

COLGATE UNIVERSITY

Issue 13

EARTH AND ENVIRONMENTAL GEOSCIENCES ALUMNI NEWSLETTER

Summer 2024



Hello from Hamilton!

It has been a few years since our last alumni newsletter, so there is a lot of catching up to do! The first piece of news for most of you will be that the Geology Department has changed its name: we are now the Department of Earth and Environmental Geosciences. A bit of a mouthful, but we wanted to capture the breadth of the courses we offer, the research students do with faculty, and also the diversity of careers (especially environmental careers) that our alumni go on to pursue. Students can still major in Geology, Environmental Geology, Marine & Freshwater Sciences (our shared major with Biology), or Astrogeophysics (our major with Physics & Astronomy).

I am writing this on a bright July day, and the outlook for Colgate and the department are both very good. In the newsletter, you will see that we have reestablished our signature field programs (including the OC), as well as research in the field and the lab with students, after having to temporarily shelve some of those programs during the pandemic. We have used alumni gifts to allow summer research opportunities, travel for fieldwork and professional meetings, and for financial aid for students who cannot afford summer field courses.

We have had a few changes in the past few years. Jodi McNamara and Dave Linsley both retired during the pandemic shutdown, so we have new faces in the department. Sarah Hughes (shughes@colgate.edu) is now the department's Academic Department Coordinator, so will be the main point of contact for alumni and others. Sarah came to the department in 2021 from Alumni Relations, and has worked at Colgate since 1996. Last fall we also hired Krysia Kornecki as our new department technician. Krysia has written a message in the newsletter introducing herself. Since the last newsletter Aubreya Adams and Joe Levy were both awarded tenure and promoted to Associate Professor (hurray!). This year we also welcomed Martin Wong back to the teaching ranks; he served for four years as Associate Dean of the Faculty for global and local initiatives, followed by a well-deserved year of research leave, and his promotion to full professor!

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

Sincerely,



William H Peck

Professor and Chair

Department of Earth and Environmental Geosciences



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FACULTY NEWS



Aubreya Adams
Associate Professor

Hello Geo-alums!

The past few years have been busy, but productive in the geophysics lab. I've welcomed a new postdoctoral researcher, Dr. Cristo Ramirez, who has worked with me and seven student researchers [Sydney Walters '22, Shane Knopp '23, Alexa Trubiano '23, Jessica Wen '24, Tom Richards '24, Pierce Leclerc '25, and Owen McMorrow '26] on an NSF funded project to use data from my collaborative Alaskan Amphibious Community Seismic Experiment to study the reasons why the very biggest earthquakes happen in some parts of the Alaskan subduction system, but not in others. The experiment yielded many terabytes of ground motion data, and we have been parsing through the data to isolate surface waves from distant earthquakes. We use these waves to build models of how polarized waves pass through the upper mantle beneath the Alaskan subduction zone, to test whether variations in earthquake hazards are due to differences in the hydration of the subducting Pacific plate.

Closer to home, students and I installed a new campus seismic station at Bewkes Center. We were very proud of our station, and students signed their name to vault, as is seismology tradition! Unfortunately, snow melt from heavy New York snows flooded the station, but we expect to perform repairs and get the station running again this summer.

I am also continuing my work to study earthquakes and tectonics in the East African Rift. I've collaborated with researchers at Virginia Tech to look at the correlation between earthquake swarms and GPS ground motion at Ol Doinyo Lengai, a volcano in Tanzania. Plans are underway to expand an existing GPS and seismic network around the volcano to include additional seismometers.

New things are afoot in the classroom as well! Martin and I have been alternating teaching Earth Structures and Tectonics, each putting our own flair in the course. I'm excited to now include an analog rock mechanics lab, where students get to simulate uniaxial compression of rocks by squishing wax cylinders in Portable Rock Analogue Deformation Apparatuses (PRADA). We experiment with changing the temperatures of the wax, changing applied stress, and even adding heterogeneities to the wax – in the form of cookie sprinkles!

In 2022, I also had the opportunity to teach a senior level course entirely dedicated to seismology. In the course, we really mixed things up, using theory, math, and computers to examine how elastic deformation at the microscale leads to the generation of seismic waves, how those waves can ring the whole Earth like a bell, and how they can be used to build our knowledge of structures in the deep Earth interior. We even considered how to communicate these concepts to different audiences, and students built really thoughtful designs for a hypothetical display for our seismic station at Bewkes.

The study of earthquakes was also included in our 2023 summer field camp. In addition to visiting both famous and hidden-gem volcanic and hydrothermal features during the leg at Yellowstone National Park, we also visited the nearby site of the 1959 Hebgen Lake Earthquake measuring the fault scarp and observing landslides and abandoned villages damaged by the quake. This helped to illustrate the broader tectonic setting of Yellowstone's iconic features.



Students frolic in field that felt remarkably “Sound of Music”-esque, despite overlooking cabins washed away during floods following the Hebgen Lake Earthquake.



Paul Harnik
Assistant Professor

Hello friends, greetings from Hamilton! Over the past few years, I have been teaching *Paleontology of Marine Life* (GEOL 215) annually and love the combination of local fieldtrips, specimen-rich classes involving our extensive teaching collection, and statistical analyses of datasets that we generate using samples that we collect as a part of the course. This semester we are headed further afield to investigate modern and ancient marine ecosystems in Florida over spring break. In April, we are also hosting our first fossil ID event at the Geology Museum, where current and former GEOL 215 students and I will help community members identify their fossil finds and in turn we get to learn about regional fossil localities and perhaps sites for future class fieldtrips! I have also been teaching Sustainable Earth (GEOL102) and a Core Sciences

class focused on the Anthropocene (CORE 192), both of which give me the opportunity to interact with first and second year students, some of whom go on to become EEGS concentrators and others who take that foundation with them in their other pursuits at Colgate and beyond. At the upper-level, I recently taught an elective on how paleontological data and methods are applied in conservation (GEOL 315), which allowed me to explore themes closely related to my scholarship with our students, and next year will co-teach an interdisciplinary upper-level elective with Rebecca Metzler (Professor in Physics & Astronomy), focused on the evolution of form and function in biomineralizing marine animals.

The primary focus of my research these past few years has been reconstructing biotic and environmental change in the northern Gulf of Mexico over past decades to millennia using the remains of historical marine invertebrate populations that are preserved in seafloor sediments. I have been fortunate to engage in this work with a fantastic team of Colgate students, many of whom have gone on to complete senior theses and present their research at national conferences. This group has included, by order of class year, Luke Calderaro '22, Celia Meyer '22, Jeri Stoller '22, Ryan Ewanow '23, Charlie Filipovich '23, Victor Unnone '23, Jane Carskaddan '24, Riley Farbstein '24, Juan Gómez '24, Adam Limoges '24, Ryan D'Errico '25, Alexa Russo '25, Mary Thomas Powell '26, and Marie York '26. In addition, many students have participated in our semi-regularly scheduled "Pizza & Paleontology" events where they sort through samples of seafloor sediment with new and old friends over dinner, and others have also worked in the lab as their on-campus employment. Recent research projects have considered how environmental conditions structure life history and body size variation, species and functional diversity, predator-prey interactions, and shell preservation. In addition, I have been working with collaborators at several other institutions to reconstruct spatial and temporal changes in coastal nutrients using isotopic analyses of shell-bound organic matter. You can learn more about our recent fieldwork in the Gulf of Mexico elsewhere in this newsletter.



GEOL 215 students swim in Devonian seas on a local fieldtrip.



Research students visit the Florida Museum of Natural History during the recent Conservation Paleobiology Symposium.

When I last wrote for the newsletter, I had just joined the Colgate faculty and am now in my fourth year. My family, Morgan, Lena (age 16), Hazel (age 13), and I love it here at Colgate and in Hamilton. On the home front, we moved pet-free in 2020 and while we still have yet to unpack all of our boxes, we have acquired nine chickens, two bunnies, and one western hognose snake, all of whom have made themselves quite at home. I hope you and your family are well!

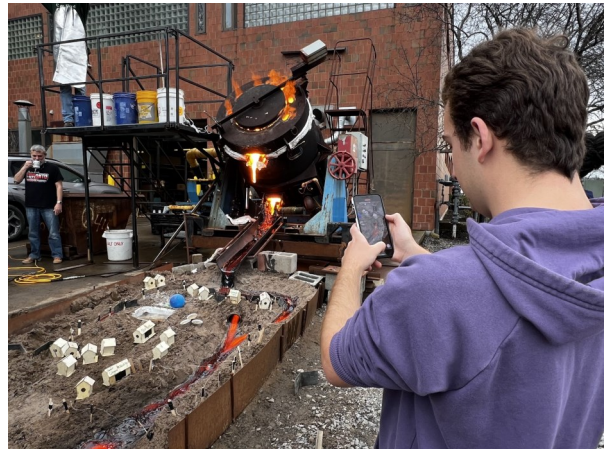
Karen Harpp

Professor

Greetings volcanophiles and volcanophobes (hopefully fewer of the latter...)! I hope that all of you are doing well out there in the wild beyond-Colgate world. Keeping this brief, here are a few updates from (one of) the volcanic corner(s) of Ho:

The two volcanologists (Alison Koleszar and I) received a National Science Foundation grant for a new inductively coupled plasma-mass spectrometer, which has finally been installed after some syn- and post-Covid challenges. We've even generated new data from Alison's Augustine project (an active volcano in Alaska), from the oldest Galápagos Islands of San Cristóbal and Española (a student project), and from water samples along a river in southern California (another student project).

Tom Richards '24, who is working on the Galápagos project, presented his findings at the American Geophysical Union Fall Meeting in Chicago in December 2023, where he connected with his future graduate studies supervisor at McGill University. Tom's work is helping us understand more about how Galápagos volcanoes evolve as they move away from the plume center, and how that process is likely affected by an adjacent mid-ocean ridge.



Chris O'Connell '25 makes observations as the flow is diverted around the model town at Syracuse lava pour.



A view of the model town that was (mostly) saved from the eruption. The large bubbles in the foreground grew up because of water evaporating in the sand below them. Because of the small volume compared to a real lava flow, this molten basalt cools very quickly, and entirely to glass.

Prof. Meg Gardner and I have teamed up on an NSF-funded summer program that intertwines science, innovative pedagogical approaches, and design thinking. We invite 12 undergraduates from Colgate and from nearby two-year colleges to participate in a novel teacher-training program that has at its heart two major goals: a) guiding the participants to design an interactive web-based curriculum for elementary-age students that teaches fundamental science concepts through the lens of the ever-so-fascinating Galápagos Islands (what child or child-at-heart can resist volcanoes, iguanas, giant tortoises, and vampire finches, right?); and b) provides the undergraduate participants with training and opportunities to explore how to design creative STEM curriculum through an interdisciplinary, and strongly interactive approach. The project had 11 participants last year, and we have another 12 coming in this summer in our second round of this pilot project. We've presented our work on this project so far at AGU and at NY state conferences as well, hope to have two whole sets of curricula ready in about a year and a half for distribution in schools across the country and beyond, and are building a cohort of future teachers who are empowered to design creative STEM curricula (and be encouraged to keep teaching in rural school districts, as well!). Thanks to the support of the department, we are able to take the Volcanology class to Syracuse to pour lava at the Syracuse Art Department's Lava Project, a rare opportunity to have a volcano erupt on a schedule!

The students were responsible for figuring out how to minimize the damage to a model town built below the "volcano," which is really a very large furnace designed by Bob Wysocki of the Syracuse Art

Department. Some photos of the decimation of the towns (as well as how well the Volcanology students managed to minimize destruction!) are included below. Enjoy! Thanks for reading!



The view of the model town from the Mount Wysocki Volcano Observatory (Bob Wysocki is the sculptor who runs the lava project at Syracuse).



A beautiful breakout of lava.



Katie Victor '25 sets up a metal barrier to divert lava, Madison Cammarata sets up power lines, and Ben Mitchell ponders the layout...



Di Keller Senior Lecturer

Hello Alums! I very much hope you are noticing Sadie, a stray cat I care for, sitting on a shadow branch here.

In early December 2021, with the insanity of pandemic teaching waning, I was thinking, "Yes! Finally! A break!" That was when some back and autoimmune health problems hit. Although, I taught in-person labs throughout the pandemic, as far as I know, at least I never caught Covid! Pandemic teaching was an intellectual and creative

challenge – both of which I enjoy. Teaching and working through symptoms, from head to foot, inside and out, has not been a fun challenge. But pandemic teaching provided a great reminder that tough challenges can help you discover strengths you never knew you had.

Nonetheless, I still truly enjoy working with students, teaching GEOL 190 (Evolution of Planet Earth) and Mineralogy labs and, along with Rich April, designing and developing displays and other materials for the Linsley Geology Museum. (Please see the Linsley Museum update in this newsletter for further details.) Although I miss working with soil, I have very much enjoyed being involved in some interesting research, including work on wollastonite weathering and its related passive carbon sequestration with William Peck and our wonderful research students – Sadie Kasten '22, Mateo Inoa '23, Lily Kuentz '21, Paul Nugent '21, Victoria Arnold '19, and (last but certainly not least) Faith McDonald '19. If you are interested, our paper about this wollastonite study was published in the November 2023 issue of *American Mineralogist*. Most recently my research endeavors have taken me even further afield to work with scientists from Westminster University on clay and microbial inclusions in gypsum crystals forming in Great Salt Lake sediments. This research has potential implications all the way to life on Mars. How great it has been to more fully appreciate the amazing work done on microbes in evaporite fluid inclusions and on Martian geology by Colgate Geology & Astrogeophysics alums like Tim Lowenstein '78, Liz Rampe '05, Tim Glotch '99, and Christine Viviano-Beck '06!

Take care & enjoy!
Best always, Di



At Grand Prismatic Spring (Yellowstone National Park) on GEOL 320 in summer 2023.

Alison Koleszar

Senior Lecturer

Hi all! It's been four years since the last departmental newsletter and it's been fun to reflect on everything that has happened since then! It's been an exciting four years for research and teaching with really fantastic students.

Last newsletter I mentioned the start of a new NSF-funded project on Augustine Volcano, Alaska, which is now in full swing! This launched a new volcanology research group at Colgate called BLAST: Bubbles, Lavas, and Silicic Tephra. It's been a blast (ha!) working with so many excellent students on this project. You can read about their ongoing research and 2022 fieldwork highlights later in this newsletter.

