

**COLGATE**  
**UNIVERSITY**  
**GEOLOGY DEPARTMENT**  
**ALUMNI NEWSLETTER**

**Issue 10**

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**Winter**  
**2014-15**



**2013 OC inspecting a Silver Plume suite dike in Golden Gate Canyon Park, Colorado**

A Note from the Chair,

Hello from Hamilton! I'm writing this during the last cold week of January as we begin the second week of the term, and we have already had a lot of snow this winter. The department is doing very well: We have 23 declared majors in the class of 2016 and 30 were enrolled in Mineralogy last term (a recent record). This past summer 25 students were involved in various kinds of research: 13 had summer stipends funded by Colgate or National Science Foundation grants to faculty and the remaining 12 were funded by alumni contributions to the Geology Department's discretionary fund and by the endowed funds for student summer research. Faculty research has also been strongly supported by gifts from Malcolm ('54) and Sylvia Boyce. Thank you all! I encourage you to look over the list of amazing student research projects later in the newsletter.

This has been an exciting few years for the department. Karen Harpp has recently been appointed Director of the Benton Scholars Program and has begun a joint appointment with the Peace and Conflict Studies Program. Last winter we heard officially that Amy Leventer was promoted to full Professor, and I was also promoted this past winter. In addition we have had a visiting Assistant Professor in the Department, Kelsey Winsor. Kelsey comes to us from the University of Wisconsin-Madison, where she just finished her Ph.D. The most recent development is that we just hired Aubreya Adams as an Assistant Professor in a new tenure-stream faculty line in Geophysics. Aubreya earned her Ph.D. from Penn State and has been doing a Post-Doc at Washington University, and will be joining us in the fall.

Thank you all for your support over the years, and please stay in touch.

With best wishes,



William H Peck  
Professor and Chair, Department of Geology



2014 OC at Delicate Arch, Arches National Park, UT

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## **Rich April** Dunham Beldon, Jr. Professor

Since last I wrote (summer 2012), I've been teaching Mineralogy and Geochemistry, with a dollop of X-ray and Clay Mineralogy, Gems, and an Acid Rain Seminar thrown in. New courses taught over the past couple of years include Environmental Geochemistry (standing in for Karen Harpp, who was on leave) and Evolution of Planet Earth (Geology 190). The students have been curious and hard working, and as keen about geology and the department as ever. Colgate is clearly attracting the top students in the country;

our geology majors are smart and savvy, and have excellent technological skills steeped in the digital revolution. People occasionally ask me whether current students are academically more proficient than those students (maybe you) I taught when I first came to Colgate three and a half decades ago. I think not. Today's students are very knowledgeable, surely, especially in the way they can access and process information. But they seem no more adept than past alumni in their ability to integrate, synthesize and critically evaluate what all this information means. Although some thinking skills may have changed over the past several decades, I would say that the students I taught when I first arrived at Colgate were just as intelligent, just as savvy, and just as delightful and enjoyable as those I teach today. One thing I have noticed, however, which I don't quite know what to make of, is the substitution of social interactions (i.e., friendly chatter in the five minutes before class begins) for smart phone gazing and texting. This seems to be more prevalent in introductory courses in which the students don't know one another very well. Fortunately, I don't see this same sort of thing when I walk into the Mineralogy class in the morning. Lots of friendly confabulation there – thank goodness for the camaraderie geology kindles!

As for research - I recently (this week) got word of a National Science Foundation-Major Research Instrumentation (NSF-MRI) award for a TXRF (total reflection X-ray fluorescence is a surface elemental analysis technique often used for the ultra-trace analysis of particles, residues, and impurities). The NSF grant was co-authored by four Colgate faculty members and therefore the instrument will be shared among faculty and students in Colgate's chemistry, geology and biology departments. It will be ordered posthaste and will be available in the fall for those students conducting their senior research projects in geology. I was recently asked to serve - and was honored to accept - a three-year term as an Associate Editor for the journal *American Mineralogist*, the flagship journal of the Mineralogical Society of America, continuously published since 1916. I had a co-authored paper published this past year in the geochemistry journal *Geochimica et Cosmochimica Acta* reporting on research done over the past several years on the Critical Zone. The Critical Zone is defined as the thin "skin" of the earth, from the outer envelope of vegetation (the tree canopy) to the lower limits of groundwater penetration (down to solid bedrock). This zone is important because it supports all terrestrial life on Earth, and the more we know about it, and how it responds to global change and human intervention, the better. This summer (2014) I have three students doing research projects with me. One student is investigating chemical weathering and water chemistry in a Critical Zone watershed, another is working on characterizing secondary mineral products in the Franklin-Sterling Hill mining area of northern New Jersey, and the third is comparing the mineralogy and chemistry of soils in two organic gardens to determining whether differences in soil chemistry and mineralogy translate into differences in the trace element chemistry of the harvested crops.

Finally, I've been working with Dianne (Di) Keller on curating the Linsley Geology Museum. Over the past couple of years we've added several new exhibits (see article on the Geology Museum), including a "fool's gold" display, a T-Rex sculpture by a local artist John Kennedy, and a Pterosaur

sculpture by California artist Larry Williams. The Linsley Museum receives over 5000 visitors each year and is the most popular museum on campus. Of the 5000 visitors, approximately 2000 are children from regional school districts surrounding the Colgate campus. We're very proud of the museum and we strive to keep it fresh and inviting year-round.

To sum up, things have been good in the Geology Department. I find it hard to believe that time has swept by so quickly. Looking back, I must say that I couldn't have wished for a nicer place to spend my career. All my best regards to you and your families. Keep in touch.



**Karen Harpp**  
Associate Professor

Hello Colgate Geology Alumni! The Harpp Research Group has been very busy these days. Currently, three Colgate students are working furiously preparing their work for presentation at the American Geophysical Union conference in December. One project

focuses on the fascinating carbonatite lavas from Oldoinyo Lengai volcano in Tanzania (Hunter Robertson, CU '16) and how

these lavas influence the chemistry of nearby Lake Natron. Another is exploring a project initiated by Ashley Nagle '05 and continued by Conor Forbes '09, on the lavas of Sakurajima Volcano in Japan. Allie Schneider (CU '15) is focusing on that project, trying to understand what the cyclical geochemical variations in that volcano's recent eruptive history mean.



Above: Artificially generated Pele's hair (this is all basaltic glass made with a leaf blower and a lava stream from the kiln)! Just one potential preview of the volcanology labs this coming spring...who wishes they could come back for lab now?!?



Photo above: Hunter Robertson (left), Matt Bosselait (center), and Erika Rader (right) prepare a sample for a spatter experiment.

Finally, Matt Bosselait (CU '15), tired of waiting for volcanoes erupt, is generating his own lava at the Syracuse Lava Project (<http://lavaproject.syr.edu/index.html>). This project is funded in part by the Malcolm ('54) and Sylvia Boyce Endowment Fund, and is focused on determining the parameters necessary for the formation of basaltic spatter. We're collaborating with newly minted PhD Erika Rader (CU '07, now at Washington State University and the University of Idaho, who has never been able to shake her passion for lava (who can blame her, let's be honest). We have big plans to take the spring 2015 volcanology class to Syracuse to do their own experiments with lava next semester.



**Di Keller**  
Senior Lecturer

Hello alums! Twenty-five years sure fly by when you are having fun. It's hard to believe but I just realized I'm starting my twenty-sixth year with the geology department! I feel very fortunate to be working in such a vital place - surrounded by great colleagues and students, new and varied ideas and activities that challenge me both intellectually and creatively, and by these wonderful rolling hills, expansive views, abundant

streams and lakes, not to mention nifty trilobites and nearby E-horizons.

As always, it's been great getting to know prospective geology majors in GEOL 101 (Environmental Geology) and GEOL 190 (Evolution of Planet Earth) labs, and to work with declared majors in Mineralogy labs, on Clay & X-ray Analysis projects, or on their independent research. Now that the department requires all majors to do research and complete a senior thesis, I've been kept very busy instructing students on lab procedures and on how to use the department's analytical instrumentation, as well as dealing with the unavoidable (and avoidable) machine damage and wear that results from all that use.



This year I'm most directly involved with three senior research projects: a study of local organic farm soils, a study of mineral weathering in the Sterling Hill ore deposits of Franklin, NJ, and a study of soil formation and its influence on water chemistry at Roger's Glen in Chadwicks, NY. Fieldwork this summer included a sample collection trip to the Sterling Mine, during which we were treated to a quick stop at the Franklin Mineral Museum. If you are ever in that area, the fluorescent mineral display at the museum is truly worth the stop, particularly its one long wall filled with large fluorescent mineral samples that glow with such intense colors and spectacular patterns. The bulk of this summer's fieldwork took place closer to home, at Roger's Glen - a special and beautiful place, as alums like Seghan McDonald '10, and more recently my shale-dancing partners, Sarah Lemon '12, Lauren Frisch '12, and Halley Goldman '13 (top picture) can attest. Roger's Glen is home to the Woodhaven Wildlife Sanctuary so we never know what wonderful creatures we might meet while we are there. This summer I got to hold a very sweet baby coyote pup and meet some very fine litters of baby raccoons and weasels too.

In addition to teaching and research, I also continue to enjoy working on Linsley Museum displays and doing outreach activities with local schoolchildren and other groups like the Hamilton Garden Club. Museum tours and the science outreach programs here in the Ho Science Center have become so popular that I am now fortunate to also work with a group of geology majors that help with museum tours and other activities. They've been doing a great job and I think both the geo-majors and the kids really love the experience.



## **Amy Leventer** Professor

Colgate's Geology Department continues to provide me with great opportunities to teach interesting courses. Over the past few years, in addition to more traditional courses, such as *Oceanography* and *Marine Geology*, I've been fortunate to teach one of my favorite Core Scientific Perspectives, *Climate Change and Human History*.

I continue to enjoy time spent out west teaching the *Geology Off Campus*. I have been lucky enough to teach with Dave Linsley out in the Seminoes of south central Wyoming. What better way to spend a week or two, surrounded by beautiful scenery, great rocks ("BIF Beach" and the turquoise find) and wildlife (including horses and a few rattlesnakes!), wild weather (wind and hail) and great bunch of students? Thanks to all of you for sharing your time with me! If you're ever out in Wyoming, be sure to stop by Penny's Diner for a milkshake!

My research in Antarctica continues to be a primary focus, with several recent research cruises, including three to the Antarctic Peninsula and one to the East Antarctic margin. Cruises to the Peninsula were conducted on the two US icebreakers, the RVIB *NB Palmer* and the RVIB *LM Gould*, as well as a trip on the new Korean research vessel the *Araon*. I was fortunate to be accompanied by Kara Vadman ('14) and Allegra Bianchini ('14) on these cruises. The East Antarctic margin project is focused on a relatively unexplored and inaccessible region of East Antarctica — the Totten Glacier and Moscow University Ice Shelf. One of our goals is to investigate the reasons for accelerated ice loss there, but we are also learning a great deal about the evolution of the cryosphere in Antarctica.



A truly interdisciplinary approach: students Kara Vadman and Mikhaïla Redovian, professor Amelia Shevenell, and cook Mike Bowen tackle a Kasten core together.

This project includes Eugene Domack and Amelia Shevenell (University of South Florida), Bruce Huber (Lamont-Doherty Earth Observatory), Alex Orsi (Texas A&M University) and Sean Gulick and Don Blankenship (University Texas Austin). Our 7 week cruise aboard the RVIB *NB Palmer* was very successful scientifically, and we all enjoyed the opportunity to be “the first.” It was great to sail again with Kara Vadman ('14) – her previous experience on board was a bonus both on deck and in the lab. Mikhaïla Redovian ('15) also participated on the cruise – her smile provided a daily morale boost for all on board!



Kara Vadman and Mikhaïla Redovian basking in the Totten moonrise.

Thanks to all the students who have worked in the lab, and who have completed senior projects with me - Kara Vadman and Allegra Bianchini ('14), and Mikhaïla Redovian, Katherine Schultz, Giuliana Kafaf, and Shannon Dillon ('15), Ryan Clements ('16) and Hannah Bercovici, Jackson Lucas and Glenna Thomas ('17).



