# COLGATE UNIVERSITY

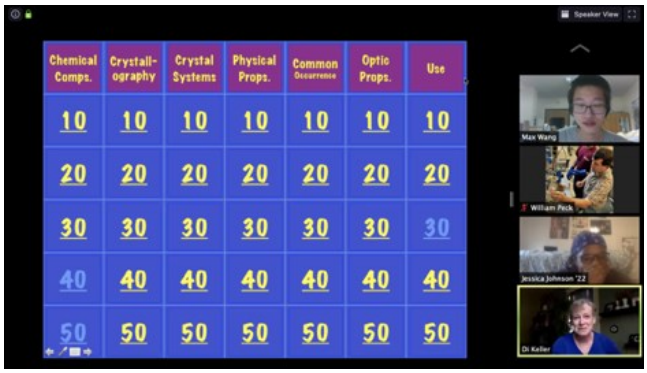
## GEOLOGY DEPARTMENT ALUMNI NEWSLETTER

Issue 12

Summer 2020

Hello from Hamilton!

I am writing this on a beautiful day in Hamilton, and it is incredible to think of all the things that have happened in the past few years since the last newsletter. In March Colgate sent most students home, and instruction went almost entirely online using Zoom and other platforms for the remainder of the semester. Labs, class discussions, even Di's famous end-of-Mineralogy Geopardy! game were done online, and we all made it through. Unfortunately the summer field class and field work had to be canceled, but some summer research was able to go ahead and be performed remotely. Amy Leventer boxed-up microscopes that she takes on Antarctic cruises and sent them to two students so they could do their diatom taxonomy at home, and other students worked on remote sensing and geophysics projects with Joe Levy and Aubreya Adams. At this point it is unclear what the Fall will bring, but we are confident that we will all pull through it together.




We have had a lot of changes in the department in the past few years. In 2018 Rich April retired, and Connie Soja retired in 2019. Rich is still a presence in the department – he has agreed to continue to curate the Linsley Geology Museum over the next few years, so we aren't losing him and his institutional experience entirely. This summer Dave Linsley, who worked as a long-term technician in the department also retired, although we will still be darkening his door with questions about local geology. Finally, we are sorry to lose Jodi McNamara to retirement at the end of the summer– She and Dick plan to split her time between New York and Florida. Jodi has been a mainstay for the department for almost 20 years, and losing both her guiding hand and institutional memory will be a real blow to the department.

After a national search last year we are thrilled to have hired Paul Harnik, an invertebrate paleontologist who comes to Colgate this fall from Franklin & Marshall College. We also are very happy to announce that Alison Koleszar (CU '04) has joined the department, after teaching as a visitor for several years. They both have written messages in the newsletter.

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

With best wishes,

William H Peck
Professor and Chair
Department of Geology

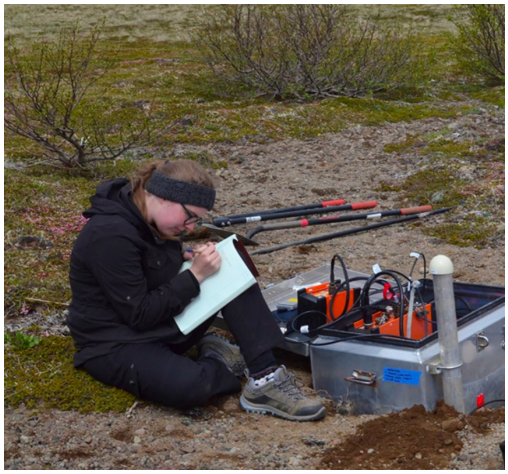
# Table of Contents

# FACULTY NEWS

## Aubreya Adams
Assistant Professor

For the past three years, I've been working to solve earthquake-related mysteries along the southern coast of Alaska, where the Pacific Plate subducts beneath the North American Plate. Across the globe, subduction zones are home to copious earthquakes and generate the very largest of earthquakes – and Alaska is no exception. The southern coast of Alaska experiences thousands of earthquakes a year, some of which are too small to be felt while others destroy cities. Yet, earthquakes are not distributed evenly along the Alaskan subduction zone. In some regions, the tectonic plates appear to "lock" for long periods of time, releasing most of their energy during enormous but infrequent earthquakes – like the 1962 Great Alaskan Earthquake, the second largest earthquake in recorded history. Immediately juxtaposed to these regions are sections that appear to "creep" instead, releasing energy slowly but constantly, and which have not generated large earthquakes for at least 10,000 years.