In other research news, Karen Harpp and I received NSF funding for a new ICP-MS instrument, which was installed in summer 2023. Lab renovation and instrument installation were both delayed a bit due to covid, but the new instrument, the Thermo iCAP RQ, is now humming along in the lab collecting trace element data. Summer 2024 will be its first full summer and it'll certainly see a lot of use as students collect data for summer research and senior thesis projects.



GEOL 320 in Craters of the Moon National Monument, 2023.



Abigail Melican '23 and Jessica Zehner '23 commute by helicopter on Augustine Volcano, Alaska.

In addition to lots of exciting research, teaching continues to be a ton of fun in the Geology department! Most recently I've been teaching GEOL 102 (Sustainable Earth), FSEM/Core 129 (Dangerous Earth), GEOL 303/403 (Geochemistry), and the Craters of the Moon leg of the OC (GEOL 320)-- after a few years of canceled field camp because of the pandemic, it was really wonderful to pile back into vans and explore some incredible geology in the western United States with a group of enthusiastic students. This fall I'll be teaching GEOL 190: Evolution of Planet Earth for the first time. I know many of you have fond memories of this course and I hope that next semester's students will feel the same way when the semester concludes!



Krystyna (Kryisia) Kornecki

Teaching and Research Support Technician

I am very excited to be joining the Earth and Environmental Geoscience department at Colgate as the new technician. I had the distinct pleasure to spend a few months with Dave Linsley as he taught me the ropes and there is no doubt that he is leaving big shoes to fill. Like Dave, my background is also in invertebrate paleontology. Though I am a New York native, I grew up in the Adirondacks and am excited to be in central New York with so many incredible fossil outcrops, though I severely lack the expertise that Dave possess on these taxa!

I have always been interested in marine life and the K-Pg boundary (though admit in my youth I did not know the specifics or nomenclature of this, just that I desperately wanted to meet a *Brontosaurus*) and thus

immensely enjoyed a senior thesis on Danian gastropods of the Cannonball Formation during my studies at St. Lawrence, as well as my study of Maastrichtian decapods from a very muddy, Coon Creek roadcut in rural Mississippi for my Masters at Kent State. One of my favorite things about studying decapods is that they have an outrageous amount of parts for an invertebrate, can often be articulated which makes for some really stunning fossils (or disarticulated which makes for some really complex taxonomic puzzles), and have the added layer of intrigue of potentially preserving multiple full-body fossils that may or may not represent an actual corpse, so the taphonomy is really interesting, too.

For my PhD, I took a 180 and transitioned to study single-celled fossil amoebae (I say a 180 because they have so few parts: two, actually) at Rensselaer Polytechnic. I am pretty hung up on philosophical questions related to humanity and our duty of being an integral component of nature and therefore I am really interested in climate change and anthropogenic impacts, so I applied assemblage studies of fossil amoebae, diatoms, and ostracods with the help of a pollen and non-pollen palynomorph expert to reconstruct human impacts in Lake George, NY (an interesting field site because the lake is so clean you can drink it with a straw). I also collaborated with biologists and experimented with rearing my own amoebae as well as with the Games and Simulations Arts and Sciences department to gamify my dissertation, which was a real treat.

Post-grad, I worked as a consultant at a small firm for a few years followed by a few more as the manager of school programs at a little science museum before moving out to Utica with my partner to start farming. Starting my own small-scale, sustainable agriculture practice really felt like applying the big-picture understanding of Earth systems and climate change in a way that made me part of the solution instead of part of the problem, but slow-food and sustainable practices are inherently *not* a get-rich-quick scheme, so I started supplementing my income teaching yoga. As you can imagine, when I saw the opening for the technician position at Colgate, I was very excited by the opportunity to be a helpful contributor to deep learning and really cool research. I have already greatly enjoyed my time working with students and renewing my lab skills preparing research samples for faculty. I am looking forward to meeting more students and finding my groove as a member of the department.

You can catch me outside hiking, paddling, snowshoeing, ice-skating, horseback-riding, skijoring, star-gazing or birding. I also greatly enjoy reading and watching the New York Rangers, even if they tend to break my heart. I live with my partner in Frankfort with our dog and a small flock of chickens.



Amy Leventer
Professor

It's hard to believe that I have been teaching here in the Geology Department for over 25 years! I'm still having a great time, in the classroom, the lab, and in the field. I continue to teach Introduction to Oceanography every fall semester, a great way to meet students from every department across campus. Over the course of the pandemic however, I started teaching two much smaller sections, instead of one giant class. I've incorporated lots

more discussion and writing, with a focus on the many pressing environmental issues facing the oceans today. I've also enjoyed teaching Geology 190 – Evolution of Planet Earth - getting to know many new majors and sharing responsibilities with Di, who teaches the labs. Best of all, we finally taught our summer field course, Geology 320, again this past summer. What fun to spend a week out in the Seminoes, Wyoming, with a fantastic group of hard-working and fun-loving students, a fabulous TA, Bronson Cvijanovich '22, and Martin Wong. With just one cactus encounter and a bit of late afternoon thunder, we otherwise enjoyed beautiful weather and excellent science.



My research scope has expanded with the help students of who have explored some new directions. Thanks to Evie Unger-Harquail '22 and Olivia Quartz '22, who spent many hours photographing diatoms and conducting shape analysis to evaluate it as a paleotemperature tool, work highlighted in a manuscript just submitted to *Journal of Micropaleontology*. Trevor Guerrina '23, Jane Carskaddan '24, Cha Thompson '25, Rylie Berwanger '26, and Gisele Tjan '26 all spent countless hours on Paul Harnik's SEM, documenting phytoplankton distribution along transects between South America and New Zealand, and Antarctica. This work aims to create a visual catalog of species biogeography – a snapshot during a time of rapidly changing environmental conditions in the Southern

Ocean. The students have captured 1000s of images which they've organized into representative plates, one for each sampling location - their artistry is incredible!

I've also benefited from working with graduate students from all over the US – teaching diatom taxonomy over zoom, while we were all isolated due to COVID. Finally, this summer, I was able to host these students in person, co-leading a small workshop on Polar Marine Diatoms, in addition to hosting Molly Husdell, a PhD student from Brisbane Australia, who spent 5 weeks in the lab. And after several years without an Antarctic field season, I will be headed south for a research cruise on the RVIB *NB Palmer*, where I will join Rachel Meyne '21, now an MS student at SUNY Binghamton, with Molly Patterson Geology '08. Molly is one of the lead investigators of an exciting new NSF-funded project, Sensitivity of the West Antarctic Ice Sheet to 2 degrees Celsius of warming. We had our first field season this past year, with another two ahead.





Joe Levy

Associate Professor

Selfie in the Guadalupe Mountains scouting out sites for Geology 120: Geology of America's Parks.

After a long pandemic delay, the 2020 All-Colgate field team...Finally made it to the McMurdo Dry Valleys in December-January, 2022-2023! The research project was supported by the U.S. Antarctic Program as part of my NSF CAREER award, and aims to figure out the role that groundwater plays in turning glacial regolith into living, breathing soil. We're looking at a combination of processes, including groundwater flow, chemical weathering, and colonization of cold desert soils by microbial algal mats. Of course, the rising seniors who were supposed to join the field team in 2020-2021 (Jessica Johnson and Lily Kunetz) had already graduated, having done their theses on existing Antarctic samples and remote

sensing data. Both were able to take time off their post-graduation projects (grad school and post-bac) to join me in the field for 6 weeks in Taylor Valley, Antarctica, along with recently matriculated Colgate postdoc, Anna Talucci. We collected soil samples, installed long-term sensors to record soil moisture and temperature while we're out of the field, and used drones to map soil moisture using hyperspectral cameras.

Other students in my research group took advantage of the lull in fieldwork over the past year or two to use lidar laser scans of Antarctica to tackle the old question of whether meandering rivers can form without vegetation holding their banks together. Recent grad Bronson Cvijanovich worked with me to test the hypothesis that ice in permafrost can cement banks in unvegetated rivers, leading to meander evolution. Other research teams had hypothesized that this could happen, but had not been able to find a permafrost-affected river that didn't also have plants growing on its banks. We used airborne lidar scans my team collected a few years ago that show convincingly that the Onyx River, the longest river in Antarctica, is meandering, even though its ice-cemented banks have no vegetation at all growing on them.



Lily and Jessica take in the view of Lake Fryxell in the McMurdo Dry Valleys, an ice-covered lake fed by meltwater from Commonwealth Glacier.



Flying a heavy-lift drone in our camp by Howard Glacier. The big white rectangle is a microwave radiometer used to measure soil moisture remotely. It was purchased using combined funding from the NY Space Grant Consortium, NSF, and the Geology Boyce Research Fund.

Last but not least, recent alum, Izzy King just finished a project examining chemical weathering signatures in Antarctic soils. Her thesis work has just been accepted in *GSA Bulletin*, and helps substantiate an exciting new model for how Antarctic soils will develop in a warming world. Her work shows that cation exchange reactions are occurring in Antarctic soils as water runs through them, releasing powerful salts that help the groundwater resist freezing, and that extend the time over which biogeochemical reactions can occur. This suggests that seasonally damp Antarctic soils may be in a positive feedback loop where wetting leads to chemical weathering of soils, which releases salts and clays into the sandy soil matrix, which enhances the wetness of the soil, allowing organisms to colonize the regolith, leading to more chemical weathering of the soils. It's exciting to see this process in action!



Sometimes surficial geology just means digging a lot of holes! Students from one year collect and curate samples that will be used by other students in my lab for years to come.



Getting oriented on the Surficial Geology of NY Hudson River section. The class was working to evaluate whether their field observations of the Scotia Gravels were consistent with the canonical interpretation.



William Peck Professor

Hello from Hamilton! I am in my last term as department chair and am looking forward to spending my sabbatical next term writing up old projects and getting out into the field. Henry (17) is now a senior and is applying to colleges, Julia (14) is a freshman and Samuel (5) is in kindergarten. This is our only year when all three kids are enrolled in the same school.

As department chair I've had a reduced teaching load, so my main teaching has been the Mineralogy lecture (I'm teaching the labs), which we now teach in the spring. I've also been teaching my FSEM Geology Outdoors, Petrology, and Environmental Economic Geology. I taught a special version of the Economic Geology course in the Fall of 2021, and I took 25 students on a series of field trips to examine classic ore deposits of the Adirondacks. I had been nominated to hold the 2021-2022 Gretchen Hoadley Burke '81 Endowed Chair for Regional Studies by my colleagues in the department, so I focused for the year on starting new research projects in the Adirondacks and taking our students on some of the first overnight field trips since the beginning of the Covid pandemic. It was a really successful course and we had some great trips, a highlight was looking at the ruins of Adirondack Iron and Steel Company's "New Furnace" (a blast furnace abandoned in the 1850s). We were guided by David Staley, archeologist at the New York State Museum who excavated the site and parent of Geology grad Spencer Staley '13.



Samuel, Henry, and Julia at Trenton Falls NY

In the past few years I made good headway on several projects related to ore deposits, which I guess has really become a theme in my research with students. I finally published some long-languishing work on zinc deposits in New Jersey and Canada; work from Christian Rathkopf's '10 and Mary Hurtgen's '20 theses were part of a pair of papers in *Ore Geology Reviews* in 2022. Di Keller, Victoria Arnold '19, Faith McDonald '19, Lily Kuentz '21, Paul Nugent '21, and I published the results of our study on weathering of waste

rock from wollastonite mining in the Adirondacks last year in *American Mineralogist*. Reactions between atmospheric carbon dioxide and the wollastonite produce calcite, and this reaction is used by folks in the environmental engineering community to better understand carbon sequestration strategies. During the summers of 2021 and 2022 Fredric LeClair '22, Jacob Steinberg '23, Katia Childs '23, and Matthew King '23 worked on graphite deposits near Ticonderoga in the southeast Adirondacks. This was once a booming mining district in the late 19th and early 20th centuries (the pencil company was born here), and is a wonderful place to examine mechanisms of graphite crystallization and carbon mobility in mid-crustal rocks. Last summer I also started to look at the famous Adirondack iron deposits near Mineville and Port Henry with Henry Lin '24 and Flannery Hogan '26. Hopefully I can write up some of the recent work before making new data this summer!



David Staley (P'13) shows the Environmental Economic Geology course the ruins of Adirondack Iron and Steel Company's "New Furnace"



Martin Wong Associate Professor

Hello Geology alums! After spending a four-year tour as one of the associate deans of faculty, it's great to be back in the department working with our students again! On the classroom front, it was nice to get back into the rotation of teaching the Geology Outdoors FSEM again and introduce first-year students to the geologic features of central New York. It's easy to forget how much cool geology there is exposed right here in our backyard (even if it is not the most interesting structural geology, but you can't have everything...). It's also been fun to get back into teaching the Tectonics and Earth Structure course, which Aubreya Adams and I adopted

from the original structural geology class in 2017 as part of a curricular review in the department. We still think about fun stuff like stereonet and stress but now also get to think about big picture features like reconstructing plate motion and geophysics. And it was great to be back in Seminoe, WY for the OC this past summer. Overall, it's been a great year to reconnect with teaching and with our students.

On the research front, I have finally had a chance to catch up on some major projects that some of you may have worked on at various stages during your time at Colgate. We recently published some of our work that suggests that metamorphic core complexes in western Arizona record a far older extensional history than previously thought and that these features likely have a composite tectonic history. Alex Wrobel '15 worked on this project and was a co-author on that paper. We also recently published a study evaluating the $^{40}\text{Ar}/^{39}\text{Ar}$ K-feldspar thermochronometer, which supports the system's ability to reconstruct geologically meaningful thermal histories that can help us to better understand many tectonic problems. Danny Roesler ('13) worked on some of the modeling for this paper and was a co-author on this work. We are currently spinning up some new projects trying to understand the older metamorphic history of some of the core complexes in western Arizona and how this might have influenced their later extensional history. We are also starting a new project in the Rio Grande Rift to understand the interaction of Laramide contraction and later rifting in southern Colorado. Some of you may remember this area from the Great Sand Dunes National Park during a GEOL 120 trip long ago!

On the personal front, it's hard to believe that my daughter Olivia (17) is applying for colleges for next year, so we're playing the waiting game right now. My son Asher (7) is now in first grade, so is still a long way off from that process! I hope everyone is well and that we see you back at Colgate sometime soon!

