taught by visiting professor Mark Hempton. At the time, we were studying and discussing the use of physical analog models in various articles to demonstrate styles of deformation of sedimentary rocks: folding, faulting, diapirs, plutons, etc. Someone had the grand idea to collect powdered colored chalk from the various blackboard chalk troughs throughout the class rooms, take a sieve pan from the sedimentology lab, and go out periodically and sprinkle a layer of colored chalk dust on the freshly fallen snow on the small circular cement pad just to west of Mudd (outdoor amphitheater?). By the end of the lab period 2 hours later, we had several colored layers of chalk dust separated by layers of clean white snow. We took a board and shovel outside, put the board in the snow, pushed it sideways 2-3 ft, piling up the snow (and chalk layers) ahead of it, and made ourselves a nice set of folds and thrust faults which we excavated and sectioned with the shovel. Someone else made a snowball and dropped it in another patch of the layered snow/chalk and created an impact crater and ejecta which we used rulers to section! Very cool practical exercises of geology in action!!

Definitely lots of good memories in that building!

1984 ***Mark Gordon*** I started a new job last fall with PGS, a seismic company. It involves a lot of travel to Mexico, as much as weekly. So far, I have avoided travel on the weekend. I am having fun with the job.

Last year we took a wonderful cruise to Alaska and spent a couple of weeks onshore visiting Denali National Park. Had a great dinner with Bret Berglund ('85) and his wife Caryn Smith. We went in September to see the northern lights. Despite too many clouds we were finally successful.

1985 ***Maria Peterson***

(A memory of Mudd from her brother Brian - both Northfield natives)

Years ago, computers sometimes emitted radio frequency (RF) radiation that would sound like static on an AM radio placed next to the computer. Creative people figured out that this "static" could be tuned by a special purpose program such that a computer could actually play music over an AM radio!

One of my fonder memories of Mudd was that, back in the 1970's when I was in Junior High, Niels would take me over to Mudd and we were able to use one of those computers. It had a program that actually recreated a musical piece called "The Typewriter", first performed by the Boston Pops orchestra, which used a typewriter keystrokes and end-of-line bell as key percussion elements of the piece.

This computer in Mudd had a Teletype machine attached, and the special program included machine instructions that carried the melody into any AM radio near the computer, and then used its attached Teletype machine for the percussion accompaniment.

That computer was simply amazing!

The story of the song - The Typewriter

(https://en.wikipedia.org/wiki/The_Typewriter)

Performances

https://www.youtube.com/watch?v=g2LJ1i7222c

https://www.youtube.com/watch?v=wZCh4EY_kug

Liberace's version:

https://www.youtube.com/watch?v=ANaL80AsKVM

And finally, the original music:

https://www.youtube.com/watch?v=RlqDFPLUhig

The story of the musical computer

I found some YouTube videos of Digital Equipment Corporation PDP-8 computers which actually play music today into AM radios, just like I remembered (but not The Typewriter, unfortunately!):

https://www.youtube.com/watch?v=uhkv5oHHHY8

Especially listen to the second song on this last video - about the last 60 seconds or so.

https://www.youtube.com/watch?v=akvSE5Z474c

1986 ***Emily Adams*** After living and working overseas for the past 15 years, I have now returned to the US. My mother passed away in 2014 and I wanted to be closer to my father during this last phase of his life. Happily, my Dutch husband Paulus agreed to come to the US with me, and my father remains active and in reasonably good health. That has given me the opportunity to get involved in local activism. I joined the "Ithaca for Bernie" movement and was chosen as a delegate to the Democratic Convention. Through my involvement for Bernie, I was invited to join a 3-day training in Community Organizing, put on by.... Wellstone Action! It is interesting to watch how various things in my life are coming around full circle. Not the least of which is my daughter, Mara, who has been living with her dad and step-mom for the past decade -- Mara is now entering her junior year at Carleton!