### **William Peck** Professor

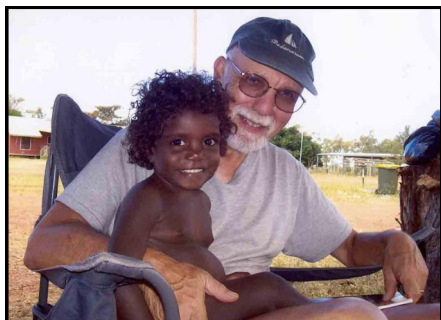
I am currently in my third year of serving as department chair, except for last Fall when Rich April served as interim chair while I led the Manchester study group. Myongsun took a leave of absence from the Geography department and the whole family moved to Manchester for five months- Henry (now 8) was enrolled in

a Harry Potter-esque primary school and Julia (now 5) in a neighborhood nursery school. I had a great semester in the School of Earth, Atmospheric and Environmental Sciences at the University of Manchester, and started a project looking at rocks from some metamorphic contact aureoles from Scotland.

Things have been going well on the research front. This summer Duncan Keller ('15) and I have been doing oxygen isotope work on rocks from the famous Broken Hill Pb-Zn-Ag deposit in Australia. Duncan collected these rocks while on the Wollongong study group last term, with the help of our colleague Paul Carr. Closer to home Mike Du-



bois ('15) and Kevin Varga ('16) started a new project with me looking at the depth of generation and emplacement of the Marcy anorthosite massif in the Adirondacks, which necessitated a lot of hiking in the High Peaks this summer. This project is funded by the Malcolm ('54) and Sylvia Boyce Endowment Fund, and uses a very sensitive hand-held XRF.



**Paul Pinet**  
Professor

Hi Everyone! The 2013-14 academic year has vanished! For me, this fact is particularly noteworthy, because I will be retiring after this forthcoming year at which point I will be 71 years old. This decision does not mean that I will discontinue my scholarship work, nor does it imply that I will stop teaching. Rather, my intentions are to teach an occasional course (“moonlighting” in-

stead of “sunlighting?”) and to focus on my research projects, in part financially supported by Colgate. Furthermore, retirement will give me more time for outdoor activities (hiking and cross-country skiing), for traveling, for reading voraciously (particularly novels, as well as nonfiction focused on the nature and origin of human evil), and especially for engaging in watercolor landscape painting, an activity, much to my frustration, that I have had to put on hold for the last seven years (my intent, which is likely impossible, is to render deep geologic time to paint).

I spent the last two semesters teaching a variety of courses, including Introductory Oceanography, Coastal Geology (one of my favorites), Ecology, Ethics, and Wilderness (a Core Course), and Nature, Technology, and the Human Prospect (an Environmental Studies seminar). All of them were reorganized extensively, not merely updating them, but changing emphases based on my own as well as students' current interests. Effective teaching is always difficult and demanding, but when it works everyone is a “better” person for the “magical” experience that can spontaneously emerge.

My current research interests are directed at convincing coastal policy makers and managers to expand the temporal domain of conservation strategies from decadal to millennial scales. I believe strongly that this is the only perspective (a geologic one) that makes sense for preserving, perhaps enhancing, the eco-geologic resiliency of coastal habitats as barrier islands attempt to migrate landward in response to sea level rises for the foreseeable future. I'm focusing my attention on Fire Island, a 50-km-long barrier island along the south shore of Long Island that has a “wilderness” tract (the only barrier island of the U.S. to possess this honor), as well as a National Seashore designation. Management there is a morass of federal, state, county, and township controls, biases, and aspirations, all of them short term and founded on engineering ‘solutions’ over the short term. The USGS and the Army Corps of Engineers are doing their best to solve erosion problems in, I believe, a misguided way because of a mismatch between management strategies and geologic spatial and temporal scales. I get a great deal of criticism for my perspective, but I continue to implore managers and policy personnel to protect the geologic resiliency of these dynamic coastal landforms.



**Bruce Selleck**  
Harold Orville Whitnall Professor

Greetings from the Ho Science Center. After spending academic year 2011-12 as Interim Dean of Faculty and Provost, I returned (gratefully) to the department, teaching my regular courses, including the off-campus field program in Utah, and working with students on senior research topics. Last summer (2013), six students (Anay Shah, Chris Guiney, Emily Butler, Rachel Walsh, John Gabler and Sam Brenman) worked on a series of projects investigating the burial history of the Utica Formation-Trenton Group interval in New York and Ontario. In the current summer, Giuliana Kafaf, Emily Holzman, Peter Swiggett and JD Schiff are taking topics ranging from natural melt rocks associated with coal fires to Marcellus Formation geochemistry.



My research continues to address sedimentological, structural and geochemical aspects of the Marcellus and Utica intervals in the northern Appalachian Basin, along with regional provenance patterns using zircon geochronology. Given the natural gas development in the Appalachian Basin, professionals from the industry are keen to see outcrop exposures of the rocks being drilled in the subsurface, and so I continue to arrange and lead field trips to the classic exposures from the Hudson Valley through central New York and the Finger Lakes region. Problems related to the tectonic evolution of the Grenville rocks of the Adirondacks remain of great interest. The Adirondack uplift provides a wonderful opportunity to examine basement structures that accommodated subsidence during the evolution of the Paleozoic Appalachian Basin.

In the summer of 2012, I took on the directorship of Colgate's Upstate Institute, which serves as a community engagement unit, pairing up students and faculty with regional not-for-profits and local government agencies. A major part of the UI program is our Summer Field School, involving 20-24 students working as fellows with local organizations. Sarah Katz, a rising junior geology major, is serving as a fellow with the Rogers Environmental Education Center, located near Sherburne, NY. The Chenango River at Rogers is a regular field trip site for a number of Colgate geology courses.

Nancy and I are looking forward to leading Colgate's Cardiff, Wales study group during the spring of 2015. We are renovating a cottage on Craine Lake, near Earlville, which will be our new home, hopefully beginning fall 2015. This new home will mean a much tougher daily commute to Colgate – five minutes vs. the current three and one-half minutes from Randallsville. Such are the challenges of life in Hamilton.



**Constance Soja**  
Professor

Greetings to our geo-alumni here and abroad! I continue to enjoy life at Colgate — what could be better than teaching paleontology and evolution-related courses to wonderful geology and non-science students?! And it's been terrific talking with alums between sessions, at the alumni reception, and after hours at annual GSA meetings (most recently in Denver and Charlotte). We are proud of what each of you has decided to pursue in your post-Colgate years, from science to law to medicine to environmental consulting to sec-

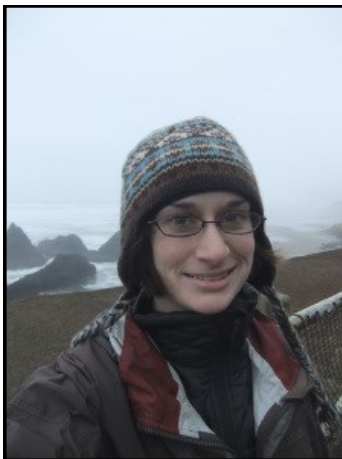
ondary school education to outdoor leadership to parenting and beyond. Congratulations one and all — and thanks for keeping in touch so that we can let current students know about the diverse opportunities out there for future Colgate-inspired careers.

Thanks to the Boyce Endowment and department support, I will be returning to southeastern Alaska for more field work this summer, building on research accomplished with Colgate students over many years. Working with a U.S. Forest Service geologist and two local amateur geologists, we will be studying Devonian platy limestone for evidence of lacustrine vs. marine deposition. I am also excited to visit the site that yielded giant Silurian clams for senior research by Craig Capodiferro '13 and Josh Riefler '14 (Josh and I are especially grateful to Di Keller and Rich April for guiding Josh's geochemical sample processing and analysis). Getting to that inland, forested outcrop is supposed to be an arduous trek — past black bear dens and dense growths of Devil's Club (thorny plant). But once there, we'll scrape the outcrop clean of debris, do tracings of the giant clams in situ, and sample what we can. Craig and Josh raised interesting questions in their research that those samples should answer once processed in the Colgate lab.

During sabbatical in the Fall, I am looking forward to visiting classic sites where the Old Red Sandstone is exposed in Scotland — from Aberdeen north to the Orkney and Shetland Islands — to sample platy limestone that is comparable in age to the Alaska rocks. The Scottish deposits formed in ancient lakes and exhibit a range of features that will help sort out the depositional history of the Alaska sequence. Transitioning from the Silurian to Devonian and from marine to non-marine limestone has been a fun, interesting, and educational process — thanks again to Boyce funds and the department for support!

I am also looking forward to having time during my sabbatical to publish a new field-based exercise that I designed for my First-Year Seminar on "The Sixth Extinction" and also to write more chapters for my book on *The Last Good Buy: Evolution in the New Age of Extinction*.

Thanks again to our alums for the energy and enthusiasm you brought to the department while at Colgate and for the exciting work you are doing in your post-graduate years. Please stop by on your next visit to campus!



**Kelsey Winsor**  
Visiting Assistant Professor

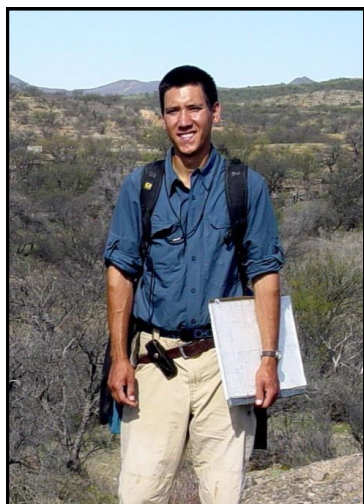
I've started a one-year Visiting Assistant Professor position with the department, where I'll be teaching Megageology and Earth Resources this fall. Just this week, I finished up my PhD on Quaternary geology at the University of Wisconsin-Madison. Most of my research to date has focused on marine and terrestrial records of Greenland ice sheet retreat during the late Quaternary. On the terrestrial side, I use cosmogenic surface exposure dating to reconstruct ice retreat chronologies. These are complemented by marine records of both retreat forcings (ocean temperatures) and meltwater runoff. Our group's most interesting (to me) new finding is that the southwestern Greenland ice sheet responded very quickly to an early deglacial change in sea level. This

has generated a lot of questions, which I'm looking forward to trying to work out.

Since arriving at Colgate a few weeks ago, I've started researching a new field site just to the north of us, in the Oneida Lake basin. I'm very excited about this new site, which has an array of deglacial landforms as well as a potentially fabulous lacustrine sediment record. Eugene Domack (University of South Florida), Amy Leventer (who I met on her East Antarctic cruise this spring)

and Chris Scholz, a seismologist from Syracuse University, will also be participating in this research. Collection of new data will start this fall, using a small boat to collect seismic data. The goal for this study is to develop a very detailed (decadal scale?) history of ice margin fluctuations and glacial lake levels, which can then be compared to late deglaciation climate changes like the Younger Dryas.

My family is in Rhode Island, and I went to Smith College (Massachusetts) for undergrad, so it's very nice to be back in the northeast. I moved out here with my husband, Scott Johnson, a fellow geologist—we're both keen on getting to know some new local rocks. We're also both trying to keep our consumption rate of Oliveri's pizza to fewer than 3 times/week.



**Martin Wong**  
Associate Professor

Hi all and greetings from Colgate! It's been a busy few years for me since the last newsletter update. Teaching and research have been going well these last few years and continue to be lots of fun. On the teaching front, I continue to teach Structure every year along with a variety of intro classes such as Environmental Geology, Megageology and the Geology Outdoors FSEM, and the Tectonics seminar at the 400-level. I also have been teaching a new segment of the OC the last several years in Yellowstone and Jackson Hole, WY. I had fun developing the Jackson project in particular, as there are glacial moraines (Pinedale in age, ca. 12,000 kya) offset by the Teton normal fault that allow students to determine the average slip rate and assess the seismic hazard risk to the Jackson Hole area.

On the research side, in the summer of 2012 I co-lead a Keck geology project with Phil Gans (UCSB) in the Snake Range metamorphic core complex. Casey Portela ('13) worked on the marble mylonites from the footwall of that core complex for her senior thesis, which she presented at the Keck symposium in April 2013 at Pomona College. I have also been wrapping up a project focused on testing the  $^{40}\text{Ar}/^{39}\text{Ar}$  K-feldspar thermochronometer at tilted normal fault blocks in the Basin and Range province. We've got one paper recently accepted in GSA Bulletin on the (U-Th)/He apatite thermochronology at the Grayback fault block in Arizona with Dan Gleason ('11) and Hillary O'Brien ('11) as co-authors. I presented the results of the K-feldspar analyses and thermal modeling part of the project at the national GSA meeting in Denver in 2013 and we are working on that manuscript with Danny Roesler ('13), who did much of the Ar diffusion modeling, as a co-author.