Remembering C. Dan Miller

Former Professor of Geomorphology

I was deeply saddened to hear we lost Dan. This was compounded by the loss of his PhD advisor Peter Birkeland a few months later. I was a field assistant for Dan and Pete for six weeks in the Wind River Mountains of Wyoming. I refer to my time with Dan and Pete as my summer of the yellow dot. Pete was a monster hiker and even though I was just out of the Marine Corps, I was at my hiking limit keeping up with Pete. The yellow dot was the Vibram brand symbol located in the center of the soles of Pete's boots. I would see the dots coming at me while going up mountain trails each morning. I am sure there was beautiful scenery available to see – but my focus that summer was on keeping up with the yellow dots. One day Dan and I decided to beat Pete back to camp without telling him. So within a mile or so of camp Dan and I picked up pace and passed Pete. Pete quickly recognized we were racing him back to camp. Without a word Pete turned up his pace and soon Dan and I were again in Pete's dust. Both Dan and Pete were great geologists, men of character and following them in the field was one of the great adventures of my life and led to a career as a geologist. Contributed by: Mark Anders, manders@ldeo.columbia.edu



GEOLOGY: (left to right) Robert Linsley, C. Blaine Cecil, James McLelleand, C. Dan Miller, Donald Newberg. **FOREGROUND:** Smokey.

Salmagundi 1973

Remembering James M. McLelland 1935–2020

Jim McLelland, “The Chief” passed away on Thanksgiving Day of 2020. Jim’s family and friends held a Celebration of Life in the Colgate Chapel on August 14, 2021 to honor and remember him. This was one of the first events allowed by the administration following the Covid lockdown of 2021-2022. After the memorial, many of us gathered and swapped stories at the Inn. Below is the letter Rich April and William Peck sent to department alumni when we learned that he had passed:



Dear Friends,

We have sad news to share. James M. McLelland, Charles A. Dana Professor of Geology, Emeritus, died on November 26, 2020. Jim, who was known as “The Chief” to generations of Colgate students, joined the faculty in 1963, after receiving his BA from Yale University (1957) and MS and PhD from the University of Chicago (1961). He retired in the summer of 2000, and was honored by colleagues and alumni with a symposium and celebration of his 37-year career at Colgate. Retirement didn’t suit him. Jim taught full-time at Skidmore College from 2001-2004 and co-authored over 25 peer-reviewed articles and geologic guidebook articles since 2000, the most recent in 2016.

In the Geology Department Jim joined David Trainer and John Woodruff, who had both been teaching at Colgate since World War II, and Bob Linsley, who came to Colgate in 1955. Bob and Jim went on to build a world-class department that highlighted the importance of undergraduate research, especially in the field, creating one of the top liberal arts geology programs in the country. He inspired students and colleagues alike with his force of personality, his love of life, and his stature and achievements in the fields of structural geology, petrology and geochronology.

Prior to coming to Colgate, Jim had done fieldwork in the Canadian Shield of Alberta and knew about New York’s Adirondack Mountains from one of his undergraduate professors, Matt Walton. He quickly discovered that much of the Adirondacks was poorly characterized geologically and settled into a five-decade research program on the development of these billion-year-old rocks. From his family’s camp on Canada Lake he spent summers mapping and collecting across the Adirondacks. His was an indefatigable field geologist: ten 7 1/2’ quadrangles and eight 15’ quadrangles that he mapped are on file at the New York State Geological Survey, and his mapping in the Glen Falls 1° x 2° sheet was published by the U.S. Geological Survey. He wrote papers on the igneous and metamorphic petrology, structural geology, isotope geochemistry, and geochronology of these rocks, leading to over 200 publications, some of which were written with Colgate students and alumni. His collaborators on this work included Phil Whitney, Yngvar Isachsen, John Valley, Jean Morrison, Jeff Chiarenzelli, Stephen Daly, Art Goldstein, Bruce Selleck, and many others. Jim’s work in the Adirondacks made the region a mecca for studying lower-crustal processes, and he showcased the rocks and his research to hundreds of colleagues during weekend field trips and professional field conferences. He was honored by colleagues and students during a

special session on the Southern Grenville Province at the 2008 Geological Society of America meeting, and with a special issue of the journal *Geosphere*. For his work in the Adirondacks he was awarded the prestigious James Hall Medal by the New York State Geological Survey for outstanding contributions to the understanding of New York's geologic history and evolution. Jim served as president of the New York State Geological Association, the Northeastern Section of the Geological Society of America, and the Geology section of the Council on Undergraduate Research. He was a member of the Science Advisory Council for Deep Observation and Scientific Experimentation of the Continental Crust. Always a lover of sports and a redoubtable mentor to student athletes at Colgate, Jim received the Silver Puck award in 1982 for his support and contributions over the years to Colgate's hockey program.



Courtesy of Special Collections and University Archives

Council on Undergraduate Research. He was a member of the Science Advisory Council for Deep Observation and Scientific Experimentation of the Continental Crust. Always a lover of sports and a redoubtable mentor to student athletes at Colgate, Jim received the Silver Puck award in 1982 for his support and contributions over the years to Colgate's hockey program.

Jim taught his popular introductory course Megageology to many hundreds of Colgate students, along with advanced courses in Igneous and Metamorphic Petrology, Geophysics, Structural Geology, Regional Tectonics, Planetary Science, and Energy and Mineral Resources. He also helped to design and teach scientific perspective courses in an earlier incarnation of Colgate's General Education program. Memories of these courses have a long half-life – when geology alumni meet and talk about The Chief conversation invariably turns to reminiscences of the *Book of Truth*, or *the dance of the olivines*, or the loved & dreaded “*opportunity*.” Jim engaged students both in and out of the classroom with the same intense quest for knowledge and understanding about how the Earth works. Oftentimes, in the evenings, students would find Jim working in his office on the top floor of Lathrop Hall, the Geology Department's home for nearly a hundred years. Whether composing or reviewing a manuscript or research proposal, or preparing lectures for the week ahead, Jim was always willing to set pen aside and chat for hours into the night. As demanding of his students as he was, Jim was compassionate, kind, and supportive, encouraging many of them to continue their studies at some of the finest graduate programs in the country.

For more than three decades Jim led a two-week component of the department's summer Off-Campus field geology program, affectionately referred to as the “O.C.” During these weeks out in the field, hiking miles into the wilderness, taking note of the terrain, hammering on rocks to collect samples for further analysis, all to better understand the geologic history and evolution of the North American continent, deep friendships were forged and lifetime relationships were established. Jim loved geologic field work and its unique combination of intellectual and physical challenges. He relished in sharing this love with his research students and classes in the field and in the process taking great pleasure in forming that magical bond that fieldwork creates between professor and student. Many of his former students kept in touch with Jim through his retirement years and visited with him and his lovely wife Cathy to recount, remember and cherish the wonderful and fulfilling years spent at Colgate.

Jim is survived by his wife Catherine, three children and five grandchildren.

With best wishes,

Richard April
Dunham Beldon Jr. Chair of Natural Sciences & Professor of Geology, Emeritus

William Peck
Chair and Professor of Geology

Robert M. Linsley Geology Museum

Contributed by Di Keller



October 2, 2024, will mark the 15th anniversary of the doors opening on the Robert M. Linsley Geology Museum in the Ho Science Center. In a typical year, 5000-6000 visitors from the campus, community, and beyond walk through those doors. It continues to be a popular attraction during special campus events like the most recent Family Weekend, when over 400 people dropped by. The museum is also a stop during campus tours, either viewed from the outside looking in or via a walk-through, depending on the tour guide. Along with the Ho Tung Visualization Lab and the greenhouse, the Linsley Museum is also a mainstay of Colgate's Science Outreach Program, run by Joe Eakin,

that welcomes over 2500 schoolchildren to campus each year. And, the teaching role of the museum has grown over the years, as more and more faculty from the sciences, Museum Studies, and even the German Department bring classes to the museum and assign exercises built around its displays.

When the pandemic hit in March 2020 and all the museums on campus were closed to the public, Rich April (professor emeritus and co-curator of the museum) had the inspired idea to install a temporary outdoor display called, "The Petrified Woods," which featured sixteen rough and polished petrified logs and slabs, plus a fossilized tree stump from the Gilboa Forest – the oldest forest in the rock record (loaned to us by the NY State Museum). Designed to brighten the pandemic days and to celebrate Colgate's beauty and perseverance through those difficult times, the exhibition was decommissioned in the summer of 2022 after the lifting of pandemic restrictions. Most of the pieces have been redistributed to the Linsley Museum and to a smaller outdoor display on the pathway to the Ho building's atrium entrance.



Speaking of displays along that path, for the past 9 years, our trio of dinosaur sculptures has inspired many a smile and many a selfie. But unfortunately, the years have taken a toll on the two *Deinonychus* raptors perched in the vegetated area above. They have started to succumb to punky wood disease from the moist conditions there. We are thrilled that the original artist, John P. Kennedy of Delphi Falls, NY, has graciously made new *Deinonychus* sculptures for us. Although they look different and a bit more menacing, the new raptors are equally captivating. Installation of the new sculptures is planned for late spring 2024. With luck, maybe a local school, library, or community center can find a way to repurpose the old sculptures (or parts of them) within a protected indoor location that can delay their ultimate extinction.



GEOL 120: Cataclysms in America's Parks

Contributed by Joe Levy



Course TA Lily Kuentz takes a moment to document the alien-looking hoodoos in the Verde Valley. Unlike the famous hoodoos of Zion National Park, these hoodoos formed in volcaniclastic sediments and are the welded remains of fumarole degassing pipes.

information on geological maps, to considering the roles of water, humans, and time on shaping landscape and geological processes. We started with the bedrock, hiking and mapping lava flows at the SP Crater cinder cone, before disappearing underground to spend the afternoon traversing the 1+ km long Lava River cave—a lava tube in the San Francisco Peaks volcanic field that would be large enough to drive a truck through.



Attentively examining lava flows by SP Crater, Arizona.

GEOL120: Geology of America's Parks was back out west in May, 2022, with a dozen early-career geoscientists. In years past, we've done a grand tour, driving up to 5,500 miles to see geological highlights from Chimney Bluffs, NY to Carlsbad Caverns, to the Grand Canyon and back. This year, the trip focused on making connections between the rock record, water, climate, and human activity, by basing out of two geological hotspots: Flagstaff, AZ, and Kanab, UT. Although we missed driving through relentless hailstorms on the high plains, the team gained the opportunity to visit many more small and specialized parks and out of the way sites. We visited cliff dwellings at Walnut Canyon National Monument (built into the base of the Navajo sandstone!) and traced groundwater flow out through the limestone aquifer and into indigenous Sinagua-carved canal systems at Montezuma Well. We even had a chance to bushwhack our way to the oldest mine in North America, a salt mine in the Verde Valley (AZ), which is the capping gypsum and halite from a Miocene-Pliocene evaporite sequence. The team scrambled up a talus slope whose cobbles were made entirely of gypsum roses before reaching the halite blocks, which were promptly licked, just to make sure.

The Flagstaff leg of the course focused on learning the basic building blocks of field geology, from making observations at the outcrop scale and connecting them to information



The Sand Caves outside Kanab give a unique, and pleasantly shaded view, of the Navajo Sandstone.

After a week of practice and preparation in Flagstaff, we drove north to Kanab, UT, to spend a week testing new skills at the crown jewel parks of the Grand Staircase. Students got up close and personal with the Navajo Sandstone, examining its bedding structures from within at the Sand Caves outside Kanab. We then proceeded to the Coral Pink Sand Dunes to test our interpretations by examining modern sand dune processes (and to help sediment transport along a little bit by sand boarding in the afternoon).

The course challenged everyone to learn to think and observe, even under challenging field conditions. In Flagstaff, we experienced the May early monsoon, dodging thunder storms nearly every afternoon. We dodged past lightning to measure stratigraphic sections at Painted Desert National Park, but had to seek remain hunkered down during part of our night visit for a behind-the-scenes tour of Lowell Observatory by one of my planetary geology colleagues, Dr. Jennifer Hanley—giant observatory domes high on a mountain top don't mix with electrifying weather! In Kanab, the team also climbed to unexpected heights, scaling sandstone cliffs to measure stride length and foot sizes at a Jurassic dinosaur trackway. We later realized that the town maintains a trail up to the footprints, allowing for a more gradual descent!



A little morning rock scrambling, evading cacti living in every handhold, in order to climb up to the dinosaur trackway.

After two weeks on the road and in the field, students in the class reported that they were beginning to see new connections between water, rock, time, and human activity. Each night, we'd gather as a team and work on poster-sized concept maps for the day, drawing out connections between observations and sketches made in field notebooks and synthesizing what we'd seen and discussed. At the end of our visits to the Grand Staircase parks, Bryce, Zion, and Kodachrome basin, we assembled all the daily concept map sheets into a giant, floor-spanning graphical outline of the expedition, mapping out common processes, concepts, and rocks between the parks we had encountered. Many of the GEOL120 students have been drawn into the department, taking 190 and 200-level courses, and declaring new majors and minors.



It's easy to understand how flash floods relate to the erosion of slot canyons, when waist-deep mud still fills the bottom of a canyon after storms.



GEOL120 marks past groundwater levels in the Navajo Sandstone paleo dune field.



Seminoe Reservoir Panorama

GEOL 320: Techniques of Field Geology (The OC)

Contributed by William Peck

Last summer was our first full offering of field courses since the COVID-19 shutdown. We didn't drive out in vans this year, but instead flew into Salt Lake City in early June and rented vehicles (shipping our gear). The OC began with mapping part of Craters of the Moon National Monument in Idaho with Alison Koleszar and Aubreya Adams, and then continued on to Yellowstone National Park. Martin Wong and Amy Leventer then took the group for the big mapping project at Seminoe Reservoir, WY. We finished up by traveling to Colorado and visited Dinosaur Ridge and mapped the Proterozoic rocks of Golden Gate Canyon with William Peck, flying out of Denver.



Old Faithful in Yellowstone NP



Grand Canyon of the Yellowstone



Please don't share this with next year's class!