1987 ***CP Carlson*** I can't believe Mudd Hall is being demolished! Before ready access to PCs, I remember using the terminal in the corner of one of the labs next to a window to write most of my comps. Many nights I would stake out the area and claim the terminal before the building was locked, basically guaranteeing my claim for the night. What a great place to write! I am shocked it is going away....

It is hard to believe it is 2016 and next year it'll be 30 years since graduation! Later this month, I will reach 11 years with the US Forest Service in the agency headquarters in Washington, DC. My permanent position remains as the National Groundwater Program Leader, but I have been on a sequence of temporary assignments for the past year. From June 2015 to March 2016, I served as the Acting Deputy Director of the Ecosystem Management Coordination staff, who is responsible for policy and oversight for National Environmental Policy Act compliance, land management planning, appeals and litigation, and inventory and monitoring. Since March, I have been the Acting Mitigation Coordinator, helping the agency develop a national policy for mitigation of adverse impacts in response to the Presidential Memorandum on Mitigation from November 2015. If all works out, you should have an opportunity to engage in your government and provide comment on a proposed regulation on mitigation later this summer. Please let the agency know what you think!

My wife, Martha Anderson '87, continues to work for the Agricultural Research Service in the Hydrology and Remote Sensing Lab, where she works on using remote sensing to characterize evapotranspiration and drought. Her work is going well, both in the US and overseas.

I have been keeping busy and staying out of trouble outside work by volunteering. I have been a den leader and the committee chair for my son's Cub Scout Pack for several years. He is now entering his second year of Webelos and will moving on to Boy Scouts next February. I have also been an officer in the Geology and Society Division of the Geological Society of America for the past four years, and my term on the Division Board will come to an end at the 2016 Annual Meeting in Denver. It has been great to be able to pay back and hopefully pay a little forward both in Scouting and with the profession.

1990 ***Andy Garrett*** I was fortunate to have been able to get back for one last walk-through of Mudd and to meet a few of the seniors just a few weeks ago while I was back in town briefly. Hate to see the place go- lots of good memories from those labs and the amazing people inside of them.

This has been a very interesting year as I was chosen as one of the first Fellows for the new White House Leadership Development Program. In this role I have stepped away from my disaster response job at HHS for 12 months to learn more about how to navigate and contribute to solving some very complex cross-agency issues in government. Working within the Executive Office of the President has been a once in a lifetime experience. I also managed to get myself board certified in EMS, which is the culmination of a long affair I've had with prehospital care that started with me parking the Northfield Ambulance in back of Mudd Hall on the weekends back in the late 80's. The family is doing really well- Amelia (8) and Adeline (4) keep me active and outside!

Sean McCauley Moved to Rochester, MN two years ago to help my wife start a medical business. Now in the process of restoring 8 acres of prairie on our little farm and raising goats and chickens.

1994 ***Brett Dooley*** After a year and a half, Butch and I have been able to reunite! I got a job in California and moved after the fall semester 2015. Tim is now attending college at Radford University, where he is majoring in…GEOLOGY!!! We're very proud.

Naomi Lubick I have some very fond memories of rocking out in the labs to Prince and the New Power Generation with Myongsun Kong back in the early 1990s, something that felt particularly sad and happy after Prince died earlier this year. I also spent some time thinking the other day of that cave-like feeling of being on the bottom floor in the labs, while pulling out the sample drawers to look at rock specimens, or sitting at the email terminal (well, intranet terminal -- this is before the true internet!). I remember an afternoon Michael Ramage showed us the first online interest group I'd ever seen, basically a chat-group for owners and fans of Land Rovers. Or sitting on those broken-down couches in the lounge. And working in the lab, where I caught a chunk of hair in one of the rock-crushing machines, which ripped out after I bashed my head into the machine itself -- ow!