The major research project I am working on right now is a study of the mylonitic footwall in the Harcuvar and Rawhide Buckskin core complexes in western Arizona, which is currently supported by an NSF grant. We're working to constrain the age and kinematics of these shear zones, which were previously believed to accommodate Miocene extension but it is looking like they more likely accommodated Late Cretaceous to early Tertiary extension instead, which is exciting! Jacky Baughman spent some field time there in Jan. 2013 and conducted structural studies of the mylonites along with  $^{40}\text{Ar}/^{39}\text{Ar}$  thermochronology for her senior thesis. Three students are working with me this summer on this project (Alex Wrobel '14, Rick Cummings '14, and Kate Hardock '15), with a trip to date zircon and monazite scheduled for the end of the summer at the LA-ICPMS lab at UC Santa Barbara with students. Things are also great on the family front: my daughter Olivia turns 8 this fall and is heading into 3<sup>rd</sup> grade. We are looking forward to spending the spring of 2015 in Australia when I lead the Colgate study group to Wollongong. Hope everyone is well; stop by Colgate sometime and say hello if you are in the area!

## Colgate Geology Students Visit a Natural Gas Drill Site in Northern Pennsylvania



Development of natural gas in the Marcellus Formation continues in Susquehanna County, just south of the New York State border along the I81 corridor in Pennsylvania. A number of recent Colgate geology grads are working in the area as well site geologists and geosteers. Given these opportunities, Bruce Selleck has arranged site visits so students have a chance to see an active rig, and learn about drilling operations. Rob Bickhart, Colgate class of 2012, now with Selman and Associates, helped us arrange rig tour near Montrose, PA, in October, 2013.

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### Keck Geology Consortium

Colgate continues to participate in the Keck Geology Consortium, which is a group of 18 geology departments from small liberal arts institutions. The Consortium offers summer research opportunities in geology for undergraduates and is jointly funded by the member institutions and grants from the National Science Foundation. NSF recently funded the consortium for another three years, so this great program will continue until at least 2017. At least two students from Colgate participate in research funded by Keck each summer and this research forms the basis of their senior research project back at Colgate. After completing these projects, students present their research at the annual Keck symposium held each spring at one of the member institutions. Below are the students that participated in Keck over the past two years and their research projects:

#### 2013 Keck Symposium at Pomona College, CA

**Casey Portela** – Microstructural analysis of mylonitic marble of the Northern Snake Range  
*Faculty Advisor:* Martin Wong

**Caroline LaBriola** – Seepage conditions and water budget analysis of Duck Lake in Milton, Wisconsin  
*Faculty Advisor:* Jeni McDermott



**Casey Portela '13** making field measurements in the Snake Range, Nevada.

## 2014 Keck Symposium at Mt. Holyoke College, MA

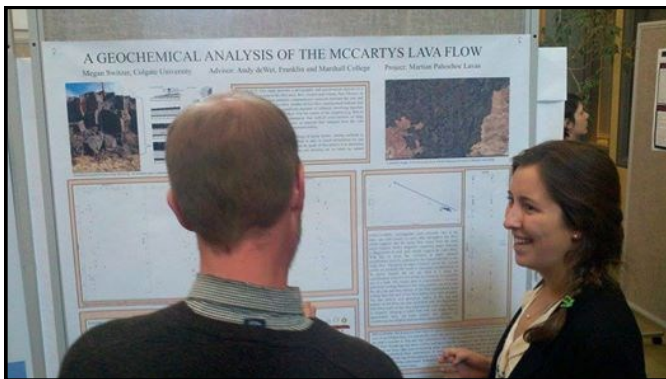
**Megan Switzer** – Vertical variations within the McCartys flow: a petrographic and geochemical analysis

*Faculty Advisor:* Karen Harpp

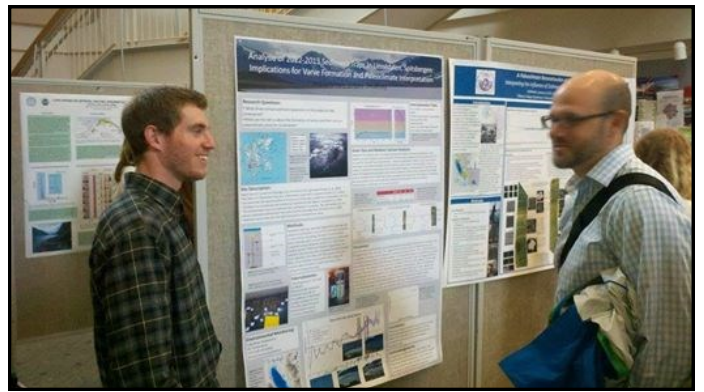
**Josh Solomon** – Analysis of 2012–2013 sediment traps in Linnedalen, Spitsbergen: Implications for varve formation and paleoclimate interpretation

*Faculty Advisor:* Bruce Selleck

Two students participated in Keck research this past summer. Tom Bartlett ('15) is studying prehistoric human settlements in the Island of Four Mountains, Alaska, and Shannon Dillon ('15) is studying coral reef health in Belize.



**Megan Switzer '14** presenting at the 2014 Keck Symposium.



**Josh Solomon '14** presenting at the 2014 Keck Symposium.

## 2014 Fall American Geophysical Union Meeting

This fall five Geology students presented their research results at the meeting of the American Geophysical Union. Their travel to San Francisco was supported in part by the Robert Linsley Prize for Excellence in Geology and alumni donations to the discretionary fund.

**Matthew Bosselait** – Investigation into the Physical Properties Responsible for the Formation of Basaltic Spatter

*Faculty Advisor:* Karen Harpp

**Hunter Robertson** – Preferential Weathering of Carbonatite Lava at Ol Doinyo Lengai, Tanzania

*Faculty Advisor:* Karen Harpp

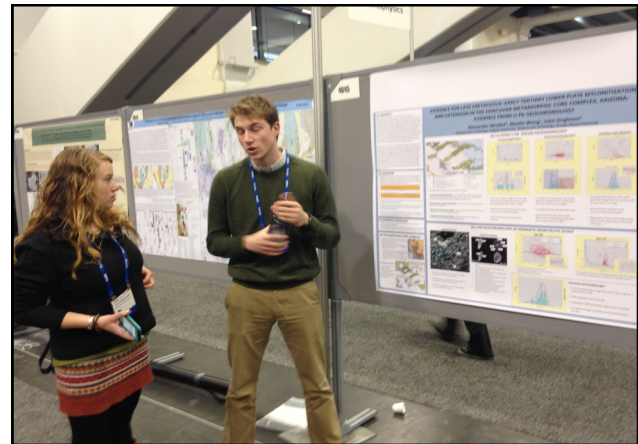
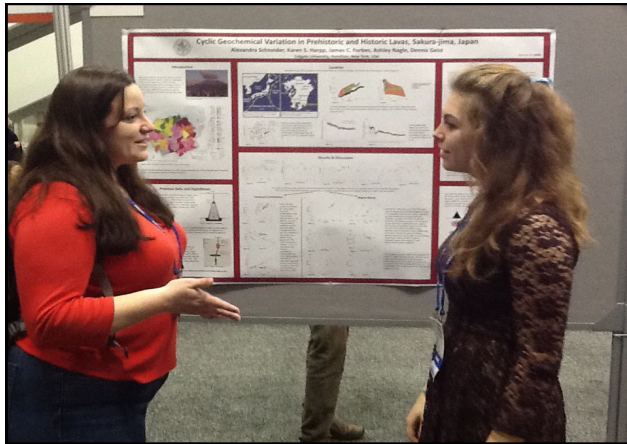
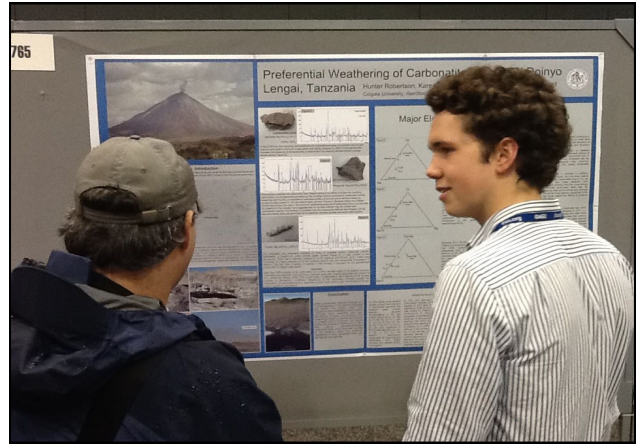
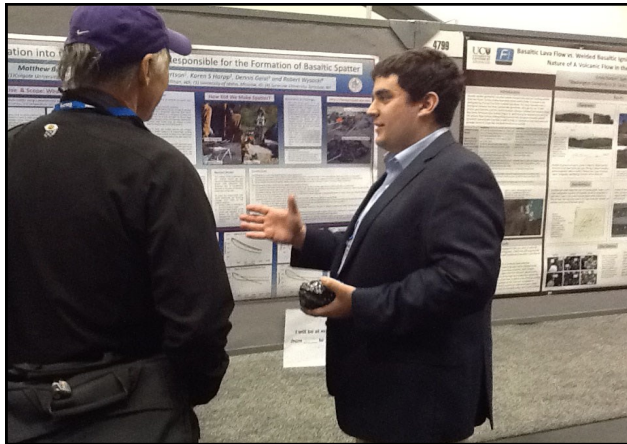
**Alexandra Schneider** – Cyclic Geochemical Variation in Prehistoric and Historic Lavas, Sakurajima, Japan

*Faculty Advisor:* Karen Harpp

**Alexander Wrobel** – Evidence for Late Cretaceous–early Tertiary lower plate mylonitization and extension in the Harcuvar metamorphic core complex, Arizona: Evidence from U-Pb geochronology

*Faculty Advisor:* Martin Wong

## Colgate students at AGU



Top left: **Matthew Bosselait** ('15), top right: **Hunter Robertson** ('16), bottom left: **Alexandra Schneider** ('16) with **Aubreya Adams**, Colgate's newly-hired Assistant Professor in Geophysics, bottom right: **Alex Wrobel** ('15) with **Jacky Baughman** ('13).



Left: **Duncan Keller** ('15) and right: **Hunter Robertson** ('16), outreach volunteers at AGU's Science Exploration Station.

## Volcanology Spring Break Trip, March 2014

Once again, thanks to the generous support of the Geology Department and its alumni, we were able to offer a field trip to Ecuador to complement the spring 2014 Volcanology course. Ecuador is fortunate to have many of the world's most active volcanoes, and we did our best to visit and experience several of them.



We began at Guinea Pig Lake (more commonly known as Cuicocha Lake), a crater lake on the flanks of Cotacachi volcano. From here, we immersed ourselves in Ecuadorian culture with a visit to the famous market town of Otavalo.

From Cuicocha, we traveled to Pululahua volcano. Even though it hasn't erupted in almost 2000 years, volcanologists remain concerned about its behavior because of its violent history and because people live on the crater floor. Pululahua has experienced many explosive dome collapses, so it served as a great introduction to block and ash flows and other deposits from pyroclastic density currents.



The ever-intrepid Julie Wan takes the lead investigating a block and ash flow on the crater rim of Pululahua volcano.



Having had our first introduction to studying volcanic deposits in the field, we made our way south from Pululahua. En route, we had to make the requisite stop at Mitad del Mundo (the middle of the world, otherwise known as the Equator).

Note the yellow line running along the ground. That defines the equator, or at least where everyone thought the equator was when the line was first painted and the monuments built (it turns out the real Equator's about 100 meters away from this spot...details). Sarah Katz, Erin Cummings, and Allie Schneider are upright in the photo (from left); Annie Preston, Michaela Murphy, and Lauren D'Amico are facing the other side of the planet. Our next adventure involved a drive far

above the city of Quito to Lloa, a very early wake-up, and a wild and muddy 4WD trip up Guagua Pichincha, the volcano that periodically drops quite a bit of ash on the city. From the climber's refuge, we hiked to the summit to investigate the hydrothermally active crater. Unfortunately, as turned out to be the case at several volcanoes on this trip, the clouds beat us there, so we could only experience the crater's gases by smell (mmmm). From this vantage point, we studied the hazards posed by the volcano to Quito and the surrounding countryside, before hopping on our mountain bikes and riding (quickly!) back down to Lloa.