After a hard day of mapping



The group in Golden Gate Canyon Park



Dinosaur footprints at Dinosaur Ridge



Contemplating the Front Range



Craters of the Moon NM (Idaho)

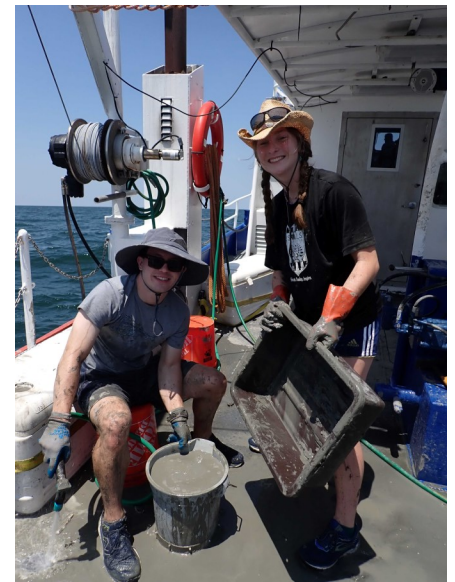
Conservation Paleobiology in the Gulf of Mexico

Contributed by Paul Harnik



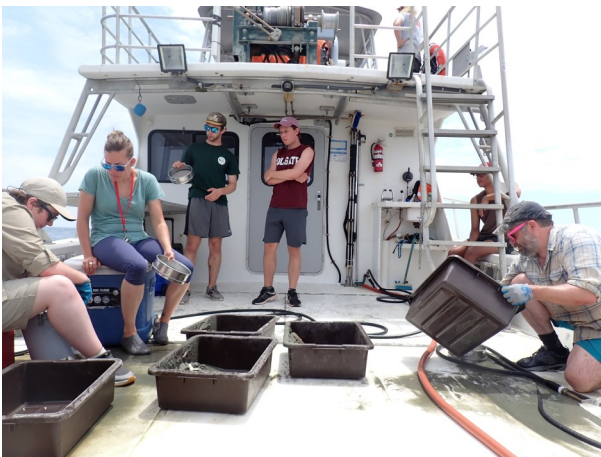
How are humans affecting coastal biodiversity? This can be challenging to assess because monitoring of marine populations is quite limited in many parts of the world, and generally started after certain human activities were already underway (e.g., agricultural and urban runoff, offshore energy production, industrial fishing). We (professor Paul Harnik and research students in the Paleo Lab) use the biomineralized remains (e.g., shells) of historical populations preserved on the seafloor to address this data gap. Radiocarbon-dated empty shells allow us to reconstruct conditions prior to the Industrial Revolution, and by comparing these baseline data with information for present-day populations we can better understand how species and communities have responded to nutrient pollution, deoxygenation, and rising ocean temperatures over past decades and centuries.

In the summers of 2022 and 2023, the Paleo Lab spent several weeks in the northern Gulf of Mexico conducting fieldwork with the support of a CAREER grant from the National Science Foundation. We collected sediment



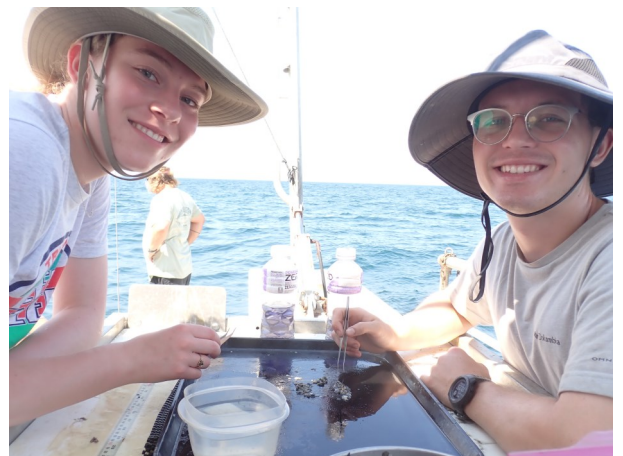
samples from the continental shelf offshore of Louisiana, Alabama, and Florida in partnership with the Louisiana Universities Marine Consortium, the Dauphin Island Sea Lab, and Florida State Universities Coastal and Marine Laboratory. A typical day in the field involved leaving the dock early in the morning, a 2+ hour commute to our sampling stations, followed by

the collection of many, many benthic samples using a boxcore or sediment grab. Each of these samples was processed on the boat by sieving to remove the fine-grained sediment, and then sorting through the remaining material to document, and return safely to the ocean, the diversity of living organisms that are not the focus of our research (e.g., sea stars, crabs, fish). Live bivalve mollusks, and the sediments containing their shelly remains, were then preserved for subsequent study by the Paleo Lab back on campus. Several researchers from other institutions joined us offshore each field season, and conversations while processing sam-



ples often included discussions of career paths, grad school, research interests, and more. After we finished sampling, we would slowly steam back to shore in time to get clean and prepare a group dinner together before repeating the process again the following day.

Environmental conditions vary considerably across the northern gulf due to the delivery of freshwater and nutrients into the basin from river systems of varying size. We start each field season in the muddy sediments offshore of Louisiana, an area that includes one of the world's largest oxygen-limited dead zones to the west of the Mississippi Delta. As we work



our way eastwards, students experience firsthand changes in benthic biodiversity, from relatively depauperate communities of marine mollusks in the core of the dead zone to the diverse patch reefs that occur off the coast of Florida. This context is tremendously valuable as we continue our research back on campus during the summer and next academic year as independent studies and senior theses.

In general, conducting fieldwork requires a positive attitude and flexibility, and this is perhaps especially the case when working offshore. In 2022 and 2023, we were able to sample nearly all of our intended sites, however offshore weather often necessitated shifts in our plans. During days when wind and waves prevented us from venturing out on to the continental shelf, we stayed busy with land-based excursions that ranged from zip-lining over the coastal wetlands to mini-golf, from manatee sightings at state parks to exhibits on sea level rise at local art museums, and much more. For their many contributions, I am grateful to the students who participated in these two field seasons. In 2022, our Colgate field crew included Luke Calderaro '22, Charlie Filipovich '23, Juan Gómez '24, Adam Limoges '24, and Victor Unnone '23. In 2023, our crew included Ryan D'Errico '25, Riley Farbstein '24, Mary Thomas Powell '26, Alexa Russo '25, and Marie York '26.



Summer 2022: Colgate BLAST heads to Augustine Volcano, Alaska

Contributed by Alison Koleszar

Colgate BLAST (Bubbles, Lavas, and Silicic Tephra) is a new volcanology research group at Colgate funded by a National Science Foundation grant to Alison Koleszar (Colgate) and Kristina Walowski (Western Washington University), in cooperation with Alaska Volcano Observatory. BLAST seeks to investigate the processes that drive explosive volcanic eruptions.



Colgate BLAST in Alaska, 2022. Left to right: Alison Koleszar, Ian Andrews '25, Jessie Farrell '24, Abigail Melican '23, Jessica Zehner '23

Colgate BLAST also helped with critical maintenance at Alaska Volcano Observatory's base camp and Augustine monitoring station. We wrapped up our field campaign with a quick trip to Augustine's summit, which is still steaming from the last eruption in 2006.

Back on campus, the Colgate BLAST students sieved, weighed, described, measured, polished, and analyzed pumice clasts to piece together the past 2000 years of changes in explosivity and magma composition at Augustine. Jessie Farrell '24 and Jessica Zehner '23 presented this research at the annual meeting of the Geological Society of America in 2023. Colgate students Ryan D'Errico '25 and Melly Zhuang '26 joined the BLAST group in summer 2023 and continued to investigate the physical characteristics of Augustine pumice, and Keiona Williams '24 is currently writing a senior thesis on geochemical evidence for magma mixing prior to these large and explosive eruptions.



Keiona Williams '24 weighs powdered pumice clasts to analyze on the new ICP-MS instrument.

In summer 2022, Colgate BLAST headed to Augustine Volcano for fieldwork! Jessica Zehner '23, Abigail Melican '23, Jessie Farrell '24, and Ian Andrews '25 did incredible research as we worked closely with collaborators from WWU and AVO to investigate pumice deposits that were erupted from Augustine Volcano in its largest eruptions of the past 2000 years. Access to Augustine is by float plane, landing in the waters of a lagoon that formed by a massive debris avalanche that slid off the volcano approximately 370 years ago. Augustine is still a dynamic place, and (very) recent debris flows had complicated access to some of our anticipated field sites. Thankfully we were able to share helicopter time with Alaska Volcano Observatory and UNAVCO, which allowed us to zip around the island with relative ease and make detailed observations (and collect 332 pounds of pumice) at 11 different locations in four days! While on-island,



Ian Andrews '25 measures ash layers on Augustine Volcano, Alaska.

In summer 2024, Colgate BLAST is headed back to the field! Ryan D'Errico '24, Rylie Berwanger '26, and Sam Ash '27 will head back to Augustine Volcano with Alison Koleszar and colleagues from WWU to further explore how the layers within pumice deposits can tell us about changes in a volcano's eruptive personality.

NSF funding for the Augustine Volcano project was originally budgeted for two Colgate students to conduct fieldwork, but the scope, outcomes, and opportunities for students have been improved greatly with generous funding from the Geology department! The April and Selleck Travel Fund has helped

support student travel to Alaska, doubling the number of students able to participate in 2022. This funding also helped students attend the GSA meeting in 2023. The Boyce fund helped immensely with the initiation of this project and the scope of our fieldwork, helping support the 2022 helicopter-based fieldwork in collaboration with the Alaska Volcano Observatory and UNAVCO. These funding sources are also supporting the BLAST return to Augustine in 2024, giving three more Colgate Geology students the opportunity to work in this incredible place.

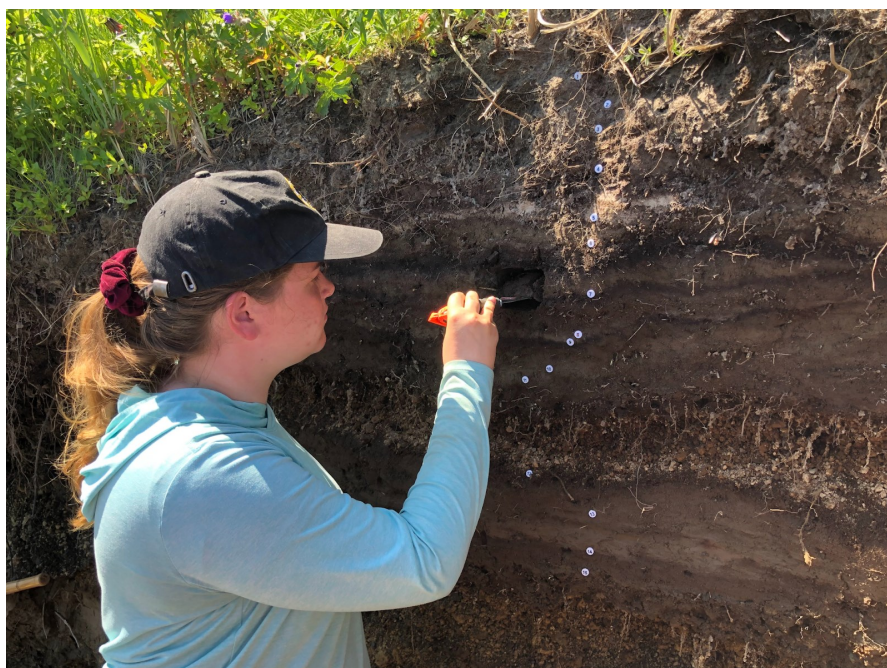
BLAST students have also been supported by the department's new Field Funds program, funded by alumni donations to the department, which offsets expenses associated with personal field gear— the necessities for staying comfortable and safe while conducting fieldwork. I know many of us started our geoscience careers with affordable-but-inadequate soggy cotton base layers, but I'm grateful there are better options now! Thank you to all who have helped support these experiences for Colgate students!



Abigail Melican '23 labels sample bags for pumice on Augustine Volcano, Alaska.



Jessica Zehner '23 on Augustine Volcano, Alaska with collaborators from Western Washington University.



Jessie Farrell '24 samples soil layers in ash deposits at Augustine Volcano, Alaska.

STUDENT AWARDS

The Earth and Environmental Geosciences Department gives several awards to students to recognize their accomplishments. These awards are made possible by many generous gifts from geology alumni to these funds. The department is lucky to have so many great students who are passionate about geology and go above and beyond to help make such a strong community.

Award for Excellence in Geology

This award is given annually to the senior(s) who best demonstrates a combination of excellence in the classroom and creativity and perseverance in research.

Recipients: Lily Kuentz '21, Luke Calderaro '22, Isabella King '23, Jessica Zehner '23

Norma Vergo Prize

This prize is given to a graduating geology concentrator each year 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 passed away in 1989 at the age of 30. This special award was initiated by friends and colleagues in her memory.

Recipients: Rachel Meyne '21, Sadie Kasten '22, Lucy Nentwich '23, Maria Clara Rapoza '23

Robert M. Linsley Prize

This prize in honor of Bob Linsley is given to a rising senior who has demonstrated the promise and potential for leadership and excellence in earth science scholarship and research.

Recipients: Martin Welych-Flanagan '22, Jessica Zehner '23, Sophie Naylor '24

Kevin Williams '11 Memorial Fellowship

This fellowship was established in honor of Kevin Williams, July 27, 1988 – October 4, 2010 to give students the opportunity to experience what Kevin discovered as one of the greatest joys in life – experiencing other countries and cultures. This fellowship supports Geology & Geography major travel associated with their Junior terms abroad.

Recipients: Maria Clara Rapoza '23, Jessica Zehner '23, Sophie Naylor '24, Jessica Wen '24, Amelia Rastley '25, Alexa Russo '25



Geology students who received academic awards gather at the awards ceremony in 2023.

SUMMER RESEARCH 2021-2023

Summer research experiences are a vital part of a well-rounded geologic education, and introduces students to the excitement of research both in the field and in the lab. The EEGS Department is fortunate to have several endowed funds that support summer research experiences for students, all of which are only possible by the very generous gifts from alumni and friends of the department. Thank you all for your support of these funds.

Douglas Rankin '53 Geology Research Fellowships

Luke Calderaro '22, Ryan Ewanow '23, Charlotte Filipovich '23, and Ryan D'Errico '25: Conservation paleobiology in the Northern Gulf of Mexico

Evangeline Unger-Harquail '22 and Gisele Tjan '26: Diatom proxies for Antarctic paleoclimate

Alexa Trubiano '23: Carbon sequestration by iron slag wastes

Fredric LeClair '22, Jacob Steinberg '23, and Matthew King '23: Graphite deposits in the Adirondacks

Abigail Melican '23: Eruptive history of Augustine Volcano

Alexa Trubiano '23 and Pierce Leclerc '26: Seismic structure of the Aleutian subduction zone

Flannery Hogan '26 and Henry Lin '24: Genesis of iron ore deposits in the Adirondack Mountains

Maxwell Walker '26: Non-sulfide zinc minerals in the Grenville Province

Hackett-Rathmell 1968 Memorial Fund

Martin Welych-Flanagan '22: Shell microstructure and isotopes of Devonian brachiopods

Thomas Subak '23: Antarctic permafrost thawing dynamics

Adam Limoges '24: Conservation paleobiology in the Northern Gulf of Mexico

Rylie Berwanger '26: Antarctic paleoclimate records

Norma Vergo Geology Award Fund

Charlotte Filipovich '23 and Samuel McCabe '22: Virtual Galapagos Project

Olivia Quartz '22: Diatom proxies for Antarctic paleoclimate

Ian Andrews '25: Eruptive history of Augustine Volcano

Trevor Guerrina '23: Antarctic paleoclimate records

Mary Thomas Powell '26: Conservation paleobiology in the Northern Gulf of Mexico

Aidan Guller '25: Antarctic water track sediment chemistry and Mars landform evolution

Jessica Wen '24: Seismic structure of the Aleutian subduction zone

Robert Linsley and James McLelland Endowment in Geology

Christopher McElhaney '22 and Katie Victor '25: Virtual Galapagos Project

Katia Childs '23: Graphite deposits in the Adirondacks

Alexa Russo '25 and Riley Farbstein '24: Conservation paleobiology in the Northern Gulf of Mexico



Amy Leventer and
Rachel Meyne '21 on
the bow of the NB
Palmer, April 2024

Gifts to Earth and Environmental Geosciences

On behalf of our students, we want to express thanks to everyone who has made a gift to the department over the past few years. For a number of reasons Colgate has decided that we will not be listing individual donor names in publications such as this one; the main one being to protect donors' privacy. Between July 1, 2020 and January 1, 2024 you made 329 gifts to department funds. Even though we can't list you by name, we still thank you all!