1998 ***Brian Klawiter*** Perhaps my most fun memory of Mudd Hall is of the day that Tim Vick handed me a Geiger counter and asked me to find everything radioactive in the Department. At first I didn't believe I understood him correctly. It seemed too fun to be a true work assignment.
The two most memorable finds?
1) A moderately radioactive empty space on a display shelf; and
2) A highly radioactive signature coming from inside a locked Lane cabinet containing evidence from the Great Minerals Burglary of '95.
My most valuable lesson learned from this exercise? Never carry around a specimen of fossilized wood in your pocket. It is surprisingly often "hot" with uranium!
Thank you Tim for the experience!

1999 ***Bretwood "Hig" Higman*** I'll be in the field the end of this week with Bre MacInnes ('04) and Andrew Mattox ('99) and many others on a field study of the 17 Oct 2015 Landslide and Tsunami in Icy Bay. The landslide was among the largest worldwide in the past century, and the tsunami was second only to 1958 Lituya in height, reaching somewhere around 180 m. I took this photo during a reconnaissance survey a few weeks ago, showing a hill that is presumably some sort of landslide block, showing that the landslide crossed the bottom of the fjord and made it above the intertidal on the other side.

2003 ***Nicole Jennifer Davies*** I have very fond memories of Mudd Hall! This is where I used to spend hours studying minerals and fossils and socializing with my friends. One late night, a particular friend of mine and I had the idea to do a chair race down the hallway as a study break. Boy did we have fun... until we accidentally bumped into the seismograph! I think it's okay to confess to this little "Minnesota earthquake" now. In any case, we couldn't stop laughing.

Other news I have: I have become a medical doctor in the meantime. My field is psychiatry and I greatly enjoy my work. My partner Simon and I are very happy together, although we live in different parts of Germany (I keep on telling him that the north is MUCH better). My Dad has unfortunately fallen very ill, but is on the way to recovery, - bless that man for his stamina and fighting spirit! Apart from that, I am still the old Nico. I enjoy hiking, Nature, a good read, philosophical conversations, meditation and have recently added a trombone to my collection of wind instruments. At the moment, it feels pretty big, but without a doubt, countless hours of fun with it shall come my way soon.

George Tangalos On June 27th, 2015 I married Nora Nelson outside Coalville, Utah; Many fellow Carls were in attendance. I continue to work as a geologist/hydrologist with CH2M with projects throughout the intermountain west.

2006 *Rebekah (Lundquist) Johnson* After a big move from St. Paul to Minneapolis, I'm feeling lucky to be teaching high school science at the Blake School in Minneapolis. Micah Johnson (Chemistry, '05) and I have two children, Soren (4) and Solveig (1). We look forward to seeing everyone (especially the Magnificent 7 of 2006) at reunion this summer! Maybe we'll have to watch some bad science movies in Mudd one last time?

2008 ***Matthew Cich*** Still not a geologist unless the chemistry department upstairs got absorbed into geology. PhD in chemistry from Stony Brook University, now at JPL. Wife Caitlin and I have 1.5 year old daughter Hannah. We are enjoying Pasadena. Lots of fond Mudd memories. Hopefully the new place is awesome.

2009 ***Dylan Linet*** I loved Mudd Hall! Nothing like sitting on the old comfy couches in the lab, chatting with your friends and classmates about what neat fossils you had found lately on a field trip, or trying to figure out how in the heck you were going to portion out the work for one of Clint's team projects...
I'll miss her!

2010 ***Jordan Epstein*** This is sooo sad!! (our sentiments exactly)

Neil Foley Most recently I've been doing some research involving permafrost on an island off the North Coast of Alaska. Now I've seen the midnight sun in both hemispheres!

2012 ***Megan (Ferre) Clendenon*** I recently relocated to Alexandria, VA and am working as a writer for Student Caffe, a website dedicated to answering any questions students could have about secondary education.