(Left) The rather chilly and cloudy summit of Guagua Pichincha.

(Right) Checking for volcanic gases along the path at the summit of Pichincha. The crater is to the right, although you'd never know it from this weather.



(Left) Colgate students making hazards maps at the climber's refuge on Pichincha.

(Right) The group embarking on our ride around the flanks of Tungurahua volcano.



From Pichincha, we drove several hours south to Tungurahua volcano, which had been erupting spectacularly for several months prior to our arrival. Even though ash clouds continued to be produced by the volcano, we had to take the Instituto Geofisico's word for it, owing to more awesome cloud cover. We nevertheless explored the effects of the most recent eruptions at Tungurahua. Given how frequently small bridges and valleys get washed out by pyroclastic flows and lahars, it's easiest to access the flanks of the volcano on foot and by bicycle.

Allie Schneider puts her volcanological skills to use as she explores a pyroclastic surge deposit at Tungurahua.





From Tungurahua, we traveled north again to stay on the flanks of Cotopaxi volcano, at about 12,000 feet altitude. From here, we explored lahar and pyroclastic density deposits, investigated hazards posed by the volcano, and learned how to map volcanic deposits. We were lucky to have along with us Ahmad Khazae from IT, who helped us use a new remotely operated aerial photography platform to get bird's eye views of the terrain.

(Left top) Exploring a surge deposit from recent activity at Tungurahua. Note the downed trees that were broken by the flow.

(Right top) The ace volcanologists point out their conclusion about the origin of the surge deposit. Tungurahua's flanks are behind them. The surge was channeled through the narrow valley in the background, jumped the Chambo River, and was deposited where they are standing in one of the more energetic phases of the volcano's activity.

(Left bottom) Church in Bilbao that was destroyed by ash fall deposits less than a decade ago. Julia Horne for scale, and in admiration of the power of a pile of wet ash.

(Right bottom) Kevin Varga (CU '16) describes the terrain being filmed by the copter 'cam (with images being transmitted directly to the glasses he's wearing) while Ahmad Khazae (IT) drives the system over an otherwise inaccessible valley on Cotopaxi.



We also hiked to nearly 16,000 feet to the climber's hut. The weather was particularly cooperative that day, providing us with the motivating and invigorating experience of bracing, horizontal hail, high winds, heavy rain, and freezing temperatures. Needless to say, the view was a bit lacking, but on a few occasions, Cotopaxi did emerge from the clouds to reveal the summit. As we said on the trip, *all we wanted was a peak...*which, in the end, we did manage to get. It was a great trip, thanks to all who participated and supported the adventure.

A rare but spectacular view of Cotopaxi volcano.

## Robert M. Linsley Geology Museum News

Halfway through, it already has been a busy year in the Robert M. Linsley Museum. Since January, more than 3200 people have visited. A little over 400 of those visitors came during graduation weekend and despite the beautiful weather we were treated to during Alumni Weekend, another 300 people stopped by to check out the displays. Something that may have helped draw visitors in was a recent Colgate Scene article about the Linsley Museum, highlighting a few of its beautiful and unique specimens. We were thrilled that the Scene staff chose to feature the museum in its spring 2014 issue (along with another feature article on Connie Soja's book-in-progress, called, The Last Good Buy) because we've worked hard to make the museum a special place and it's gratifying to see people enjoy and appreciate it.



Although the bulk of the museum design and installation was finished in 2009, we still try to add new things each year. This year's new display focused on "Fool's Gold." (Hopefully you all just said, "Oh, pyrite" and extra points if you said, " $\text{FeS}_2$ .")



Rich April came up with the idea for this display, thinking it would be a popular exhibit for the more than 2000 children that visit the museum on class trips every year. It has been - especially the golden fossils and real gold nuggets.



Another very popular new addition to our museum outreach program is Doug the Dinosaur (top of the page), who greets school groups by the entrance to the Ho Science Center. This T-rex sculpture (created by local artist, John Kennedy) was another of Rich's ideas to entertain kids --- of all ages, really. Doug the Dino was named after Doug Lupino, a beloved custodian that just retired in June after taking great care of us ever since we moved into Ho.



Last, but certainly not least, the most recent addition to the Linsley Museum was a truly amazing find by Eli Koniewicz, a 7 year-old second grader at Hamilton Central School. Eli found this incredible, large, doubly terminated quartz crystal while walking in a stream near his house. After his father found a second crystal, Eli very graciously donated his crystal to the Linsley Museum so that other kids could enjoy it too.

## Howzabouta Gneiss Pizza?

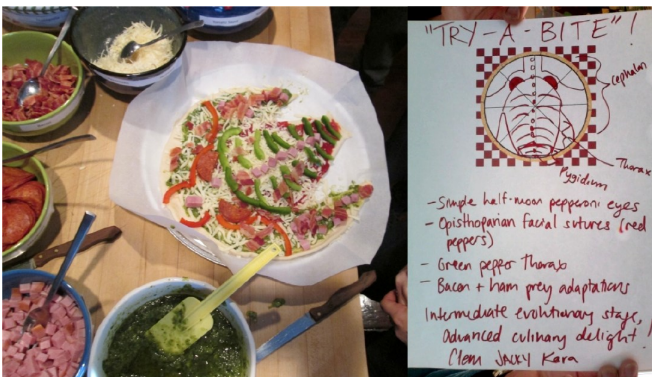
Geology faculty and students continue to enjoy time together away from the classroom at various social functions throughout the year. One very popular annual event is Geo Pizza! Night. Geo Pizza! is a dinner for which we provide blank doughs, red sauce, pesto, cheeses and assorted other toppings and challenge the students to create geology-themed pizzas. Students are also highly encouraged to bring geo-themed desserts. Appetizers, salads, and beverages provided by the department round out the fare.



Hosted by Di Keller, who first came up with the idea in 2011, Geo Pizza! typically is attended by forty plus people including geology students, along with faculty and staff and their families. Each year, our students impress us with twenty or so, not only very tasty but also quite clever pizza creations, some of which have included: Reverse Fossil Pizza (all meat, no bones), Delicious Siliceous Diatom Pizza (complete with pepperoni scale), Rapakivi Granite Pizza, Soil Horizon Pizza, and Earth's Structure Pizza - to name only a few. For geo-themed desserts we have been treated to sweet delights like: Worms & Dirt, Consequences of Global Warming Cake, Upside-down Volcano Cake, Trilobite Cookies, and "Nothing Says Yum Quite Like a Banded Iron Formation."



For more photos go to:  
<http://blogs.colgate.edu/geology/category/galleries/department-activities>



## **Douglas Rankin '53 Endowments Support Student Research**

In the Summer of 2013, five students received Rankin Fellowships for Geology Research: Samuel Brenman '14, Emily Butler '14, John Gabler '14, Christopher Guiney '14, Anay Shah '14 and Rachel Walsh '14 to conduct research on the mineralogy, structural geology and hydrocarbons in the Utica-Trenton Interval with Bruce Selleck.

During the following summer in 2014, Jennifer Godbout '15 was awarded the Rankin Appalachian Fellowship to carry out research related to the chemical weathering and its effect on water chemistry in Roger's Glen with Rich April. Guiliana Kafaf '15 also received the Rankin Appalachian Fellowship for her research with Bruce Selleck on melt compositions and pyrometamorphic minerals formed from a natural coal fire. Emily Holzman '15, JonDavid (JD) Schiff '15, and Peter Swiggett '15 were all granted Rankin Endowments and were guided in their analysis of the Marcellus decollement zone by Bruce Selleck as well.

### **Norma Vergo Prize in Geology**

Thanks to alumni contributors to the Norma Vergo endowment, we continue to offer this prize each year to a graduating geology concentrator who significantly contributes to the spirit of excellence among fellow students in the department. Norma Vergo graduated from Colgate with Honors in Geology in 1981 and then completed her M.S. degree at the University of Illinois. She died in 1989 at the age of 30. This special award was initiated by friends and colleagues in memory of Norma, an alumna the department fondly remembers as a gifted scientist and as someone with a special compassion for others that continues to inspire us today.

2013 Recipient Susannah Boote

2014 Recipient Joshua Lasker

The Norma Vergo Endowment also helps fund student research. In 2013 this endowment allowed Shannon Dillon '15 to work on Antarctic Paleoclimate research with Amy Leventer. Funds were also used to support Megan Switzer's '13 geochemistry research with Karen Harpp and Tyler Peters's '14 petrology research with William Peck.

Jackson Lucas '14 and Glenna Thomas '14 were also provided Norma Vergo Funds to conduct research related to marine sedimentary records from the Antarctic with Amy Leventer. In addition, Kate Hardock '16 received funds for research on rocks from the Harcuvar core complex, western Arizona with Martin Wong.

### **Robert M. Linsley Prize for Excellence in Geology**

The department is able to award this prize, in honor of Bob Linsley, thanks in part to a donor who wishes to remain anonymous. The prize is given mid-way through the junior year to a rising senior who has demonstrated the promise and potential for leadership and excellence in earth science scholarship and research. It is to be used at the awardee's discretion to do field work or other research, to attend scientific meetings, to present research, or interview and make contacts for graduate school, or to cover costs of summer field camp or special field trips. It is intended for someone who exhibits a balance of leadership, research, and communication/teaching interests, in Bob's spirit, and who plans to pursue earth science as a career.

In 2013, Kara Vadman '14, received the prize and used the funding to offset expenses for the geology off-campus and to visit graduate schools. She is currently a MS student at the University of South Florida.

In 2014, both Duncan Keller '15 and Alexander Wrobel '15 received the Robert M. Linsley Prize for Excellence. They used the Prize (in part) to attend the December AGU meeting in San Francisco.

## Kevin Williams '11 Memorial Fellowship

Kevin Bradley Williams (July 27, 1988 – October 4, 2010)  
Colgate University Geology & Geography concentrations, Class of 2011

This fellowship was established to give students the opportunity to experience what Kevin discovered as one of the greatest joys in life—traveling around another country. To help celebrate Kevin's memory and spirit, the recipient of this fellowship is asked to take to heart Kevin's favorite motto: "Live life to the fullest. Don't take anything for granted." This year's award recipient is geology major Kevin Varga '16 who will use these funds for travel in New Zealand. Thanks to everyone who has contributed to the Fellowship.



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## The Off-Campus (OC) Geology 320

Colgate's summer field course is still going strong, and we continue to be one of the few undergraduate institutions to teach a summer field camp for our own students. For the past two years the OC has begun in the area of Golden Colorado, spending time mapping Dinosaur Ridge and the Proterozoic rocks of Golden Gate Canyon with William Peck. After Colorado the group worked on projects in Moab and Flaming Gorge (UT) with Bruce Selleck. In Wyoming the group did structural mapping in Teton National Park and a geologic tour of Yellowstone National Park with Martin Wong, and a final mapping project at Seminole Reservoir with Amy Leventer.



2013 OC students after successful zeolite hunting at South Table Mountain, CO.

# GEOLOGY 320—The OC



2013 OC on the summit of Mount Washburn, Yellowstone National Park (WY)



2013 OC inspecting a Silver Plume suite dike in Golden Gate Canyon Park, Colorado



2014 tour at the UMTRA uranium mill tailing site in Moab, UT



OC students in 2013 at Sheepeater Cliff, Yellowstone National Park



The OC ascends Loveland Pass (CO) in 2014

## G. Arthur Cooper '24 Lecture Series

*We continue to host invited speakers -  
Including our alumni—in a weekly seminar series.*

### FALL 2013

**7<sup>th</sup> Annual Ho Symposium** A select group of students presented a short talk on their summer research experience from the areas of Biology, Psychology, Geology, Chemistry, Computer Science, Math, Geography, Environmental Science, Visualization Lab and Physics & Astronomy

**Understanding the adaptive significance of salmon migration with the help of geochemical tracers** Brian Kennedy, University of Idaho

**What's in a smile?** Lewis McCaffrey, Consulting Hydrogeologist & Environmental Manager

**Interactions of aerosols & clouds in earth's atmosphere fundamental chemistry meets geoscience** Doug Collins '08, University of California, San Diego

### SPRING 2014

**Age of shear zones at core complexes** Martin Wong, Colgate University

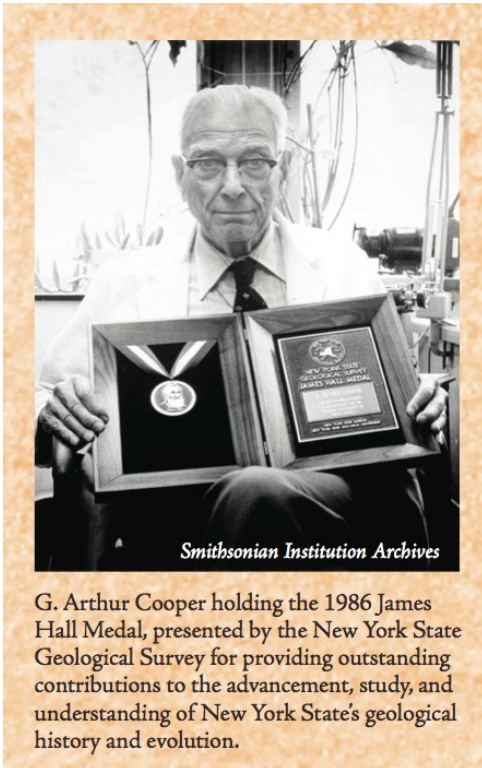
**Understanding the Carbon Cycle and Climate through Earth's History: Lessons from Stable Isotopes** Christopher Junium, Syracuse University

Roux Associates, Environmental Consulting Firm. Frank Cherena '03 and Justin Kowalkoski '08 spoke with interested students about careers as geologists, hydrogeologists and environmental scientists.