Your gifts support all aspects of our program, especially taking students into the field to see amazing geology. We use donations from alumni, parents, and friends to support student summer research, their travel to labs to conduct analytical work, and more and more students presenting their work at professional meetings across the country. Gifts to the department support our **discretionary fund**, which is our most flexible fund that we use to support areas of greatest and immediate need. Donations can also be directed to a specific fund to support students, including:

Norma Vergo Geology Award Fund

(supports the Norma Vergo Prize for a graduating Senior, and student summer research)

Robert Linsley and James McLelland Endowment in Geology

(supports student summer research)

Hackett-Rathmell 1968 Memorial Fund

(supports student summer research)

Robert M. Linsley Prize

(supports a prize for a promising Junior)

The Kevin Williams '11 Memorial Fellowship

(supports Geology majors traveling abroad)

and the

Rich April/Bruce Selleck Endowed Fund for Geology Student Travel

In the past few years, we have focused on using gift funds to help students who might not otherwise be able to afford summer field work and travel. Students who need help purchasing gear for the OC or field research can now apply for Summer Field Funds (from our discretionary fund) of up to \$350 to support the purchase of personal field gear. Due to your generosity, we are also now able to give aid for travel and course fees using the Rich April/Bruce Selleck Fund –Colgate's financial aid does not cover summer classes, and until now there have always been students who couldn't participate. Using the April/Selleck Fund we are able to apply the % of aid that students would get during the school year to our summer courses. Thank you all again for your generosity.



ALUMNI NEWS

Altaner, Stephen (1979) Retired Geology professor; University of Illinois, Urbana-Champaign. After getting much knowledge and inspiration from Colgate, especially Rich April, Stephen Altaner got a Ph.D. from the Univ. of Illinois and then served on the U of I faculty for 37 years until retiring in summer, 2022. His research specialty is clay mineralogy and geochemistry. He supervised numerous Ph.D., M.S., and post-doctoral students, published about 35 papers (including papers in Science, Nature, and Geology), and conducted research around the world.

His greatest love was teaching though. He taught courses in physical geology, natural disasters, field geology, earth materials, environmental geology, and a variety of graduate courses (clay mineralogy, clay petrology, sedimentary geochemistry, and others). He had over 25,000 students in classes and won numerous teaching awards. His favorite courses were any that involved geology field trips. He also organized and led a beginning-of-the-year geology field trip for 27 years. He's thoroughly enjoying his retirement.

Badenoch, Thomas (1971) Retired Professional Land Surveyor. Little did I know in 1971 that my Colgate Geology degree would be a stepping stone to a 45 year career in Surveying and Civil Engineering. A well-balanced education and fundamental knowledge of the earth sciences were valuable throughout my adult life and professional career. Thank you, Colgate!

Banta, Ted (1986) Military Officer, U.S. Marine Corps, MS Systems Management Naval Postgraduate School, MS Strategic Resource Management Industrial College of the Armed Forces.

I'll retire this August after 38 years of active duty in the U.S. Marine Corps. Looking forward to some time off followed by a second career in logistics, transportation, energy or infrastructure management. Great to see the Geology (Earth and Environmental Geosciences!) Department continues to provide a foundational aspect of the Colgate experience for today's undergrads. Rock on!

Baran, John (1977) Retired from Morgan Stanley Wealth Management.

I would like to share a story from my days as a Colgate Geology student. It was the bicentennial summer of 1976. I was with around 20 Colgate students, traveling in three vans from Canada to Kentucky. We were on a leg in West Virginia visiting coal mines and needed to go from the eastern part to the western part of the state. We were without a professor, with plans to meet up with the next one at our destination. In our wisdom, we decided it would be faster to go over the Appalachians than take the major highway around. At first everything was fine, but as we got higher the roads became dirt roads.

At one point one of our vans got too close to the edge and slipped off the road. At the last moment, before it could tumble down the mountain, the van got caught on a big tree. Surely someone would have been killed. It was wedged tight, and we could not move it. We were in the middle of nowhere, like a scene out of a bad movie. Suddenly, an old car with some "mountain folk" appeared.

They called on their CB radio and next thing we knew a big tow truck arrived and safely pulled the van back onto the road. These folks were very courteous, would not accept any money we offered. We thanked them and finished our trip, arriving safely on the other side. We all learned a lesson that day about believing in the stereotypes of rural people as dangerous and scary, it's just not true. That, and to take the highway.

I also wanted to send an update. I graduated from Colgate, class of '77 and went on to a career on Wall Street with Morgan Stanley Wealth Management. I met my wife, Loren Fox at school, also '77 and we've been happily married for 44 years. We're both retired and now split our time between homes in New York and Southern California. We're currently excited for our one son, Kyle, who is a founder of Ethereal Engine, a 3D Web technology supporting VR, Gaming and Social Experiences. Ethereal Engine has just been acquired by Infinite Reality, the Global Leader in Immersive Experiences. I like to wear my Colgate T-shirts and it's fun because it gets recognized wherever we go. I remember fondly the era when "The Chief", Jim McLelland, was Chairman and great professors like Bruce Selleck, Charlie McClennen, and Bob Lindsley and great classmates. My best to everyone in the department and all.

Battles, Denise (1985) PhD in Geology, USCL (1990); I continue to serve as President of SUNY Geneseo, recently announced as New York's Public Honors College. The 2024-25 year will mark my tenth in this role. My husband, Dr. Michael Mills, also works at the College, where he serves as the Director of National Fellowships and Scholarships. We consider ourselves fortunate to be an academic couple who has been able to serve at the same institutions at each step of our careers, having started out as faculty members (geology for me, English for him). I was recently honored by being selected to deliver the Distinguished Alumni Lecture in the Department of Earth, Planetary, and Space Sciences at my graduate alma mater, UCLA, a kind of full circle moment for me. At a time when higher education is under assault, I welcomed the opportunity to make the case for its enduring value and that of public higher education (where I have served for all 34 years of my post-PhD career) in particular.

Baughman, Jacky (2013) PhD From University of Colorado Boulder (2018); I've been a Geology Professor at Cal Poly Humboldt (North Coast, CA) since 2021. I will go up for tenure this summer (please wish me luck!) after my partner Trevor and I welcome our first kiddo in May, 2024!

Bickhart, Robert (2012) Environmental Masters at Clemson University, Trade Desk Analyst at Equinor. Rob and his wife, Cloe Bushnell ('12), currently live in Houston TX with their beautiful 2 year old daughter, Rosie. The transition to Houston from Boulder CO was a bit... different... As last July peaked at 120°F, we laughed about being snowed in the Ho Science Center during the historic

snow fall of March 2011. After working for the National Renewable Energy Laboratory and consulting firm Wood Mackenzie, Rob accepted a job with Equinor as a refined product trade desk analyst. His team is primarily focused on transition eFuels, such as biofuel feedstocks and finished renewable grades.

Borton, Alex (1991) Solar Sal Boats. I have a business with my father, David Borton '65, building 100% solar electric boats. We have built 8 boats since 2005, including the first all solar USCG Inspected passenger ferry. He and I also made the first all solar powered trip through the Inside Passage from Bellingham WA to Glacier Bay Alaska. Many more details at www.solarsal.solar

Boyce, Malcolm (1954) MS-Indiana 1956, Sr. Executive Program, Sloan School, MIT (1985), Retired Petroleum Exploration, Chevron. Still trying to keep up with the latest happenings in Oil Exploration- new plays and technology. Many big positive changes in the 30 years since I retired. Current levels of geophysical, drilling and deep water construction that would have seemed impossible in my working years. Still able to see many of the good things going on at the Department in Colgate and happy that our endowment is helping support them. The numbers and quality of the Earth Sciences faculty continue to amaze- a long time since the faculty consisted of Woody and Doc Trainer. Sylvia and I still in our home of the last 48 years and have available support through a local "Village" organization.

Bozek, Cathy (1999) M.S. Water Resources Management, University of New Hampshire, Restoration Ecologist at US Fish and Wildlife Service. I'm working at the US Fish and Wildlife Service, managing a river restoration program that works with communities to remove obsolete dams and other in-stream barriers in rivers, streams, and coastal areas across the northeast. I've had fun introducing my 7 year old, Ella, to geology - fossils, corals, and even some geomorphology...mineralogy is up next!

Brackett, Chapin (1998) M.S. Environmental Engineering at University of Washington, Process Engineering and Environmental Compliance Manager at King County | Wastewater Treatment Division. After over a decade at Boeing, I elected to leave and join King County's Wastewater Treatment Division. I manage the process engineering staff and the analytical laboratories at our large treatment plants. I'll be attending a two week leadership course at UNC Chapel Hill in April and plan to cross paths with Allison Besch. In the Fall of 2023, Darren Moss was in Seattle for a conference and we caught up. Hopefully more of our paths will cross in the coming years.

Braham, Gary (2002) Masters in Education SUNY Plattsburgh, high school teacher at Baltimore County Public Schools. I am currently an earth systems teacher at a

large public school just outside of Baltimore. I run an after school magic club. I've remained very involved in my interests and hobbies and have become a big baseball fan in the last year. I've also been hired to report on our districts board of education meetings, providing a play by play and commentary of the meetings.

Burke, Jeanine [Nizza] (1985) Certificate in Museum Studies from Hofstra University, retired from Commercial Banking. Hi all! I officially retired from Wells Fargo in March 2023 after 25 years of working for them in commercial lending and commercial lending support. I have spent the last year focusing on my volunteer work at Pinnacle Peak Park and the McDowell Sonoran Preserve in Scottsdale. I have created a guided geology hike for the public at PPP and am creating various geology and Sonoran Desert guided hikes in the MSP. It has been so fun to get back into geology and reading various published papers for the area. Please feel free to connect with me if you want me to lead a guided educational hike for you next time you are in Scottsdale.

Burns, Christopher (1982) M.S. and PhD University of Delaware, Semi-Retired. After Colgate, I obtained my Ph.D. in Geology from the University of Delaware and then embarked on a career in environmental consulting working for Tetra Tech, Inc. for the first 6 years and then for the last 30 years with CHA Consulting, Inc working in upstate New York, Richmond, VA and in Ft. Worth TX. I finished my career at CHA, a 1,600 person firm with over \$200MM in revenue, as Chief Scientist focusing on technical excellence and quality, and as Co-Chair of the company's Green Team focusing on sustainable operations. I formally retired at the end of 2021, but since then have continued to work on a part-time basis, primarily investigating PFAS-contaminated groundwater, teaching a senior design course at Clarkson University (since 2020), and as a board member of the environmental consulting firm Roux Associates.

On the personal side, I survived cancer in 2022 and my wife and I now celebrate my recovery traveling as much as we can (Antarctica, Alaska, and Scotland last year; France and Greece this year). My wife and I currently reside in Richmond VA but plan to retire in Lewes DE in the next year.

Canis, Wayne (1961) MA University of Missouri, PhD University of Missouri 1967; retired teacher from University of N Alabama 35 yrs. Large fossil collection donated to the University of West Alabama in 2023. Go Colgate!

Cazier, Edward (1981) MA University of Texas at Austin 1984; MBA Rice University 2002; Geologist at Suyapa Consulting LLC. It was a very productive and Colgate-centric year, as I attended a superb short course on Gulf of Mexico & Caribbean tectonics from Jim Pindell (1979) and met up with Bruce Kohn (1981) and Malcolm Ross

(1984) at a couple of geothermal professional society events. I'm still working as a geologist: during the day with an oil & gas deepwater startup called Westlawn Americas Offshore and moonlighting with a geothermal startup called Geothermal Wells. The future is bright for geologists. Get out in the field and follow the rocks!

Clarke, Steve (1983) M.S. Dept of Geological Sciences at USC; Sr Manager Sustainability at The Clorox Company. It's been several years since an update. After 19 years as a Hydrogeologist/Environmental Manager/Director at Waste Management, I joined Clorox where I'm currently a Sr. Manager of Sustainability on the ESG Climate team, a fun and challenging job. I still live in Atlanta and enjoy hiking the Southern Appalachians and caving in TAG. I keep in touch with fellow undergrads David McLean, Jay Cerny, and Bob North. Unfortunately our good friend and fellow geologist, Karl VanKeuren, passed away in 2022. Hey to my fellow geologists from the classes of '82-'84, look me up on social media if you're ever in the area.

Conlan, Kate (2019) MSC at University of Edinburgh. I'm currently living in Glasgow and working as a Sustainability Consultant with a focus on supply chain sustainability and human rights. Outside of work I'm spending time exploring all the wild and wonderful geographies Scotland has to offer!

Dutt, Bryan (1981) MBA Tulane University; Energy Hedge Fund Manager at Ironman Energy Capital. About to wind it down and enjoy life.

Eldridge, William (1958) NJIT; retired from Becton-Dickinson Inc. After graduating from Colgate, I got married, took some courses in Engineering, passed the state (NJ) Engineering Test for Professional Engineer (similar to BAR exam for law) and worked as a mechanical engineer mainly developing medical products, was awarded three patents, and retired.

Foss, David (1991) MS Geology & Geophysics at University of Hawaii; State Regulator at Massachusetts Department of Environmental Protection. After 28 years as an environmental consultant, I joined the MassDEP (Massachusetts Department of Environmental Protection) as the Statewide Brownfields Coordinator in 2022. I'm enjoying my work in the public sector, promoting economic development and Brownfields redevelopment across the Massachusetts. An unexpected collateral benefit is engaging with my counterparts from the other New England states and nationally and sharing success stories and lessons learned across the country. Outside of work, I spend much of my free time hiking and running the trails of New England.