Nina Whitney Just finished the 1st year of my PhD at Iowa State University. I finished my Masters in Quaternary and Climate Sciences at the University of Maine last year. My research uses stable isotopes in *Arctica islandica* (Ocean Quahog) shells to reconstruct ocean current dynamics over the last several centuries in the North Atlantic.

2013 ***Tom Birren*** I recently started a masters program at Iowa State University. I am working with Jacqueline Reber doing analog modeling of britte-ductile deformation. My work aims to learn more about the mechanisms of shear in these brittle-ductile zones.

My fondest Mudd memories came during Minerology and Petrology when I seldom left the microscope and computer lab and would often do any other course work (a.k.a. napping) in the comfort of the old arm chair there. Bereket would enter the lab, "Tommy, why do you always nap? Show me what you have in the microscope!"

Caroline Scheevel I've completed the first year of my master's at Colorado School of Mines and begun my thesis. I'm modeling a landslide in NE Wyoming and trying to identify what conditions may cause it to reactivate, as well as the expected runout path and travel velocity. I've also begun an internship with the USGS Geologic Hazards Science Center in Golden, Colorado.

Ryan Skinner ('13) and I tied the knot on June 11, 2016. We're traveling through the Canadian Rockies on our honeymoon and are impressed by how much more rugged they are than their Coloradan counterparts!

2014 ***Mariah Radue*** I will be entering the University of Maine's Masters program in Quaternary and Climate studies, June 2016.

Josh Zoellmer Beginning Masters of GIS program at University of Minnesota in September.

2015 ***Katherine McLellan*** I remember that senior year, I was constantly in Mudd and I didn't have a class outside of Mudd until spring term. By that point in the year I was so accustomed to studying at my senior desk until about 30 seconds before class started that it didn't dawn on me that I actually had to pack my backpack and walk to a separate building to get to my class until it was too late, and I was late for the lecture. I'll miss Mudd--it felt more like home than anywhere else on campus!

Lauren Salberg Living in San Francisco with my BFF Leah Nelson and not Erica Sheline!

Erica Sheline As far as favorite memories in Mudd go, I'd say: photoshoot during the fall when we were all going crazy from comps, that time that someone unmentionable drank Franzia out of an empty beer bottle with us around the campfire (not in Mudd but still related), that time everyone had gone home but Lauren and I were still practicing our comps presentations and so we took a break and projected various music videos on the big screens and tried to learn the dance moves, all the times we definitely didn't drink in Mudd because it's illegal (aka never played flip cup on the big tables and never popped champagne in the senior room). and obviously all of the whiskey slaps and wrestling and "touch the hat" games that somehow went along with being a Geology major.

Geology Department T-Shirts Available

We have a supply of geology T-shirts available that can be purchased by mail. The cost for a current year shirt is $12 plus $4 postage payable to Carleton College Geology, and as a gift we will throw a previous years shirt in for free (it'll be a surprise what shirt from the past you will end up with). The 2015 - 2016 features the text "Carleton Geology" with scale bar on the front, and the text "Swerves for Outcrops" and logo on the back of the shirt (newsletter cover logo). The shirt is heather blue, and the text & logo are orange, and available in short sleeve. As of writing sizes S, M, L, and XL are available.

There is also a timeless (and priceless!) special shirt available for families with multiple generations attending Carleton. The shirt features a diagram of the interior of the Earth with the core labeled Carleton Faculty, and the layers going upwards toward the surface being Post Docs, Graduate Students, Seniors, Juniors, and Sophomores; the blebs of magma (which melted off the subducting plate) rising toward the surface are "Children that go to Carleton." It is a cardinal red with white ink. Sizes available S, M, and L. Email Jonathon at jlcooper@carleton.edu, or call at (507) 222-4401 to find if you size is still in stock.

Department of Geology
Carleton College
1 North College Street
Northfield, MN 55057

Non-Profit Org.
U.S. Postage
PAID
Northfield, MN
Permit No. 131

Address Service Requested