**Precambrian Crustal Evolution in the Great Falls Tectonic Zone** Jennifer Gifford, St. Lawrence University

**Wild Andean volcanoes: zombies, a diapir, simultaneous sinking volcanoes, and the eruption that canceled my flight home** Matthew Pritchard, Cornell University

**Normal Faulting Related to the Yellowstone Hotspot** Mark Anders, Lamont-Doherty Earth Observatory of Columbia University



G. Arthur Cooper holding the 1986 James Hall Medal, presented by the New York State Geological Survey for providing outstanding contributions to the advancement, study, and understanding of New York State's geological history and evolution.

## Contributions to Geology

We want to thank those who have donated to the geology department over the past two years. If you are planning to give money to Colgate, you can specify that your contribution go directly to the Geology Department. The department's discretionary fund pays for the publication and distribution of this newsletter and other departmental projects, including support of student research. If you wish, you can specify for your gift to go into one of our endowed funds for students: The Norma Vergo Fund, the Bob Linsley/James McLelland Fund, or the Robert M. Linsley Prize. Since the last newsletter the following have contributed to the department (January 1, 2013-October 31, 2014). Thank you! Our apologies if we missed anyone (please let us know so we can acknowledge you the next time.)

Jay A. Ach '77	John W. Hoffman '68	Ronald L. Parker '82
Richard April	Lorren D. Hotaling '92 MA'95	Douglas W. Rankin '53
Janet M. Baran '01	James T. Hutton '84	Allison H. Ridder '99
Christina Viviano Beck '06	Susan Hutton '83	James A. Robertson '08
Allison N. Besch '98	Emily M. Janke '01	Emily E. Rodgers '02
Linda Besse '81	Gerald J. Jasko '73	David A. Roth '62
Malcolm and Sylvia Boyce	Jason L. Kaplan '06	S. Andrew Sandberg '81
Chapin L. Brackett '98	Darren A. Karn '05	Erik E. Scherer '91
Gary J. Braham '02	Dianne M. Keller '81 MA'88	Ronald C. Schott '91
Kathleen M. Browne '83	Douglas A. Keller & Patricia S. Keller P'15	Justin M. Shaw '04
Molly G. Clinton '13	Kevin F. Kelly '04	Catherine H. Shrady '79
Chad R. Conti '07	Toni M. Kerns '97	Adam D. Skarke '03
Alexis L. Coplin '07	Andrea G. Kretchmer '84	Michael R. Snyder '80
Allan R. Crowe MA'68	Elizabeth R. Krol '92	Walter S. Steinmann, Jr. '79
Robert T. Cunniff '85	Robert S. Kuhlman, Jr. '73	Emily T. Stewart '02
Caitlin A. Cunningham '13	Deborah A. Levine '77	Jason B. Stewart '00
Richard D. Cunningham & Catherine A. Cunningham P'13	Sarah W. Lowenstein '79	Paul M. Stout '77
Janet A. Cushing '91	Tim K. Lowenstein '78	David F. Sunderlin '99
Pamela T. Darwin '81	Bryan K. Luftglass '77	Molly B. Sunderlin '00
Alexandra Dattelbaum '04	Adam T. Mansur '05	Linda V. Swanson '78 P'06
Allen J. Dennis '82	James A. Maritz, IV '05	Shannon M. Sweeney '07
Theresa Dennis '84	Ilona Ilmara L. Matulaitis '10	Jill Thompson '03
Emily C. Doren '04	Krista J. Maye '93	Kimberly A. Threlfall '01
Bret A. Doverspike '03	Wendi M. Mayerson '88	Jeffrey A. Trembly '78
Dana P. Fisco '08	Jaime K. Mazzeo '07	Kyle P. Tumpane '06
Dennis P. Fisco & Pamela P. Fisco P'06'08	Anna R. McGaraghan '02	Robert Y. Urquhart '60
Gavin P. Fisco '06	Sharon D. McLelland '85	Rita A. Van Kirk '13
Brian C. Flynn '98	Fred C. Meendsen, Jr. '82	Mr. and Mrs. John Vergo P'81
Daniel M. B. Gleason '11	Linda J. Meyers '05	Denise C. Waite '87
Timothy D. Glotch '99	Scott K. Michel '02	Jonathan B. Waite '87
Evan B. Goldstein '04	Harlan F. Moonen '62	Charles A. Weiss, Jr. '83
Adam J. Greenhut '01	Laura J. Moore '93	Kenneth P. Wenz, Jr. '83
Donald R. Healy '53 & Colleen M. Healy P'84	Rebecca C. Newhall '99	Richard W. Wiener '73
Joseph A. Henderson '03	Kevin J. Padian '72 MA'74	Jason M. Williams '03
Tracey A. Henderson '04	Nancy S. Padian '74	Robert F. Ylagan '90
	Jeffrey J. Palmer '80	



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## Senior Thesis Presentations - Spring 2013

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**Spencer Staley (Advisor: Bruce Selleck)** Middle Devonian Hamilton Group Stratigraphy in the Appalachian Basin: Gamma Ray Correlation and Lithologic Study of Key Marker Beds in Central New York State

**Michael Leidl (Advisor: Bruce Selleck)** Mineralogy and Geochemistry of Devonian Black Shales, New York

**Brittany Phillips (Advisor: Bruce Selleck)** Stratigraphy and Clay Mineralogy of the Devonian Moscow-Tully-Geneseo Formation Interval in New York State: Outcrop and Well-log Observations

**Ross Mower (Advisor: Bruce Selleck)** Water Budget Analysis: A GIS Approach to Soil-Moisture Availability in the Adirondack Park

**Caroline LaBriola (Advisor: Jeni McDermott)** Seepage Conditions and Water Budget Analysis of Duck Lake in Milton, Wisconsin

**Craig Capodiferro (Advisor: Connie Soja)** Paleoecology and Paleobiogeographic Implications of Silurian Megalodont Bivalves in Alaska's Alexander Terrane

**Susannah Boote (Advisor: Martin Wong)** Application of Electron Backscatter Diffraction to Calcite Deformation Twins: Analysis of Paleostress Directions in the Marcellus Shale

**Jaclyn Baughman (Advisor: Martin Wong)** Petrographic, EBSD and Thermochronologic Evidence for Two-Stage Deformation of the Harcuvar Metamorphic Core Complex, AZ

**Casey Portela (Advisor: Martin Wong)** Mylonitic Marble of the Northern Snake Range

**Caitlin Cunningham (Advisor: William Peck)** A Metamorphosed Soil Horizon in the Colorado Front Range: Implications for Ultra-Pure Paleoproterozoic Quartzites

**Molly Clinton (Advisor: Rich April)** Geochemical and Mineralogical Analysis of Vineyard Soils from the Okanagan Valley, British Columbia

**Mary Gilligan (Advisor: Rich April)** Stream Water Chemistry on Preston Hill: Influences of Bedrock, Soil, and Chemical Weathering

**Halley Goldman (Advisor: Rich April)** Plant Induced Chemical Weathering in Rhizosphere Soils, Roger's Glen, Central New York

**Margaret McMullen (Advisor: Amy Leventer)** History of Ice Retreat and Advance in the Larsen A Embayment, Antarctic Peninsula

**Rita Van Kirk (Advisor: Karen Harpp)** Insights into the Galapagos Plume from Santa Cruz Island, Galapagos

**Clementine Dunne (Advisor: William Peck)** Stable Isotope Geochemistry of the Desert View Mine, San Bernardino Mountains, California.

**Matthew Shramko (Advisor: William Peck)** Stable Isotopes of Secondary Carbonates of the Franklin Mining District, New Jersey

**Max Ephraim (Advisor: William Peck)** Petrography of Hydrothermal Zircon from the Pikes Peak Batholith, Mt. Rosa Area, El Paso County, CO

**Damian Roesler (Advisor: Martin Wong)** Are Thermal Histories Recovered from Multiple Diffusion Domain Models of  $^{40}\text{Ar}/^{39}\text{Ar}$  K-feldspar Analyses Geologically Meaningful? A Case Study at the Grayback Normal Fault Block, Arizona

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## Senior Thesis Presentations - Spring 2014

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**Kara Vadman (Advisor: Amy Leventer)** Diatom Record for the Perseverance Drift, Antarctic Peninsula (Fall 2014)

**Tyler Peters (Advisor: William Peck)** Geochemistry and Zircon Geochronology of Ocelli-Bearing Amphibolites, Isua Greenstone Belt, Greenland

**Joshua Solomon (Advisor: Bruce Selleck)** Analysis of 2012-2013 Sediment Traps in Linnédalen, Spitsbergen: Implications for Varve Formation and Paleoclimate Interpretation

**John Gabler (Advisor: Bruce Selleck)** Field Gamma Ray Signatures and Sedimentary Facies Sequences, Trenton Group and Utica Formation, New York and Ontario

**Christopher Guiney (Advisor: Bruce Selleck)** Organic Carbon vs. Carbonate Stable Isotope Signatures in the Upper Trenton: Evidence for Closed-Basin Productivity?

**Nicholas Jones (Advisor: Martin Wong)** Fracture Analysis in Ordovician Utica Shale, Mohawk Valley, NY

**Rachel Walsh (Advisor: Bruce Selleck)** Bedding-Parallel Carbonate Veins of the Ordovician Trenton Group and Associated Utica Formation in New York State

**Allegra Bianchini (Advisor: Amy Leventer)** Reconstructing Holocene Paleoclimate in the Gerlache Strait, West Antarctic Peninsula

**Joshua Lasker (Advisor: William Peck)** Tracing the Origin of the Zinc-Lead Orebody Through Fluid Analysis at the Old Hope Massive Sulfide Deposit, Kintyre Jamaica

**Megan Switzer (Advisor: Karen Harpp)** Inflated Pahoehoe Lava: A Petrographic and Geochemical Analysis of the McCarty's Flow

**Andrew Kingsley (Advisor: Rich April)** The Distribution of Deicing Salts in Near-road Soils in Hamilton, NY

**Joshua Riefler (Advisor: Connie Soja)** XRD and SEM Analysis of Silurian Megalodont Bivalve Deposits in Alaska's Alexander Terrane

**Emily Butler (Advisor: Bruce Selleck)** Stable Isotope Signature of Ordovician Seawater from Trenton Group Brachiopods, Mohawk Valley, New York State and Prince Edward Peninsula, Ontario

**Samuel Brenman (Advisor: Bruce Selleck)** Hydrocarbon Migration and Cement Variability in the Trenton Group

**Anay Shah (Advisor: Bruce Selleck)** Clay Mineralogy and Burial History of the Trenton Group and Utica Formation, Northern Appalachian Basin



Senior research presenters - 2013



Senior research presenters - 2014

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## Geology at Colgate before Lathrop Hall William Peck

We all know that Colgate was chartered in 1819 as a Baptist seminary by 13 men with 13 dollars and 13 prayers. The University is preparing for its bicentennial year in 2019, and several university histories are planned. Thinking about this history got me wondering about the earliest days of Geology at Colgate. Until 1906 Geology was taught in West Hall— what courses did students take in the Geology classrooms there before Lathrop was built to house the growing science departments of Colgate? Who taught the classes, and did Geology mesh or conflict with the theological instruction of the time? I explored this further by reading through early catalogs in Colgate's archives, student newspapers, and faculty biographies. Some of these great resources are available online, and are listed at the end of this article.