Freccia, Sam (2012) M. Ed. from the University of Hawaii at Manoa 2019; Senior Manager of Educational Counsel-

ing at Bright Horizons College Coach. Sam, his wife Ashley, and their two-year-old twin daughters Avery & Taylor recently moved to southern Maine during the summer of 2023. They also welcomed a baby boy, Colby, in January 2024.

Gamwell, Peter (1976) M.S. Geology at Boston College 1980 major: coastal and marine geology and minor: meteorology; retired Petroleum Exploration Geologist; Anadarko Petroleum Company 1983-2019, Houston, TX, Consultant 2019-2021.

Gill, Clifford (1990) MS UCSC Geology, MBA KU; small business owner of Airborne Scientific Inc. These days I spend an extended summer living and working in Homer Alaska, and the rest of the year in the Kansas city area. Although I don't do any professional earth sciences, I still do some aerial mapping for work, and have earth science tangential hobbies such a caving and field work for natural resource monitoring. My wife works full time in KC and my 2 kids spend about half the summer with me in Alaska and another half with my wife. I've finally upgraded my Alaska summer living conditions from a dry cabin (no water, plumbing, or sewer) to a real house with amenities, yeah! If you get up to Homer Alaska some summer feel free to look me up.

Glaser, Karen [Sullivan] (1980) MS Geology University of Oklahoma, Ph.D. Geology Rice University; retired Geologist from Schlumberger. Retired as Geological Advisor from Schlumberger in 2014. Moved to North Carolina and have been enjoying golf, reading, traveling and going about looking at real rocks.

Godbout, Jennifer (2015) University of School Medicine and Dentistry; Physician (currently a resident) at Dartmouth-Hitchcock.

Gouldhirsch, Douglas (1978) Webb Institute; retired boatbuilder from Southport Island Marine. I've retired from my latest career as a boatbuilder and boatyard owner. That, after careers as an outdoor educator and a homebuilder. Currently living in Boothbay Harbor Maine where I run a small charter boat business—come take a ride with me!

Hackell, Veda (1979) I spend a good portion of each year on the Big Island of Hawaii. While there, my husband and I spend a lot of time surveying lava tubes. We also work with a number of scientists who do research in the lava tubes. When not in Hawaii, I am generally enjoying outdoor activities, especially birding. I feel most fortunate to be able to enjoy my retirement so far.

Hamm, Marci [Friedman] (1978) Masters in Water Resources Management/Hydrogeology University of Wisconsin-Madison 1985. I recently retired as a hydrogeologist from KGS Group in Winnipeg, Manitoba, Canada,

where I have been living since 1988, with my husband Marvin and children and now grandchildren. My career took me from a few years teaching Earth Science in the Poughkeepsie area, to Madison Wisconsin, where I completed my Masters in Water Resources Management/ Hydrogeology and worked as a hydrogeologist for the Wisconsin Department of Natural Resources, Bureau of Solid Waste. I have always been grateful for the top notch education I received from Colgate, and particularly Bob Linsley, Charlie McClennan and Bruce Sellek, who fostered a love of all things geological and gave me a great foundation. My interests always pulled me towards the environmental side of geology - how the whole biological, water and earth systems interacted. I'm glad to see education in those area develop in the Department and wish I could take those exciting courses now! I'm happy to connect with alumni and can be reached at mfhamm@mts.net

Hanson, Kate [Hardock] (2016) Master of Science in Environmental Health at Harvard School of Public Health; Environmental Justice Liaison at Massachusetts Executive Office of Energy and Environmental Affairs. Married another geologist (Bucknell '18) on October 7, 2023. Started new job as Environmental Justice Liaison for the MA Executive Office of Energy and Environmental Affairs in February 2023.

Heath, Adrian (2019) MS (current student), graduate student at Oregon State University. I have been pursuing a master's degree in marine geology at Oregon State University. This spring, I will defend my thesis research on coastal erosion and sediment transport in the Alaskan Arctic.

Herndon, Jane [Kozinski] (1982) MS SUNY Albany, JD University of Pennsylvania; Executive Director at South Alabama Land Trust. This past July, I took on the role of Executive Director of the South Alabama Land Trust, a land conservation nonprofit that operates in Alabama's 2 Gulf Coast counties. I love it! It feels like I've covered a lot of territory in my career -- science, law, policy, government regulation, environmental management, and now land conservation. Holy cow -- how did all that happen?

Hibbard, Jim (1973) MS Memorial Univ of Newfoundland, PhD Cornell University; Emeritus Professor at North Carolina State University. After 27 years as a member of the geology faculty at NC State, I retired in 2015. I've used retirement to finish off some geology projects including open file maps for the NC Geological Survey, a field trip for the Carolina Geological Society, and co-author a NCGS special publication on the historic Reed Gold Mine. I also volunteer as a geological consultant for both the International Appalachian Trail and the Appalachian-Caledonian GIS Database Website. Otherwise, I've spent much of my time learning old time fiddle and playing with

informal groups in the local area; recently we've provided music at the NC Governor's Mansion and for the Duke Homestead Candlelight Christmas celebration.

Hirshorn, Emily (2001) Masters in Non-Profit Leadership; Associate Director of School Programs at Penn Museum. Hello Geology Nerds! I'm still working at the Penn Museum - I lead our Unpacking the Past program, which provides free programs and field trips to the 6th and 7th graders in Philadelphia public schools. Amazingly, we are about to enter our 10th year! I've managed to incorporate rocks into one of our workshops where we make paint from ochre. Also obsidian and lapis are big crowd pleasers due to their minecraft fame. Oh - and I saw Davin Hanson '00 and his family when they were in town last spring! Hope everyone else is doing well - miss you!

Hoffman, John (1968) MS Geology University of Rochester 1970, Teaching Certification Wayne State University 1975; Retired High School & Middle School Science Teacher. For you paleontology fans, Andy Secher's book, *Travels with Trilobites* is a spectacular visual journey that displays the stunning array of shapes, body features and spines that were largely unknown when Bob Linsley was my mentor. In 1967, Bob took me and John Cottrell to the Silica Shale in NW Ohio to collect pyritized brachiopods and trilobites. The Silica Shale is well represented in Andy's book and I feel fortunate to have been there.

On another note, my two sons live in Canton, NY and Austin, TX, two places that are in the path of totality for the solar eclipse this April. I plan to go to Canton to have my first totality experience.

Finally, at our 55th Reunion last June, I took 4 members of the Class of 1968 to 3 local quarries for their first ever fossil collecting experience. Lots of brachiopods, clams plus a few trilobites.

Horne, Julia (2016) Doctor of Philosophy; Researcher at University of Victoria. I recently defended my dissertation (Jan. 2024) and have a paper accepted for publication in *G-cubed* titled "EONS A new biogeochemical model of Earth's oxygen, carbon, phosphorus and nitrogen systems from the Archean to the Present".

Howell, David (1966) PhD U.C. Santa Barbara; Research Geologist/Professor at USGS and Stanford University. Long since retired but for the last 20 years have been promoting the role of geology in wine. This includes co authoring with Jonathan Swinchatt (one of my Colgate Professors way back when) *The Winemakers Dance*, exploring terror in Napa Valley. Every year since 2004, including this one, I co teach with Doug Posson a course through Stanford's Continuing Education "The wines and geology of California and France", and we also lead field trips in California and France <www.winesandgeologytours.com>. On one of these

tours in the Rhone Valley I collaborated with a French Geologist Francois Roure suggesting that Chateaufeuf du Pope is a salt dome, see: Underlying Chateaufeuf du Pope is a salt diapir and the still active Nîmes Fault of southeastern France: Mediterranean Geoscience Reviews <https://doi.org/10.1007/s42990-022-00081-0> The love of geology runs thick with folks who enjoy exploring wines.

Jasko, Jerry (1973) Retired. Enjoyed our 50th Reunion this past June. Great to have seen Doug Weddell from our class (and the fabulous Geology off campus Fall 1972) as well as Rick Stickle, the retired geowizard earth sciences teacher now residing in Rhinebeck, NY. Wish Rich Weiner and/or Jim Hibbard had made this one.

Jones, Nick (2014) Squad Boss, Wildland Fire Handcrew at Grayback Forestry. I've been living in Missoula, MT for about 5 years now, and I'm currently working as a squad boss on a wildland fire handcrew and absolutely loving it! Please reach out if you're ever in the neighborhood!

Kafaf, Giuliana (2015) Energy Distribution. Throughout 2023, I've had the pleasure of seeing and reconnecting with some geology professors and fellow geology alumni and friends from various graduating classes. Many of these experiences revolved around visiting Colgate, joyous wedding celebrations, and exploring the stunning landscapes of Colorado and Arizona through hiking adventures! During my visit to Colgate over the 4th of July weekend, it was truly delightful seeing William, Di, Karen, and Amy. I also had the pleasure of meeting current geology students who were engaged in summer research projects.

Kammerdiener, Katie [Garman] (2010) MS Geology at University of Florida 2012; High School Science Teacher at Reedsburg Area High School. My husband Jason '10 and I relocated to Wisconsin in 2021 after almost a decade working at Colgate. I'm now in my third year teaching high school science in Reedsburg, Wisconsin. The school board has been very supportive in my efforts to increase our curriculum in the area of local geology, and this year I debuted a new elective course on the Natural History of Wisconsin. It's fun to be encouraging the next generation of geologists, and I'm looking forward to getting them out into the field a bit this spring!

Katz, Sarah (2016) PhD University of Michigan 2024. I am excited to announce that I completed my PhD at the University of Michigan in Spring 2024 with a focus on Andean climate and hydrologic change over the last 650,000 years. I was also honored to be invited back to campus to give the first departmental Cooper Lecture of the 2023-24 academic year in September. It was fantastic to connect with both the department faculty and current Colgate students!

Kim, Jonathan (1981) PhD; Geologist at Vermont Geological Survey. Keith Klepeis '87, a professor in the Depart-

ment of Geography and Geoscience at the University of Vermont, and I are collaborating intensively on field projects involving landslide monitoring and mitigation and the characterization of fractured rock aquifers that have been contaminated with PFAS compounds. These projects involve field mapping, drone surveys, and photogrammetry. Keith and I have worked together since 2002 and have supervised 18 interns.

Knotts, Kelly [Saunders] (1997) MS in Education at University of New Haven; 8th Grade Science Teacher at Ellington Middle School. Still sharing my love of science with my students. Teaching 8th grade the last couple years after many years teaching 6th - in my 18th year total. My oldest is in the beginning stages of the college search. Colgate is on his preliminary list :) Our Jamie's Run, which raises money for childhood cancer research at CT Children's, will be in its 15th and final year this November 3! Check out more at www.jamiesrun.org.

Kretchmer, Andrea (1984) Masters in Geology from UCLA; Affordable Housing Developer at Xenolith Partners. I was a practicing geologist from 1987 to 1996 and started developing affordable housing in 2005. We encounter brownfield conditions at most of our sites so I get to apply my geology skills every so often. My firm name, Xenolith Partners, is my silent nod to my geology past. It piques people's interest and I enjoy telling them why I chose it! I'm in touch with beloved former professor Rich April who is now spending time in and around NYC.

Kuhlman, Rob (1973) MA Geology Bryn Mawr College 1975, additional grad credits at Univ of South Carolina and BMC; retired Geology Professor from Montgomery County Community College. Because I've rarely (if ever?) contributed to Geology Newsletters over the years there's a lot to catch up on. I retired in 2015 from an immensely satisfying career teaching a variety of geoscience classes at Montgomery County Community College (next county upstream from Philadelphia). I was fortunate to have had terrific students and supportive department colleagues; and I somehow survived an indifferent, marginally competent, and at times obfuscatory administrative bureaucracy – which I sense is becoming rather commonplace in higher education in general, unfortunately. In the last 20 years of teaching I got rather deep into computer-based instruction and reconfigured all my classes away from content-based instruction and more into process-based instruction. The Kitzmiller vs. Dover Area School District trial really shook me up – it was clear that in general education we were doing a lousy job teaching the process of science, e.g., How is it we know what we've come to know and understand? Kevin Padian (Geology 1972) testified at that trial and he was a source of support to me at that time. Enough of that...through the 38 years of teaching I was lucky to be able to ride my bike to work, and I continue to

ride recreationally though my son can now drop me at will. With retirement on the horizon I joined the board of directors of the Schuylkill River Greenways and served with that great organization for 14 years. In my last semester I bought a kayak as a retirement present to myself, and white water kayaking has become an important part of my warm season. Last year I volunteered with the SRG's non-profit outfitter Take It Outdoors as a guide and safety boater (which is, in essence, a cross between a sheep dog and a traffic cone). When not kayaking I tend my little vineyard and make marginally acceptable wine. And...for others from the class of 1973 who need to know this, I continue to carry a pocket watch – over the years I progressed from Scotties to Hamiltons (the watch, not the town). To wrap up, I came to Colgate knowing I wanted to major in geology, and Chief, Bob, Swinch, Don, Dan, and Blaine not only gave me a terrific grounding but also instilled and nurtured the sense of joy which we all feel when we do it and do it right. I'll never forget those years; they were the best.

LaCroix, Pierre (1978) MS Syracuse University 1980; Sr. Research Geological Consultant at Saudi Aramco / Exxon Production Research. After graduating from Colgate in 1978, I received my MS in Geology at Syracuse University in 1980 and began working at Exxon Production Research in Houston. For the next 17 years I worked on geological modeling projects worldwide, including seven years in Dhahran, Saudi Arabia. In 1998 I left Exxon and joined Saudi Aramco in Dhahran for the remainder of my career. During that time I focused on geologic modeling and reserves calculations for the Kingdom, teaching modeling and geostatistical training for recent graduates, and due diligence joint venture projects. I retired in December 2015 and currently live in Bend Oregon with my wife Jo.

LaPan, Mark (2019) Master of Engineering in Geoscience from Cornell University; Mine Production Engineer at Sibanye Stillwater. Spent time after grad school working as a staff civil engineer for a consulting firm. Then, moved to an underground geologist roll at the Stillwater Mine in South Central Montana. Spent 2 years in geology and now am done with my first year as a mine production engineer. Glad to talk to any students looking to get into mining or that would like PGM deposit rocks.