From 2017-2019, I teamed up with nine other seismologists to design and carry out the Alaska Amphibious Community Seismic Experiment (AACSE). Our mission was to gather the enormous dataset needed to answer questions about the factors that control why large earthquakes occur in some locations but not others – and to share that dataset publicly so that scientists could tackle the problem using many types of analyses. Gathering this dataset was technically challenging due to the large yet remote geographic area to be covered and because of the inherently amphibious nature of subduction zones, which required numerous types of instruments to be simultaneously deployed. The final array of seismometers included 30 stations on the Alaskan Peninsula and Kodiak Island as well as 75 ocean-bottom seismometers (OBS), all left in place for 15 months to monitor ground motion on land and on the seafloor, plus 398 "nodal" seismometers deployed in a very dense array on eastern Kodiak Island for one month.



Jordan Tockstein '20 records notes on the installation of a seismometer at Shoemaker Lodge.

During the summer of 2018, I led a team including astrogeophysics major Jordan Tockstein '20 to install 16 stations in remote regions of the Alaskan Peninsula. Most locations were inaccessible by road, so we used any transportation necessary to bring their seismometers to the targeted locations – wheeled planes, float planes, a helicopter, and we even chartered a fisherman's boat to install a station on an uninhabited island. Once we arrived on site, we buried our sensitive instruments in the ground, where they continued to measure ground motion as small as tens of nanometers for 15 months. The power systems and GPS antennae exposed at the surface were camouflaged and reinforced in bear-resistant boxes to deter interference from curious, but destructive, marauding bears. Leaving a station after installation is a leap of faith, and any number of things may go wrong as the instrument sits in isolation for months – floods, power failures, lightning strikes, vandalism, and yes, bear attacks. Even with our precautions, local bears displayed an insatiable appetite for our GPS antennae, which had to be replaced periodically throughout the course of the experiment!

An important component of the mission of AACSE as a community experiment was to broaden the population that can use the dataset. With this in mind, I hosted a week-long workshop in Kodiak,

Participants of the Undergraduate Short Course examine fossil-containing concretions at Fossil Beach.

AK for undergraduate students selected from universities around the country during the early summer of 2019. The workshop kicked-off with discussions, demonstrations, and activities that introduced students to Alaskan tectonics and illustrated how to access seismic data and the types of analyses the data might be used for. We were then joined by two regional geologists, who led us on a day-long field trip to explore the tectonic history of Kodiak. Our workshop wrapped up with an opportunity to see how seismic data is collected as students assisted in the recovery the nodal seismic stations from around the island.

By the late summer and early fall, it was time to retrieve our stations and discover what data our efforts had yielded. As part of the data retrieval, I served as Co-chief Scientist aboard the National Science Foundation (NSF) Research Vessel Sikuliaq to recover 45 of the OBS. If leaving a station on land is a leap of faith, leaving one on the seafloor is a hopeful blind plunge into the unknown – because you cannot see the equipment as it sits on the seafloor up to 5 km beneath you. We used multiple methods to bring the instruments to the surface, including activating floating buoys attached to kilometers-long tow lines and manual retrieval using the ROV JASON. When faced with the challenges of the open ocean, recoveries can go wrong. We lost a few stations during recovery, when their tow lines broke and they fell back to the seafloor, and a few others never responded to our acoustic signals to "wake" them. In one mysterious case, we used ROV JASON to look for a station where it had been installed, but it wasn't there. We performed a grid search over several kilometers but found no signs of the station – no debris, no hints of buried infrastructure, no lingering tow lines. The station had simply vanished into the unknown depths. In spite of a handful of setbacks, we successfully recovered the vast majority of our stations, building an unprecedented dataset to study this region.

The AACSE project has officially concluded, succeeding in its mission to gather a public dataset to study the characteristics of the Alaskan subduction zone and to better understand the causes of and controls on seismicity in the region. The science, however, is only beginning as we start to explore the data that we collected! In May of this year, I received funding from NSF for a three year project to use AACSE data to build a model of seismic velocities in the lithosphere and asthenosphere of the Alaskan subduction zone. By examining how earthquake wave speeds change depending on the direction they are travelling, I will explore how hydration of the mantle wedge affects the seismicity and volcanic behaviors of the Alaskan subduction zone. In this new phase of the project, I will bring on-board a postdoctoral researcher who, in addition to building seismic velocity models, will also be mentored in teaching geophysics to undergraduate students. Next summer, I will host a summer research camp for Colgate students and for students from other universities who want to learn about seismic methods and Alaskan tectonics. I look forward to these exciting developments and to sharing important new discoveries with my students and colleagues.