The early days of liberal arts instruction were very classical, and were dominated by subjects such as Greek, Latin, Rhetoric, Logic, and Geometry. Astronomy and Natural Philosophy (mostly Physics) were both also required courses of the 'collegiate department' in the 1830s. It wasn't until 1839 that the Hamilton Literary & Theological Institution (as Colgate was then known) admitted the first non-seminary students, and Geology first appears as a subject in the Catalog in 1847, the year after the institution changed its name to Madison University. Geology was likely taught by William Mather, a doctor who had taught chemistry here as a visitor since 1838. For unknown reasons Geology disappears again after 1851, once Dr. Mather joins the faculty as a lecturer (later Professor) in Chemistry, Geology, and Mineralogy. Geology did not appear again as a subject for many years.

Mather's departure in 1868 left the chair of Chemistry, Geology, and Mineralogy open. His replacement was Albert Bickmore, a newly-minted Ph.D. from Harvard and protégé of Louis Agassiz. Bickmore had just returned from three years abroad, mostly in Malaysia and Indonesia, and was awaiting publication of his *Travels in the East Indian Archipelago* when he wrote a revealing letter to Alfred Wallace, the co-discoverer of Natural Selection with Charles Darwin. In Bickmore's letter he

states that “A wealthy banker in Wall St. has purchased all my collection-- the bird set about double the rates you have mentioned... My friend besides purchasing all my collections has given me a Professorship of Natural History in Madison University... My collection nearly all go to Madison University and as I shall have control of them I doubt not we may effect some exchanges.”

The ‘wealthy banker’ is certainly James B. Colgate, who was a strong supporter of Natural History at the University. Bickmore was made responsible for teaching Geology and Zoology, and besides his biological collection from the Indonesian Archipelago an “extensive cabinet of minerals and geological specimens” was also purchased. His Geology class is described in the catalog:

**Junior Class** Third Term – *Geology*. Recitations are heard in Geology on every other day throughout the term. The book used is Danas Text Book of Geology. During the term, the Class will make excursions to study the Geology of the formations in the vicinity of Hamilton.

Unfortunately for Colgate, Bickmore only spent two years in Hamilton, as during his tenure he was engaged in lobbying politicians and philanthropists for a new American Museum of Natural History (AMNH) in New York City. Once that project had gained momentum Bickmore left Hamilton, and he later became the first superintendant of the AMNH.

With Bickmore’s departure Geology’s importance in the curriculum was diminished for a few years. Geology, which previously had its own course, was now taught in a “Zoology and Geology” class by Lucien Osborne. Professor Osborne seems to have been a great pinch-hitter during this period, and taught Astronomy, Chemistry, and Physics at various times. Teaching in the sciences changed again when Walter R. Brooks, a Madison University alumnus, was hired to take over Geology and Zoology. Brooks was born in Nelson Flats (now Nelson), New York in 1821. Brooks had been a member of the Madison University class of 1843 but did not complete his degree due to “trouble with his eyes”, and joined the Baptist ministry in 1842. After a series of pastoral posts he returned to Hamilton in 1859 to become minister of the First Baptist Church on Broad Street. Brooks was awarded the degree Doctor of Divinity by the university in 1863, he also became a university trustee in 1863, and was appointed Lecturer in Natural History in 1873.

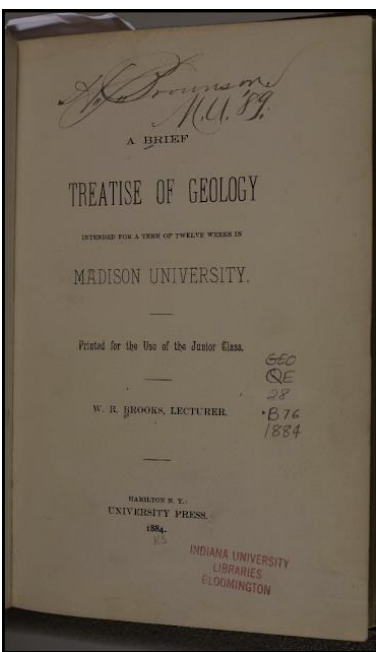


Figure 1. Cover of Walter Brooks’s *A Brief Treatise on Geology* (1884), printed specially for Geology at Madison University (Colgate). This copy probably belonged to Henry Stephen Brownson

Reverend Brooks resigned from his post at the Baptist Church and for the next 14 years taught Zoology and Geology; both were 12-week, required courses taken by Juniors or Seniors. Brooks was, by all accounts, a serious individual, but personally was very well-liked, and Geology was especially popular for week-long field trips to the Oriskany stone quarry and Trenton Falls. The catalog description of his course reads:

**Junior Class.** Third Term,— Daily lectures are given in Geology, which are reproduced each day by the students. The subjects are illustrated by specimens, by drawings, and by the Oxyhydrogen light [large-style ‘lantern’ slides]. Several

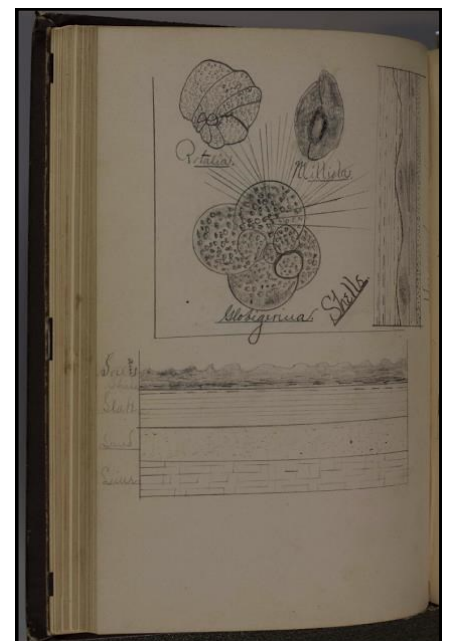


Figure 2. Classroom sketches made on blank pages of Brownson’s copy of *A Brief Treatise on Geology*.

excursions are made for field work by the Class accompanied by the Lecturer. Subjects are assigned to members of the Class, and their papers are read at an evening meeting with the Teacher, and other guests.

Dana's Manual of Geology is listed as a reference book for Brooks's course, but by the early 1880s this work was in its 3<sup>rd</sup> edition, ran 912 pages, and cost \$5— a huge sum at a time when tuition was \$30. In 1884 Brooks published a cheap alternative: "A Brief Treatise on Geology" (Fig. 1). This 233 page book was modeled upon Dana's Manual, but is much condensed and published without illustrations, and included blank pages "... intended for [students to make] copies of the more important drawings on the blackboard" (for an example see Fig. 2).

By this time the teaching collection had grown. From the catalog:

**Natural History.** The collections of metals and minerals is quite extensive, and nearly all the species can be illustrated by good specimens. All the important types in Palaeontology are well illustrated by the collections of fossils. The cabinet also contains a large number of Prof. Ward's casts of extinct vertebrara. The collection of shells is large, and especially full in tropical species; nearly all the types of the invertebrates are illustrated by alcoholic specimens. The collection of birds includes those of North America, Europe, and the East Indies, and is valued at \$13,000.

Dr. and Mrs. Brooks were well known for hosting students and other faculty at bi-weekly evenings of dinner and scientific discussion. On April 27<sup>th</sup>, 1876 students read papers on "Geological Times" and "Acadian Geology", while Professor Burnham spoke on "The relation of the first chapter of Genesis to Geology". After presentations the group had dinner, followed that day by the singing of college songs. Memories of Brooks focus equally on his being both a man of science and a man of God. In his memorial service a particular note was made that Brooks was "an Evolutionist", saying "to him as a scientist, God was in all things; to him as a Christian, all things were in God."



Figure 3. Photograph of Alfred P. Brigham in the Colgate Archives (c. 1897), probably made in a West Hall classroom.

Brooks passed away in 1888, and Geology was taken up by biologist and Madison University alumnus Aaron Cole (AB, AM 1884). Cole taught two Geology courses: Dynamic Geology and Historical Geology, which were electives for most students but required for the Bachelor of Science degree. Electives had begun in 1885, and Mineralogy appeared at this time as an elective taught by the Chemistry faculty.

In 1893 Cole joined the Cold Springs Harbor Biological Laboratory and was replaced by another alumnus, Alfred P. Brigham (Madison University AB 1879; AM 1882). Brigham (Fig. 3) was classmate and fraternity brother of Charles Evans Hughes (later Chief Justice of the United States), and had taken Geology with Pro-

essor Brooks as a senior, participating in the famous Trenton Falls trip. After graduation Brigham was pastor to churches in Stillwater and Utica. His increasing interest in Geology led to his publishing a paper on the Geology of Oneida County in 1888 before attending the Harvard Geology summer course in the summer of 1889. This was a turning point for Brigham: he resigned from his church in 1891 and spent 1891-92 earning a MA in Geology at Harvard, returning to teach at Colgate (recently renamed in 1890) for the 1892-93 academic year.

Brigham's arrival marks huge changes at Colgate. By this time departmental curricula had become large enough that Colgate shifted from a system of mostly required courses with only a few electives to a system where students could choose their area of specialization. From the 1892-93 catalog:

### **The Department of Geology and Natural History**

The courses in this department are designed to give such knowledge of the several subjects, as a scheme of general education requires. It will be seen also that the geological courses are so arranged as to give two years of continuous work to those who may wish to teach geology or pursue it as a profession. To arouse interest in nature, to teach the art of rapid and accurate observation, and skill in reasoning from cause to effect and effect to cause, are held to be equally important to the general and the special student of natural science. The instruction is given by lectures. Text books for supplementary reading are required, with oral and written reviews. Much attention is given to the literature of the subjects, and habits of independent investigation are fostered. The significant questions which subjects in natural history raise at the present time will receive such discussion as may be suitable. Hours for laboratory and field work are arranged after the organization of classes.

The Geology concentration consisted of:

#### First Year

*Dynamical Geology* – Fall

*Lithological and Structural Geology* –Winter

*Historical Geology* –Spring

#### Second Year

*Palaeontology* – Fall

*Botany* – Spring elective

*Advanced Palaeontology* –Winter

*Advanced Historical Geology* – Spring

*Zoology* – Winter elective

*Botany* – Spring elective

Geology became a very popular major, and in the early days was taught completely by Brigham. The archives contain a copy of a letter written in April 1894 by Brigham to James C. Colgate, secretary of the board to trustees, asking for three things. The first is for an assistant for laboratory and field work, citing enrollments of 36 students in Geology and 31 in Zoology. Part of his rationale is that “[i]t is coming to be well understood that to teach a scientific subject well requires more work than other subjects demand.” As evidence Brigham lists other schools and their superior staffing in Natural History and Geology. His second request is to raise his salary. His third request is for a building to house Geology and Natural History, saying “I am quite aware that the financial depression may render present action impracticable. But I deem it my duty to place before the Board of Trustees the need for a building for the Department.” During the same month Brigham made his plea for a new science building in a letter to the *Madisonensis*, a predecessor of the *Maroon News*. His wish would be fulfilled in a little over decade with the building of Lathrop Hall.

It is unclear if Brigham got his raise, but in the fall of 1894 Wayland Morgan Chester, a fresh Colgate graduate, joined the department as an assistant. His role was to teach some introductory Geology and Biological subjects. Brigham quickly became fixture at Colgate, eventually settling at 72 Broad Street, now the Gamma Phi Beta house. He established a reputation as an esteemed geologist, publishing papers on the glacial Geology of central New York (including the Chenango Valley) and teaching for Harvard's summer geology program. In 1900 Brigham published his *Text Book of Geology* (which was subsequently adopted for Colgate classes) and in 1901 he published a 75-page *Suggestions to Teachers* designed to accompany his text-book. Part teacher's manual and part bibliography, this work has the innovation of containing geologic field guides for the areas around 17 cities, a first for its time. In 1902 Brigham published, with the USGS's G. Karl Gilbert, *Introduction to Physical Geography*. As time went on his interests focused on Physical Geography, reform in secondary school education, and he was a founder, council member, and president of the Association of American Geographers.