Lattimore, George (1975) MSc in Drilling and Well Engineering; Engineer and Project Manager at Diakrino Ltd. I'm involved in a fascinating re-activation of an old shallow oilfield discovered by the Dutch in the 1930's, abandoned when the Japanese invaded in WWII, reactivated by the Dutch until Indonesian independence; lying fallow for some years now. Remote location in Papua, western portion of New Guinea Island. Added attraction of deep (3000m) high pressure gas for mini-LNG processing. In-

terestingly I was Drilling Manager for British Gas for the discovery well locating the gas in 1995, deemed "stranded" at the time. In the 1990's the locals were still using bows and arrows; now cash is king in the scattered jungle villages. As I said, fascinating prospect.

Leslie-Bole, Benjamin [Bole] (1980) Masters of Science Glacial Sedimentology at University of Delaware; Environmental Geologist / Partner Risk Management at ERM (Environmental Resources Management). I retired from ERM in 2016 then taught high school environmental science and California water issues for six years. Now traveling, finding amazing places to snorkel, MTB trips in the southwest, and exploring our fascinating local SF Bay Area geology. Life is beautiful!

Luftglass, Bryan (1977) MS Scripps Institution Oceanography; Retired (more or less). Living a dream, skiing winters in Utah, spending summers at the Jersey shore and traveling the west in between. My tenuous remaining link to geology is I lead geology tours for skiers and boarders on the mountain and for snowshoers here.

Mecray, Ellen (1990) MS University of Rhode Island, Graduate School of Oceanography 1994; Regional Climate Services Director—Eastern Region at National Oceanic and Atmospheric Administration (NOAA). Thank you for the opportunity to update Colgate friends and colleagues! It was wonderful to visit 'Gate in 2018, for the first time since graduation. A few Colgate grads visited to share our experiences as authors of the fourth National Climate Assessment. I also served as the Coordinating Chapter Lead Author for the fifth assessment, Northeast chapter, released in November 2023. I worked at the US Geological Survey for a decade, then moved to NOAA in 2005. I lead technical assistance with NOAA's climate services, working with states across the east, as well as with the private sector in energy, transportation, human health, and most recently insurance. It would be so great to hear from Colgate pals! Hope you're all doing well!

Michaels, Julian (2011) Masters of Science at University of Colorado-Boulder; Senior Development Geologist at BP. Celebrated 5 years on working at bpx Energy in Sept. 2023. I've been working in the Eagle Ford Business Unit developing oil and gas resources in South Texas while living between Denver and Buena Vista, CO. I've met up with Nick Pollock '11 a few times in the past year to talk rocks and get outside, as well as met up with Dana Bohan '11 last year. Looking forward to reading everyone's updates!

Michel, Marc (1998) PhD Stony Brook University 2007; Associate Professor at Virginia Tech. I left Colgate in 1998 with little to no career plan but was fortunate that the alumni network allowed me to land an entry-level position with a startup environmental consulting firm (Lessard En

vironmental , Inc.) near Boston, MA. I worked for more than 4 years at the company, mainly focusing on the remediation of subsurface petroleum contamination. It involved a mix of fieldwork, data analysis/interpretation, and technical writing. These experiences provided valuable skills and knowledge that made me competitive for graduate school. In 2007, I completed a PhD in geosciences at Stony Brook University. My thesis involved using synchrotron-based methods to determine the atomic structural characteristics of environmentally important nanomaterials. Subsequently, I was a postdoc and research associate at Stanford University for over 4 years, expanding my research to include the structures, properties, and behaviors of natural and engineered nanomaterials. In 2012, I started as an assistant professor of geosciences and nanoscience at Virginia Tech. I was promoted to associate in 2019 and also assumed the leadership position of the Division of Nanoscience, overseeing an undergraduate degree program with approximately 90 majors in nanoscience and nanomedicine. Virginia Tech has developed significant strengths in nanoscience and nanotechnology, including the NSF-funded center NanoEarth, part of the National Nanotechnology Coordinated Infrastructure, where I currently serve as deputy director. My research group focuses on environmental nanoscience, specializing in developing scalable synthesis methods for nanomaterials with tunable properties for applications in water treatment, catalysis, energy storage technologies, and more. I teach courses in environmental nanoscience, mineralogy, and 3D design and additive manufacturing, as well as seminars that help students engage successfully in undergraduate research and plan for their future careers. There are excellent graduate education opportunities here and I am always interested in talking with prospective students and forming new research and teaching collaborations. In addition to work, my wife, Nieves, and I are fortunate to have 3 kids. None of them are currently interested in geosciences, but neither was I at that age. Hope all is well and happy to hear that the department is adapting to an ever-changing landscape in terms of student interests and societal needs.

Mitchell, Ray '76 and Sue '81 [Hicks] PhD Johns Hopkins University, retired Petroleum Geologist from ConocoPhillips. Sue and I continue to live most of the year in Grand Isle, Vermont. Yes, it is an island on Lake Champlain. We bought a small home in Kansas City, MO during the pandemic to facilitate extended stays near 3 of our 4 sons, and 5 of our 7 grandchildren (the other family lives in Tulsa about 4 hours from KCMO). We are both active volunteers in the Fire Dept in Grand Isle, and Ray is an EMT (and President) of the rescue squad. We do a lot of boating when the ice is gone. Sue's hobbies include quilting and knitting, Ray does wood working. When we are in KCMO we do a lot of babysitting!

Nathan, Erica (2018) PhD Brown University 2023; Geoscientist at ExxonMobil.

Nentwick, Lucy (2023) GIS Analyst for Nationwide Rivers Inventory at National Park Service.

Newton, Alicia (2002) PhD from University of South Carolina, senior Scientific officer at Drax Group. In 2022 I took up a role with Drax, a renewable energy company transitioning into carbon removals through BECCS. I've built a sustainability science and evidence team to look after everything from geological storage and injection through to forest carbon science, and even have my first PhD student, who's based out of the University of Surrey. I'm still living in London with my husband Edwyn, and we're enjoying a bit of quiet time after surviving six months of renovations and construction. I'm still finding time to sing, and have taken up figure skating in addition to running and the odd bit of ballet in between video calls and work trips to the more obscure parts of Yorkshire.

Nugent, Paul (2021) I just spent two years working in environmental economic consulting with a company in Cambridge, MA. I recently left that job and am looking for something to do while I work on application materials for grad school, which I hope to start next year! And check out the paper William, Di, Victoria, Faith, Lily, and I published this past November in American Mineralogist!

Padian, Kevin (1972) PhD Yale MAT 1974; Distinguished Professor and Curator Emeritus, Department of Integrative Biology and Museum of Paleontology at University of California, Berkeley. First and foremost, I'd like to draw everyone's attention to the Linsley Fund, established in the Department over a decade ago for two reasons. First, it memorializes the great teaching and advising of Bob Linsley ("primus inter pares" of an historically great teaching department).

Second, it provides a rising senior a couple thousand dollars to do what's necessary to rise to the next level of academic accomplishment. Maybe it funds that last field season, a trip to museums to study specimens, a research collaboration with colleagues from another institution, or a trip to GSA or another conference to network with potential graduate advisers. The letters we get back from recipients each year testify: this is a game-changer for their careers. If you'd like to contribute, so that we can expand the number of awardees, contact William Peck. This is not an investment fund: you donate this year, it's awarded this year. Thanks.

On the personal side, I'm well into my fourth year of retirement, but still keeping my hand in. In 2021 we published a large edited book on the microscopic bone structure (histology) of fossil vertebrates and what it tells us about their evolution and physiology. We also published a mon-

ograph on Quetzalcoatlus, the largest flying animal (pterosaur) that ever lived; our particular focus was on how it walked and flew, which was unlike any other animal. In 2022 I published a paper about why the arms of T. rex were so short, which showed that every other published study or hypothesis about its function (since the early 1900s) were biologically impossible (amazingly so). I suggested (with some temerity, a result of our P&R indoctrination) that the clue to figuring out this problem was to stop focusing on what the useless arms could do (nothing) and focus on how their reduction helped the animal as a whole. No spoiler alerts here. If you're really bored or just a dino geek and would like to read any of this, drop me a line. kpadian@berkeley.edu.

I hope these newsletters give everyone a sense to stop and rejoice, raise a glass, or just chill out and have a quiet think about what a great college experience we had, and about what an incredible department nourished us, no matter when we went or what interested us. Please find a way to include Colgate, and our incredible department, in your legacy. Rock on!!

Pearson, Hayley (2019) Monash University MSci 2021, Sustainability Analyst at L Founders of Loyalty. After getting my Masters in Sustainability at Monash University in Melbourne, Australia, I travelled for 10 weeks around Australia living in my car and seeing many beautiful and fascinating geologic sites. I have since moved back to Toronto, Canada and am now happily working as a Sustainability Analyst for a company based out of The Netherlands. Looking forward to reconnecting with fellow alums and professors at reunion this year!

Peters, Tyler (2014) Certificate in Landscape Architecture from UCLA; Landscape and Urban Designer at MRY Architects. Recently started a career as a landscape architect.

Quinan, Matt (2017) MS Florida Atlantic University; PhD Candidate at University of Southern California. I started a PhD program in the Earth Sciences Department at USC in 2021 researching marine geochemistry. Just last week, I was at the AGU Ocean Sciences Meeting where I presented on two of my projects; assessing the viability of ocean alkalinity enhancement through the addition of olivine to coastal sands and Si cycling in the sediment of the Cocos Ridge.

Rae, Mary (1975) University of Oklahoma School of Medicine; retired Physician. After graduating from Colgate in 1975, I began my masters in geology at the University of Oklahoma. I decided to change course and go to medical school. Jim McClelland was kind enough to write a letter of recommendation for me even though I abandoned geology. He pointed out that geology is an eclectic field and that my undergraduate curriculum was excellent preparation for the study of medicine. It all worked out and I practiced

Emergency Medicine for twenty years and transitioned to Primary Care for the last fifteen. I am now happily retired and live in Oakland, CA with my husband, Cody Arnold '75. I keep busy helping out with our two grandkids and teaching ESL to Afghan refugees. I've also been writing mystery novels with my co-author Wanda Venters, a friend from med school. Our first book, Break Bone Fever, was a finalist for the Colorado Book Award. Our second book, Breaking Apart, came out in December. I've learned that it's more fun to write a book than to market it, but perhaps readers of this newsletter might want to take a look at our books on Amazon.

I just bought a book on the geology of the East Bay and hope to start making sense of all the "young" formations I see on hikes through our hills.

Rahman, Khaled (1985) MS in Geology University of Pennsylvania; retired from RMD Environmental Solutions / Citadel EHS. Eventful past year or so - In late 2022, my partners and I sold our environmental consulting firm. In July 2023, Carol Bach (UC Davis, 1984), my fine spouse of ~30 years, retired from the Port of San Francisco. In December 2023, our daughter graduated from UC Santa Barbara. Then, I joined Carol in retirement - we kicked things off with a family trip to New Zealand and plans for more to follow.

Rapoza, MC (2023) University of Idaho. I am finishing up my first year as a grad student at the University of Idaho where I am 3D modeling a phenomenon known as ridge jumps!

Rodgers, Emily [Duncan] (2002) MEM Duke University, Energy / Sustainability at EIG. Greetings from Houston! While my trips to Hamilton are not as frequent as I like, I still pepper in a little geology here in there, most recent with a trip to Volcanoes National Park in Hawaii last summer with the family. May be too soon to tell, but my ten year old son is showing a budding interest in geology, his "passion project" at school was all about rocks and he's my constant hiking companion who appreciates a stop to stare at an outcrop or funny piece of float. I'm the Head of ESG at EIG, a private equity firm focused on energy, where I get to spend a lot of time in some fascinating places talking to others about how to best protect the environment and its inhabitants. Life is beautiful, but going too fast, I can't believe how long ago we roamed the halls of Lathrop!

Rohr, Cam (2020) Account Executive at Fortitude Systems. I live in Arlington, VA outside of DC. I work for a consulting company centered around hiring great people (helped hire 4 more Colgate Alumni since I've joined obviously) and although I don't use my Geo skills in my work I do find myself out in the mountain ranges to the west figuring out the stratigraphy. I highly recommend a ride down Skyline Drive for anyone that makes their way down to

Virginia. Other fun news I'm newly in a relationship with Julia Vandyk '19, she was a biology major and a member of the Women's hockey team at Colgate. Turns out all those long hours in Ho Science center resulted in more than just a degree!

Rouse, Bob (1983) Regional Sales Manager at Fundermax. All is well here in Chattanooga, TN. I recently took a new position as a regional sales manager for an Austrian company that sells laboratory products. My wife, Julie, teaches Kindergarten. Oldest son, Joe, lives in Charleston, SC and works in cyber security. Daughter, Katie, is a data scientist for a gaming company. Son, Mike, works for Clorox in Atlanta where he sees Steve Clarke '83 also geology major.

Sacrison, Ralph (1976) MS Mining Engineering New Mexico Institute of Technology 1980; Consulting Engineer & Geologist at Sacrison Engineering. Continuing home-based single parent work as an independent consultant – Sacrison Engineering – established in 2004. Primarily western hemisphere with service areas in mining, geological, hydrological, environmental and maintenance engineering for mines and related firms. In English, Spanish & occasionally Portuguese. The home-based work allows comfortable lifestyle for my disabled adult daughter. Appointed in 2023 to a subcommittee of the Nevada Commission on Autism Spectrum Disorders, and since 2006 a member of the Northern Nevada Autism Network. Complemented being a 2005 signatory of the Global Warming Petition with becoming a 2023 signatory of the World Climate Declaration. Was an advisory commissioner for natural resources to Elko County, NV for ten years. In the thirty years since returning to my home state, recurring campaigns by urban centers to mine water from rural Nevada have received my attention. I am on board with mining minerals wisely, but mining water has never been wise.

Sandberg, Andy (1981) I retired from a 36-year career in the oil and gas business in 2019, during which I crossed paths with many fellow Colgate alumni. I spent most of that time working for Samson Energy, with previous engagements at Conoco and Total. Since retirement, my wife & I have been splitting time between Houston, Texas and Vancouver Island, British Columbia. Best wishes to all.

Schopf, Ken (1990) Science Teacher at The Winsor School in Boston, MA. After going to graduate school for paleontology and working as an educational consultant, I have been teaching science to grades 5-12 for about 20 years. I am fortunate to teach an elective in paleobiology every other year, which includes a field trip to collect and analyze fossils from the Hamilton. Every time I have a coke I think of Bob.

Schulenberg, John "Ted" (1952) MA in Geology from The University of Texas, Austin; retired Geologist. I graduated in 1952. We had a two-man geology department of two very nice gentlemen who had not kept up with the times. But I remain a grateful graduate.