In 1903 Harold Orville Whitnall joined the department as an instructor. Whitnall was a protégé of Brigham, graduating from Colgate in 1900 and doing graduate work in Geology and Biology at Harvard during 1902-1903. Until 1905, Geology was taught in West College, which contained a lecture

hall, the museum of Natural History, the biological laboratory, and accommodations for 70 students. In 1906 Geology, Biology, and Physics moved into Lathrop Hall, and West was renovated to be solely dormitory space. The catalog describes the newly-built Lathrop as “built of stone quarried on the grounds of the University, trimmed with Indiana limestone” and costing “about \$90,000.00”. By the time Geology had moved into Lathrop the teaching collection had grown by trades with other institutions, gifts, and from acquisitions. From the catalog:

A lecture-room collection, a laboratory collection and an exhibition collection. The last includes the following:

The Edward Lathrop Memorial Collection of Minerals, presented by Mr. William Urban of Brooklyn, containing over 2,000 specimens and representative in character.

The collection of ores, building stones, and other economic products, largely from the Columbian Exposition of 1893.

The T. J. Welch Collection of Oils, a very complete and valuable collection illustrative of the petroleum industry. It includes nearly two hundred samples of crude oil, and a variety of refined products.

A collection of fossils arranged according to zoological types.

Special collections illustrating the Carboniferous Period and coal; the Glacial Period; the work of underground water; and general geological structures.

The geological rooms in Lathrop Hall contain a large and increasing collection of topographic and geological maps and models for use in the physiographic courses. This collection also includes several hundred carefully selected photographs, and an exclusive collection of lantern slides.

By 1906 Geology majors were taking a 7-course major, in a program generally similar to that first instituted in 1892. *Advanced Paleontology* became *History of Evolution* (dealing with “the growth of evolutionary theory”) and *Advanced Historical Geology* became an independent field course on either the local Glacial or Paleozoic geology. *Physiography of the United States* was also added to the curriculum, reflecting Brigham’s evolving interests in Physical Geography.

People who are interested in further reading about what Colgate Geology was like during the 19<sup>th</sup> and earliest 20<sup>th</sup> centuries can check out the following:

Bickmore’s 1868 letter to Alfred Russel Wallace <http://www.nhm.ac.uk/research-curation/scientific-resources/collections/library-collections/wallace-letters-online/2109/1999/T/details.html>

Bickmore’s 1868 *Travels in the East Indian Archipelago*  
<https://archive.org/details/travelsineastind00bick>

Colgate Catalog 1884-85 <https://archive.org/details/annualcatalogue188486colg>

Brooks’s *A Brief Treatise on Geology*  
[http://books.google.com/books/about/A\\_Brief\\_Treatise\\_of\\_Geology.html?id=cl8yAQAAMAAJ](http://books.google.com/books/about/A_Brief_Treatise_of_Geology.html?id=cl8yAQAAMAAJ)

An account of dinner with Dr. and Mrs. Brooks from the *Madisonensis* (1876, p. 11)  
<http://diglib.colgate.edu/cdm/compoundobject/collection/ColgateNP04/id/37618/rec/2>

Colgate Catalogs 1890-1895 <https://archive.org/details/annualcatalogue189095colg>

Brigham’s *Text-Book of Geology* (1901) <http://books.google.com/books?id=nNExAQAAMAAJ&dq>

A glowing review of Brigham’s *Text-Book* by William Chester can be found on p. 15 of this issue of the *Madisonensis*  
<http://diglib.colgate.edu/cdm/compoundobject/collection/ColgateNP04/id/59961/rec/32>

Brigham’s *Suggestions to teachers* designed to accompany his text-book of geology  
<http://books.google.com/books?id=sZxPAAAAAYAAJ&>

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## Alumni News

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Ach, Jay **1977** Still plugging away as an environmental manager at the Port of San Francisco, where I now deal in kilovolts and megawatts, having managed recently the design & installation of 2 shoreside power systems. These systems allow cruise ships and other large vessels to plug into the city's power grid then shutdown onboard generation, thereby hugely reducing air emissions. A far cry from igneous geochemistry, but geology taught me well how to figure stuff out I haven't previously dealt with, a universally applicable skill.

I keep in contact with geology on a daily basis, however, having been married now for 15 years to Karen Grove, sedimentology prof and current Earth & Climate Sci. Dept. chair at SF State. Who else would agree that spending a few weeks in AK on the Juneau Icefield Research Program sounds like a great summer vacation this year? Contact: [jay.ach@sfport.com](mailto:jay.ach@sfport.com).

Barr, Jay **2004** For those I have not yet met or those with which I have been delinquent at keeping in touch, I am now located in the Houston, TX area. I finished my Ph.D at MIT in 2010, took a 10 month vacation to dig minerals/fossils/artifacts and do some hiking around the USA, and then started my job at ExxonMobil. Last month, my wife Megan and I were married in the Black Hills of South Dakota, and we are looking forward to a summer of home improvements, so stop on by!

Beck, Christina Viviano **2006** After finishing my postdoc at the JHU Applied Physics Laboratory, I am now a staff scientist at the lab and continue to perform research involving near-infrared spectroscopy of the surface of Mars. I will be celebrating my first anniversary this summer with my new husband (and fellow planetary scientist), Andrew.

Blair Whitman, Susanna **2003** Susanna completed a PhD in geology at the University of Florida in Spring of 2014. She was awarded the Geological Society of America Congressional Science Fellowship and will be working on Capitol Hill starting the fall of 2014. She will be working with a senator or on a committee as a science staffer. Also, Susanna and her husband Ed Dunne, welcomed their daughter Aileen in April 2014. It was a really busy spring semester!

Bocinski, Jesse **2004** Jesse Bocinski '04 and Sarah Gonzalez Bocinski '03 welcomed a new baby boy, Henry Arthur Bocinski, into their family in February. They are looking forward to playing with dinosaur toys and fossil hunting.

Bozek, Cathy **1999** I'm really enjoying my job as an Aquatic Ecologist at The Nature Conservancy in Massachusetts, working on dam removal and river restoration projects. I'm getting married this summer, and looking forward to some traveling in the near future!

Brackett, Chapin **1998** My son is 2 years old and is keeping us very busy. He is really into throwing rocks and continually asks "what is this". Sadly, my ability to identify rock types has diminished since my days in Lathrop. We built nine raised beds this Spring and the output from our gardening hobby is beginning to hit our plates (raspberries, cucumbers, peas, lettuce, and carrots so far).

Byrne, Catherine Healy **2002** Brian Byrne '04 and I have two beautiful little girls, Bridget (3yo) and Mary (11 months ) and we are expecting our third baby late August 2014. We are excited to bring our little ones to campus soon and experience many more reunions together!

Clarke, Steve **1983** Life is good living in Atlanta with my wife and 2 children. My job takes me around the country and I get out to the field quite a bit (albeit at landfills, transfer stations, recycling facilities, and collection companies). I keep in touch with several Colgate Geology Grads, including Bob North, Jay Cerny, Karl Van Keuren, Dave Maclean, and Allen Dennis, mostly thru facebook. Hey to all others from the classes of 82 thru 84.



Ebbott, Kendrick **1983** I've been living in Plymouth, WI for the past 20 years doing environmental investigation and remediation work, primarily in glacial deposits.

Looking forward to becoming an empty nester this fall, with my youngest heading off to Santa Clara University, CA as a freshman. We are anticipating a tough year with three kids in college, but it should be fun to go and visit.

Fell, Karen **1979** Gosh, still married (Eric Evenson), kids in college (Michael and Jesse at Penn State), still working at NJ DEP in the Drinking Water Program where I work with fellow geologists Dave Haymes (84) and Jane Kozinski (82). Went to reunion in May and it seems like everyone was a geology major (Walt Steinmann, Veda Hackell, Claudia Dricot (honorary))! New Ho Building is awesome! Greetings to Kerry Inman!

Foss, David **1991** I am busy with Brownfields development in Mass.; helping cities & towns turn blight into benefit, working with US EPA. Kelly & I are well, putting lots of miles on our bikes & Brooks. Finished my 1st marathon in 2013. Our kids have become engaging adolescents. Fun to watch them grow more independent. The house is full of art and music (of better quality than I could create). Please reach out by email or LinkedIn. I'd be glad to hear from our early 1990s crew. Cheers!

Fountain, John **1985** I am officially retiring July 10th, 2014 from the Suffolk County Police Department Crime Scene Section. My wife, Donna, and I will be moving to coastal North Carolina where I will continue to run my Kite Boarding School. Looking forward to Kiting, Surfing, Mountain Biking, Snowboarding and Golf on a regular basis.

Freccia, Samuel **2012** After spending the past two years working as an Assistant Director of Admissions at Colby College in Waterville, ME, I will be moving to Seattle, WA in August 2014 to become a College Counselor at Lakeside School.

Fredricks, Jason **2009** Is attending CU-Boulder.

Frisch, Lauren **2012** This May I graduated with a master's in environmental policy from the Bard Center for Environmental Policy. Molly Gilligan ('13) is currently also involved in the program!

Geraghty, Ennis **1969** I am the 2014 recipient of the Uno Sahinen Silver Medallion from the Montana Bureau of Mines and Geology at Montana Tech. This award acknowledges "outstanding contributions in understanding and development of energy, mineral, or groundwater resources in Montana" and is given to an outstanding geologist each year. Please see attached link

<http://www.mtech.edu/news/2014/05/051520141.php> I was at Colgate from 1965 to 1969. While there, I had the great fortune to study under some excellent professors: Robert Linsley was the Chairman of the Department; Jim McLelland, Al Parker, Jonathan Swinchatt, and Blaine Cecil. In fact, Jim is one of the main reasons I chose geology as my major. I remember one of his fascinating lectures on Continental Drift in a Core 11 class (Physical Science for non-majors) that swayed me to Geology. As you can see, I'm so old I predate Plate Tectonics! After Colgate, I was at Syracuse University from 1969 to 1976. I did both a Master's thesis and Doctoral dissertation at Syracuse. Both projects included outcrop field mapping in the Adirondack Mountains at scales 1:24,000 and 1:16,000 in Meso-Proterozoic, shelf sequence and igneous rocks metamorphosed to upper granulite-facies grade in a multiply folded nappe terrane. My Master's thesis was titled "Stratigraphy, Structure, and Petrology of Part of the North Creek 15' Quadrangle, Southeastern Adirondack Mountains, New York". My Doctoral dissertation was titled "Structure, Stratigraphy, and Petrology of Part of the Blue mountain 15' Quadrangle, Central Adirondack Mountains, New York". As you can see also, I'm old enough to pre-date 7.5' quadrangle maps in the Adirondacks!!

Gilligan, Molly **2013** As part of my Master's in Environmental Poligy program, I am curretnly interning at IUCN in their Global Gender Office based in DC. While here, I met a Colgate Geology

alumnae, Martha McConnell, who is IUCN's Polar Programme Manager! She mentioned that she attended Colgate when Rich, Bruce, Connie and Di were all there - so that's fun!!

Glotch, Timothy **1999** I've been a geology professor at Stony Brook University on Long Island since 2007. My research primarily involves using laboratory visible and infrared spectroscopy of geologic materials, meteorites, and lunar samples to quantitatively interpret remote sensing data from the Moon, Mars, and asteroids. That's been a lot of fun!

Guyton, Steve **1959** Oil and gas business going strong in midland!!

Hakes, Bill **1968** After about 30 years searching for oil and gas and getting some of it out of the ground, I left a US major in Aberdeen and moved to London where I have been doing some consulting in E&P and software development and utilisation.

Hausman, Alyssa **2009** Final semester at IU and I have loved my time there. I've spent my summer interning at NOAA's Office of National Marine Sanctuaries and it has been by far the best internship that I have had. There is a wide range of interns, from high school to grad students and I think it would be a great opportunity for a Colgate student. The link is <http://sanctuaries.noaa.gov/involved/interships/html>, just in case. I also recently found out that I will have a year-long fellowship in marine policy with the federal government after graduation.

Hempton, Mark **1976** Still kicking in oil exploration and looking at new frontiers throughout the Americas.

Henderson, Joseph **2003** I just finished an interdisciplinary PhD at the University of Rochester in environmental education. I am working on the sociocultural dimensions of ecological issues, mainly the energy system and climate change. I'll be at Colgate this summer to present some of this work as part of the environmental series and am looking forward to it! If you're interested in catching-up or collaborating, send an email: [joseph.henderson@rochester.edu](mailto:joseph.henderson@rochester.edu)

Hibbard, Jim **1973** Recently (within the last year) ran into Rich Wiener ('73) who has retired from Exxon in Houston and is now living a life of leisure in Asheville, NC.

Hoffman, John **1968** Still happily enjoying retirement in Lakeville, CT, filling my time with golf, gardening, reading and some volunteer work. Youngest son Graeme and his wife have moved to Canton, NY (St. Lawrence University), so I now get to drive through the Adirondacks to visit the two year old grandson. Older son Michael and his wife have moved from Portland, OR to Austin, TX, and Sarah & I will visit them this fall. Looking forward to my next visit to the Linsley Museum.

Kim, Jonathan **1981** Just finished my 18th year working for the Vermont Geological Survey. Our office in Waterbury was flooded out by Hurricane Irene in 2011 and, after two moves, is now in Montpelier. I have worked with Professor Keith Klepeis (Colgate 1986) and students from the University of Vermont on structural geology projects over the past 13 years. Still making bedrock geologic maps and doing lots of other field-based research.

Knotts, Kelly Saunders **1997** My husband and I (and 2 children) will host the 5th Annual Jamie's Run this fall in Wethersfield, CT, to benefit childhood cancer research at Connecticut Children's Medical Center in memory of our infant daughter Jamie who passed away from cancer in 2010. Check out the website: [www.jamiesruninc.com](http://www.jamiesruninc.com). If you live in the area consider running or walking in this amazing event. We raised over \$100,000 so far.

Kopf, Christopher **1990** Living in Corning, NY, with wife Marybeth Johnson ('90), our three sports-crazy sons, and numerous animals. Marcellus and Utica shale gas development have helped to grow the Geoscience program at Mansfield dramatically over the last several years which keeps things interesting and keeps me busy. We spend summers at our camp on Mayfield Lake in the southern Adirondacks (not far from the Chief's domain on Canada Lake!) and we love having guests so stop by if you are in the area.

Krutikov, Lena **1997** Hi everyone! Great memories of Colgate geology in Hamilton and beyond... I'm working as a climate science analyst at the University of Alaska Fairbanks. I've been here for 11 years, married to a geologist, and we have a 2-year old who really loves (throwing) rocks. If you're ever in Fairbanks, please contact me and I'll give you a tour of our great schist, loess, gold, and beer.

Kuhlman, Rob **1973** In 2014 finished up a multi-college NASA grant on developing curricular materials and courses on climate change science. Anticipating retirement at end of S'15.

Laemmel, Bill **1956** We are astride the Fordham Gniess, ihwood limestone and lowerre quartzite mountain base of the taconian oregeny and the buff granite and black pyroxienite of the Cortland rectangle. Free tours available. Manhattan Schist also included. 914-271-8712.

Lewis, Evan **1956** Wife passed away August, 2012, 9 children (1 boy-8 girls) 19 grandchildren, 9 great grandchildren, retired from golf and tennis in 2012. Have raised 7 golden retrievers. Volunteered at Florida wildlife hospital for 9 years. Broke my right hip in February 2014.

Liebman, David **1976** In January, started new CRE brokerage/management firm for recently-acquired former Macy's/Marshall Field's Warehouse property on Chicago's NW Side, a 1.5 million square foot industrial complex being redeveloped for mixed uses including industrial, call center, data center, self-storage, live/play/work units, destination grocery, destination restaurant, etc. Mostly I represent buyers & tenants in the purchase/renewal/lease restructuring/disposition of industrial properties in NE IL & SE WI.

Luftglass, Bryan **1977** Relo'd to Big Cottonwood Canyon, Utah a.k.a. Heaven.

May, Arthur A. **1965** Arthur's widow, Donna, wrote with a sorrowful heart to inform us that Arthur passed away on May 16th, 2014. They celebrated 45 years of marriage and he was very much looking forward to returning for his 50th reunion at Colgate this next year.

Mangano, Emma Barth **2005** It has been quite a busy 2013 for me. I completed my MSN at the University of Maryland in May, passed my boards in July, and had my amazing daughter in August. Now I'm practicing as a Psychiatric Nurse Practitioner with Lafferman & Associates. I spend my day doing psychiatric consults at different nursing homes in the Baltimore area. It's quite the change in pace from inpatient psychiatry. Miss everyone!

Meyers, Linda Chernak **2005** Not much new to report! I'm still living in Rochester, NY and working in admissions at RIT while my husband finishes up his residency in neurology. Looking forward to my 10-year reunion next year (hard to believe) and hope to see many of you there!

Michaels, Julian **2011** Graduating with an MS from University of Colorado- Boulder in August 2014. Worked with carbonate petrologist Dr. David Budd. Thesis topic: FIB/SEM analysis of pore systems of the Niobrara Formation, DJ Basin, Colorado. Starting with Chesapeake Energy in Oklahoma City in September as a Geologist.

Mitchell, Ray **1976** I retired after 29 years with ConocoPhillips, mostly consulting on carbonates (PHD Hopkins). Sue (née Hicks, '81) and I have been married 30 years and raised four boys, all now college grads. We moved to a house on Lake Champlain in Grand Isle, VT trading hot and dry (OK and Dubai) for cold and wet. Love being back in the NE. We saw Bruce and Nancy and the campus this spring, and hope to catch up with more Colgate friends in this part of the country. Email us at mitchrw47@hotmail.com

Newton, Alicia **2002** I'm still in London working at Nature Geoscience, handling papers on everything from paleoclimate to the generation of the geodynamo. I got married to Edwyn Mayhew (a lovely Brit with a background in graphic design) in September 2013 in Albany.

Nolan, Chris **1983** I have been living in Salt Lake City for almost 20 years. As an environmental

consultant, I work with developers building residential housing on heavy-metals impacted brown-fields sites, a legacy of the smelting industry in the Salt Lake valley.

O'Malley, Todd **1996** I moved back to the states from London at the start of 2011 and am living in north central NJ. I am running the commercial (trading) group at a domestic refining company. I would love to hear from former classmates. My email is todd.omalley@pbfenergy.com.

Paish, David **1980** My early career in Geology led me to work more and more frequently with computers in order to analyze the huge amounts of collected data. This naturally led me to work in the computer industry, but I have never forgotten the Colgate Geology Dept. and still enjoy investigating outcrops from time to time with my kids.

Peck, Craig **1982** Craig passed away on May 2, 2013.

Posner, Holly **1984** I am teaching geology to 4th graders!

Rader, Erika **2007** Received a PhD in Geology from the University of Idaho.

Rampe, Elizabeth **2005** I have been working at the NASA Johnson Space Center for 3 years, studying water-rock interactions on the martian surface. I am a member of the Mars Science Laboratory rover (Curiosity) science team and on the MSL-CheMin XRD instrument team. I participate in daily mission operations and analyze data from the rover. I got engaged in December 2013 to Ryan Ewing (a geology professor at Texas A&M) and our wedding is in October 2014.

Sandberg, Andy **1981** For the last 16 years I have worked for Samson Energy in Houston, where I am currently VP Deepwater GOM. Hope everybody is doing well. All the best.

Schaub, Douglas **2012** Just returned to the US after completing my MSc at the University of Edinburgh and am currently applying for jobs, including some teaching positions.

Schneeberger, Timothy **1972** Celebrating 41 years of marriage, Cynthia Clifford and I were married at St. Mary's Church in Hamilton in 1973. Our son Greg is a Presbyterian minister with a Ph.D. in Theology. With his wife Caitelen we have been blessed with two beautiful grand daughters. We enjoy our views of New Mexico geology, living atop some Pennsylvanian sandstone on the Sandia fault block above the Rio Grande rift.

Shapiro, Steven **1975** Love to hear what current students are doing, interesting field trips. Any use of computers in geology is interesting to note also. When I attended Colgate I was the only one from the Geology department to even have an ID for the school's mainframe. (No such thing as PCs back then of course). Do the students ever use modeling software? I used Petrel, SAS Stratamodel and others over the years and it would be interesting to know how computers are used in geology today at Colgate.

Skarke, Adam **2003** In 2013, I completed my PhD in marine geology at the University of Delaware after spending the previous two years working as a field scientist with the NOAA Office of Ocean Exploration and Research. In January of this year, I started a new position as an assistant professor of geology at Mississippi State University, where my wife is an assistant professor as well. These days, I am busy setting up a field research program and designing courses in oceanography, geophysics, and sedimentology.

Stachelhaus, Jessica Poetzsch **2007** Jessica Poetzsch Stachelhaus '07 was married in March 2013 to Scott Stachelhaus (Earth Science, Boston University). She lives with him and their red standard poodle Charley at a boarding school in Newport, Rhode Island. Jessica is teaching Earth Science at Salve Regina University and loving it.

Standish, Jeff **1992** Calling Washington DC home these days with my wife Cara Santelli (UW - Geology), our son Kai and dog Ranger. I have been involved with ACS for nearly 4 years now and manage the curriculum development team for Professional Development and specifically technical training courses.

Steinglass, Jeff **1999** I am enjoying being back in Maine, returning in 2009 after a 15-year hiatus in Hamilton and Boston. Working at Woodard & Curran in their Portland office focusing on environmental assessment and corrective action to support redevelopment projects. I wish all faculty and alumni the best and would be thrilled to catch up over email or a pint sometime soon.

Telling, Jennifer **2008** Hi! Last summer I finished my PhD in geophysics at Georgia Tech, where my research focused on experimental volcanology. I started a post doc at Michigan Tech in January and briefly crossed paths with Steph Tubman ('08) up here!

Tubman, Stephanie **2008** I finished my Master's from Michigan Tech in August 2013. It was great to catch up with Connie Soja and Martin Wong and a bunch of fellow alums at the annual GSA meeting in Denver last fall. This year I am a communications fellow with the American Geosciences Institute in their new Critical Issues program, working to build an online hub of geoscience information for decision makers.

Vendetti, Jann **2001** Hi everyone! I'm moving on from my postdoc at Cal State Los Angeles this summer and will begin a research and outreach position at the LA County Museum of Natural History as the Twila Bratcher Endowed Chair in Malacological Research (fossil and extant). Otherwise, my husband and I have our hands full with a lively and hilarious two-year old. When and if you are in Los Angeles, please look us up!

Vyhnal, Chris **1987** Still enjoying the good life in sunny southern CA. Theresa's working in the development office here, and our oldest son Nolan just finished his freshmen year at Thacher. Our other kids are Meg (7th grade), Katie (6th grade), and Jack (3rd grade). Teaching more chemistry and astronomy than geology now, but I backpack in Yosemite every fall where I get to enjoy the gorgeous granitic landscape in the Sierra Nevada batholith.

Wagner, Mark **1978** Senior VP responsible for client management for multinational corporations with holdings in Mexico and Latin America on issues related to environment, buildings, water and infrastructure. Celebrating 33 years with Arcadis. Working out of the Maryland Office.

Wiener, Richard **1973** Two years ago I retired to Asheville NC after 30 years at ExxonMobil. Currently I am teaching 2 geology classes at OLLI center for retirement learning at U.NC at Asheville. Jim Hibbard helped me put material together for one of my courses. I am married with 2 daughters and one granddaughter. My elder daughter works at Museum of Life and Science in Durham and my other daughter lives in Raleigh and works for the US Forest Service.

Wuzniak, Ruth Smith **1979** I work 3 days a week (my choice), so I can have long weekends to travel and spend time with my 6 Grandchildren. This summer my husband and I are taking 14 people to tour Poland for 2 weeks.

### **Comments & other important information**

- A copy of this newsletter is also available in color at our geology website at <http://www.colgate.edu/academics/departments-and-programs/geology/alumni>
- Many of us are trying to "go green." If you would like to join the cause, please contact us at [jmcnamara@colgate.edu](mailto:jmcnamara@colgate.edu) and we will be happy to remove you from our hard copy newsletter distribution list. You will be able to view future newsletters at the site mentioned above in the coming years. The newsletter is published biennially.
- Jodi McNamara, Administrative Assistant to the Geology Department, prepared the geology newsletter for publication. Please send all comments/suggestions to her at [jmcnamara@colgate.edu](mailto:jmcnamara@colgate.edu).

If you have a change of address, including an e-mail address change or other correction and/or update (marriage, name change etc.), and would like to keep getting your newsletter, please contact the Alumni Office (at 315-228-7453 or [alumnirecords@colgate.edu](mailto:alumnirecords@colgate.edu)) as we receive **all** of our addresses from the alumni records folks.