That year I enrolled in graduate school at The University of Texas in Austin. I withdrew in spring 1953 to enlist in the Coast Guard. I graduated on 7/31/53 and married a lady from Smith on 8/1/53. We spent two years in Oregon with the USCG. I returned to UT in 1955, finished my MA in geology in the fall of 1957 and went to work for Chevron Oil.

The next 11-12 years were spent all over Texas and New Mexico in various offices and on various seismograph crews. Was then transferred to Chevron Overseas (COPI) and worked on Far Eastern geology out of the San Francisco office, followed by two years each in Spain and Egypt. Then to their Research Lab in La Habra CA.

Then I quit Chevron in 1977 to work with a pair of ex-Chevron guys who had opened an office in Houston. Stayed with them for about 12 years and then moved to Denver to work with another pair of ex-Chevron guys who ran a small international company. They got bought out, so I accepted an offer to serve as Technical Advisor to the National Oil Corp. of Korea (South of course). Stayed with them for almost five years, first in Seoul and then a year each in Vietnam and Tunisia. Sandwiched in between the two latter countries was a year in Kenya with the World Bank.

That got me to 1995 when I retired and moved to Kerrville, Texas. Here I taught courses in general geology and Hill Country geology at our Adult Education Center for about a dozen years. More recently I've been working on geological displays and online backup materials for a new History Museum which should open in Kerrville in 2025.

Along the way my wife and I raised three kids, an ornithologist son (perhaps best in the world on neotropical birds) and two daughters both of whom have great fondness for and lived in Egypt at one time. My wife died in 2010. I remarried in 2016 and she died last year. That still leaves me.

Scott, Dick (1962) Retired Airline Pilot from TWA, Piedmont, USAirways. Ivylyn and I have moved to Mirabella at ASU, a CCRC on the Arizona State University campus. Tempe s a far cry from Hamilton, but a very invigorating environment nonetheless.

Shah, Anay (2014) MBA; Geologist at AECOM. Acquired the ASBOG Professional Geologist Certification in 2021 and am now a Licensed Professional Geologist in Virginia and Pennsylvania.

I began a part-time Masters of Business Administration Degree at the University of Maryland and am expected to graduate at the end of 2025.

Snyder, Mike (1980) MS Duke, MBA Southern Methodist University; Project Management at FreddieMac. Enjoy spending my work days with a bunch of PhD data scientists and economists, and attorneys. A far cry from geology, but fun and I'm learning a lot about fair lending and the housing market. And using my Colgate Geology education every day, strange as that may seem.

I live in Dallas and see Colgate friends in DC regularly when there for work, and tag on a visit to my daughter in Philly, where she's working on a MS in genetic counseling at Penn.

Solomon, Josh (2014) MAT University of Vermont 2021; Geoscientist and Teacher at JMR Geosolutions and Mt. Abraham Union High School. Hello fellow rock lovers! I'm finishing up my third and final year of teaching public high school Earth Science here in Vermont before moving up to Anchorage, Alaska this summer. I'll be getting married to my partner of 7 years this July in the town we in which we met, Seward, AK. Teaching through the pandemic has been quite the whirlwind with many ups and downs, but I know I will surely miss trying to make 9th graders even half as excited about tectonic processes as I am.

While I wrap up the school year, I have started contracting part time for a geoscience consulting business based in Alaska called JMR Geosolutions. This summer, I'll be working the summer field season all across the state and potentially signing on to the company in a more full time role this fall. I already regret not taking William's Economic Ore Geology class as I sit here trying to teach myself about ore deposits between grading labs and quizzes. Regardless of how it all unfolds, I'm excited for our next adventure and if you ever find yourself in Alaska, please don't be afraid to reach out. Keep on keeping on, everyone!

Spencer, Staley (2013) MS and PhD in Earth & Planetary Sciences from the University of New Mexico; Postdoctoral Researcher, Geomorphology at Desert Research Institute, Reno, NV. 2023 was a big year. Finished my PhD, got engaged, and landed a postdoc!

Stanley, Gordon (1959) School of hard knocks! Semi-retired from the antique business. Have not found any oil wells yet, but found a wife with some, so gave her good advice from Woody and Doc Trainer!

We check formations in Maine summers and Texas in winters.

Steinglass, Jedd (1999) senior Project Manager at Woodard & Curran. Just celebrated my 10th anniversary at Woodard & Curran working to assess and remediate

contamination at sites throughout the US as well as assist with brownfields redevelopment projects closer to home. Feeling fortunate to live and work in Portland, ME along with my wife Amanda and our kiddos Eliza and Natalie (7 and 4). Wishing the very best to all in the Colgate Geology community and I'm happy to help new (or not so new) graduates network in the environmental engineering and consulting world.

Stewart, Becky [Crowe] (1990) Scientific Copywriter in CSols Inc. In 2010, when I was laid off from my publishing job, I decided to ramp up my freelance editing and writing work. It was quite successful and eventually landed me a full-time job with one of my clients (in their marketing department). I was recruited from that job to my current job because of my science background and marketing experience. I have continued to write and edit as a side hustle, and over the years I have written for Discovery Education, the National Science Teaching Association, and the American Ceramic Society, among others. If you need an accomplished science writer or editor for a pet project, let me know.

Tiller, Charlie (1992) MS Geology, University of Minnesota 1995; Professional Geologist at Westwood, Twin Cities, MN. Happy to report that I am finally on the home stretch of a fulltime career in environmental geology, aiming to close it out in 2025 after 30 years at the wheel. That Colgate education paid off well for a poor kid from the Tug Hill, but that's not all. With every passing year, I truly appreciate more the lifelong personal and civic value of a top-notch liberal arts education. My work has shifted in recent years from tired brownfield remediation to exciting front-end consultation for renewable energy developments. How did this shy boy ever grow into business leadership? Deep time, perhaps. So glad to be doing my own small part to help with the great energy transition. My wife Anne and 4 cats in St. Paul notice a lighter spring in the step these days. My best wishes to all my fellow Colgate Geology alumni friends!

Torell, Christopher (1990) MS in Environmental Engineering from Syracuse University 2000; area Environmental Manager at Heidelberg Materials Northeast NY LLC. We're always seeking new grads and interns. HM is one of the largest aggregates suppliers in the world. I'm located up here in Syracuse, and I manage the environmental aspects of ~ 40 quarries in NYS.

Totten, Fred (1953) Misc. Military courses, Mine engineer / geology at Gouverneur Talc Company. I recently finalized a document titled "Balmat-Edwards Talc District" sub titled "Life and Death of an Industry". If you would like the link, email wpeck@colgate.edu.

Tremblay, Jeff (1978) MS Geosciences University of Arizona; retired. Just moved to Tularosa, NM to be near my

older daughter and her family after 39 years in Phoenix. My younger daughter is attending Colgate now as a psychology major but her two best friends are in Geosciences so there is still hope for her! My wife and I just had a very fun visit with Amy Leventer and her husband in Bisbee, AZ, a marvelous place where everyone should spend a little time. I am mostly retired but still doing a little water rights consulting for the Bureau of Land Management.

Tubman, Stephanie (2008) Masters of Geology '13, Michigan Technological University; Curriculum Developer at Michigan Technological University. Living the remote-work dream in Rochester, NY, back in home terrane! Come visit if you are passing through.

Unger-Harquail, Evangeline (2022) Government Contractor at Concurrent Technologies Corp. I moved to Washington, DC at the end of November 2022. I currently work as a government contractor supporting the Deputy Assistant Secretary of the Air Force for Environment, Safety and Infrastructure, Headquarters (SAF/IEE). My main work focuses on energy resilience, energy pilots, and safety programs.

Vendetti, Jann (2001) PhD UC Berkeley Integrative Biology and Museum of Paleontology; Associate Curator of Malacology at Natural History Museum of Los Angeles County. Keeping busy with mollusks. I've been focusing on terrestrial ones mostly these days, but am excited to get some marine experience this Spring on an oceanic cruise funded by the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and Ocean Census, which will explore the ocean floor biota between the Okinawan islands and Taiwan. Reach out if you are in Los Angeles!

Volckmann, Dick (1960) BS, PhD; retired. It's been many years since I visited the Colgate campus, but the echos of my time there remain loud. And I marvel at the experiences that Colgate Geology is providing students today. My father, Fred Volckmann (class of 1935) majored in Geology under Bob Woodruff and Dave Trainer. So at the beginning of my freshman year I met with Dr. Woodruff, who suggested I take his introductory course. I was hooked! I was fortunate to be guided by Drs Woodruff and Trainer and by Bob Linsley, who was new on the faculty.

I attended the University of Michigan's summer field course in Boulder, Colorado, and subsequently earned a BS and PhD from the U of M on my work in the Sangre de Cristo Mountains of Colorado. At Michigan I wrote a paper deriding the concept of "continental drift" as nonsense. But, while on a post-doctoral year in Holland and Spain, I was shown the light from the European geologists - that plate tectonics is an actual thing! Really?! After my stint in Europe I spent 13 years with the USGS,

and although in subsequent years, life had plans for me outside of geology, I still treasure the memory of my years at Lathrop Hall.

A final note...I now live in the Pacific Northwest where the geology is mind-bending! Nick Zentner, of Central Washington University, has several fascinating YouTube videos about the geology of the PNW. Something to check out while you're resting.

Vyhnal, Chris (1987) MS Geology 1989 University of Tennessee; PhD Geochemistry 1996 Dartmouth College. Chemistry and Physics teacher, Philip Bard Chair for Excellence in Science Education, The Thacher School. I find that I'm more frequently revisiting some analytical methods from my Colgate days (PLM, XRF, SEM-EDX) as part of a pedagogical shift in my chemistry instruction away from standardized tests and toward a new(ish) course with applications in archaeology and art. Over the last 4 years, I've published several papers on the course and its pedagogical approach (check out my Google Scholar or Research Gate pages or shoot me an email if you're interested in learning more).

I still keep in touch with a bunch of my buddies from Colgate--we were just in New Orleans in December for a fun weekend getaway--but I haven't been back to the campus in a while now. I continue to publish curricular materials on the chemistry of art and archaeology and find that my early training at Colgate in PLM and XRF comes in handy in this respect. My wife Theresa and I are about to leave for South Africa to chaperone Thacher's Chamber Singers on their Friendship Concert Tour there, and I'm looking forward to seeing in person all those rocks we studied in Colgate's Petrology course back in the day (carbonatites, kimberlites, and the Bushveld granites and mafic rocks associated with the Pilanesberg Complex).

Wagner, Mark (1978) Sr Vice-President Hydrogeology / Sustainability at Arcadis US, Inc. Just completed by 43rd year with Arcadis, a Dutch-owned global company focused on resilience, mobility, and intelligence. For past 25 years, I have been working in Mexico and Latin America on environmental and water resources projects for multinational companies. Most recently supporting industry with sustainability and the nexus of water, energy and carbon emissions reduction through innovation in operations and water recycling techniques. This support also includes the evaluation of emerging contaminants such as 1,4-dioxane and PFAS which are recently of interest to environmental regulators in Mexico and Latin America. Published a wide array of technical articles in journals in Mexico and presenter/collaborator with the Autonomous University of Mexico (UNAM). Will continue to work until "they carry me out in a box".

Weatherford, Emmett (2009) Hello! I am continuing to live in Wollongong, New South Wales, Australia, with my wife Clem and my daughter Frankie, who is growing up fast! Nowadays I work as an environmental officer in Local Government; the full title of my role is Biodiversity Monitoring and Assessment Officer, meaning I look at plants and animals instead of rocks, though they still play an important underlying role in the ecosystems I work in. If anyone ever comes for a trip to Australia, drop me a line and swing by to say hello!

Webb, Graceanne [Howard] (2017) MBA at Southern Methodist University; Merchandising at Walmart. After graduating with my MBA in 2023, I have settled in Bentonville, AR with my husband Merritt Webb and we are looking forward to a great 2024 exploring our new home!

Weiss, Charles “Chuck” (1983) MS and PhD University of Illinois at Urbana-Champaign; Senior Research Geologist at US Army Engineer Research and Development Center. Charles Weiss, Ph.D. was just named as the 2024 recipient of the Robert E. Philleo Award. Weiss, who joined ERDC in 1991 as a research geologist, is a senior research geologist at the ERDC Geotechnical and Structures Laboratory. He received his masters and doctorate in geology from the University of Illinois Urbana-Champaign.

The award, presented by the American Concrete Institute’s (ACI) Concrete Research Council, recognizes persons or individuals for “outstanding research in the concrete materials field, or for outstanding contributions to the advancement of concrete technology through application of the results of concrete materials research.”

In naming Weiss as the 2024 recipient, the Council said he was chosen due to his “exemplary research and service to the profession in concrete materials, sustainability and durability.”

Established in 1992, the award honors Philleo who was a past president and honorary member of ACI and chairman of the Concrete Materials Research Council, now the Concrete Search Council. Weiss will be honored during the ACI Spring 2024 Concrete Convention in New Orleans.

Wiener, Rich (1973) M.Sc 1976, PhD 1981 University of Massachusetts at Amherst; retired geologist; volunteer teaching at UNC Asheville OLLI. I’ve enjoyed teaching a variety of geology classes for laymen during my retirement time in Asheville the last 12 years. I occasionally meet with classmate Jim Hibbard in the Raleigh area.

I’ve been married 40 years with 2 daughters and 3 grandchildren in NC and MD.

Williams, Jason (2003) SUNY-Oswego MSED; Earth Science teacher at Liverpool High School, NY. We just returned from a trip with students to Iceland. The land-

scape was incredible and I loved trying to do my best impression of an OC Geology professor! Back home in CNY, I am often at Lebanon Reservoir (just a few miles west of Colgate). Please reach out the next time you are in Hamilton if you would like to meet up for a drink or a meal!

Wilson, Karen (1985) Masters in Environmental Studies University of Montana; retired environmental scientist. 2023 and 2024 have been eventful years. I retired from the Montana Department of Environmental Quality after working there for 28 years. I also decided to move to a warmer climate, where I can bicycle year-round. In October, I’ll be a full-time resident of Fort Collins, Colorado. Hello to any other Colgate grads living in Colorado.

Zehner, Jessica (2023) Year one of my Masters! Graduate student at Montana State University. This December I had the opportunity to travel to Nepal to collect river sediments for my masters research in the Kosi watershed, which drains Mount Everest. It was an incredible opportunity that I couldn’t have had without Colgate geology :)

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Courtesy of Paul Harnik, Gulf of Mexico fieldwork.