An OBS emerges from the ocean.

Graduate students who joined the cruise through the Apply to Sail program marvel at wildlife brought to the surface with our instruments.

## Paul Harnik

Assistant Professor

I am thrilled to be joining the Geology department this summer as Colgate's new paleontologist! I study how marine animals respond to environmental change, specifically the capacities of species to adapt and move as well as their vulnerabilities to extinction. In order to predict the impacts of current and future changes in ocean conditions on marine life, it is critical to understand how species have weathered similar conditions in the past. Consequently, patterns of biodiversity change preserved in the marine fossil record are a central focus of my research and teaching.

I received my bachelor's in geology from Oberlin College and then worked for several years at the Paleontological Research Institution in Ithaca, New York. While living in Ithaca, I taught students of all ages about Northeastern geology and became smitten with the Devonian of the Appalachian Basin. In Central New York you can find evidence of ancient life and past environments in almost every rock you pick up! This was an eye opening experience for me, as I grew up in Baltimore city on metamorphic bedrock and found my first fossil on an undergraduate fieldtrip.

I received my doctorate in evolutionary biology from the University of Chicago where I studied Cenozoic fossils in order to better understand how species characteristics affect their extinction rates. After my PhD, I held postdoctoral positions at Stanford University and at the National Evolutionary Synthesis Center. Through analyses of global databases, I was able to ask and answer questions about modern and ancient extinctions that would not have otherwise been possible. I also became increasingly interested in understanding how the fossil record could be used to anticipate, and potentially mitigate, current biodiversity losses.

Skeletal remains of past populations of marine mollusks collected on the continental shelf offshore Louisiana.

I come to Colgate from Franklin and Marshall College where for the past seven years I have taught courses in paleontology, historical geology, and environmental science. While at Franklin and Marshall, I have been "putting the dead to work" to understand the impacts of anthropogenic environmental change on coastal ecosystems. By comparing communities living today with the skeletal remains of past communities, my students and I study the biological impacts of nutrient pollution and other stressors in the northern Gulf of Mexico. Each summer we collect MANY samples of seafloor sediment in coastal Louisiana, Alabama, and Florida which we use to study changes in communities and species traits over time. This work is currently supported by an NSF CAREER grant and I cannot wait to bring Colgate students to the Gulf in summer 2021!

I am excited to engage Colgate students in studying the history of life and its implications for our present-day world in and outside the classroom. This fall I will be teaching paleontology, and together we will piece together histories of biodiversity change from the scale of individual hand

samples, to observations from multiple outcrops across Madison County, to the regional and global scale using databases. I will also be teaching in the CORE where we will explore the evidence for global anthropogenic environmental change and discuss potential implications via scholarship spanning the natural and social sciences and humanities.

When I am not immersed in modern and ancient seas, I can be found exploring the outdoors with my wife, Morgan Elmore, and our daughters, Lena and Hazel. I also play traditional Appalachian music, love reading fiction, and have recently taken up pinhole photography as another way of exploring our changing planet.

If you are on campus, or see my students and I on an outcrop in the region, please stop and say hello. I would love to meet Geology friends and alumni and learn more about your experiences at Colgate and beyond, and give you a taste of the projects underway in the Paleo Lab.

## Karen Harpp

Professor

Pieces of fresh, glassy basaltic tephra produced during the 2005 eruption of Sierra Negra volcano, in the Galapagos. Karen (whose hand this is), Joe Eakin, Emily Weaver (2020 Environmental Geology major), and 3 additional students visited the islands to collect footage and interviews with local guides, residents, and scientists for the Virtual Galapagos project. Notice the colorful iridescence of the tephra pieces, because they are so young and glassy.

Hello CU Geology Alums!

I hope you are all doing well despite the challenges we are all facing these days. Quick summary from my perspective:

A) Joe Eakin and I have been continuing the Virtual Galapagos Project, which is an effort to design an online educational resource for middle school kids that teaches fundamental science concepts through the lens of scientific mysteries about the Galapagos (because, after all, who doesn't love volcanoes and iguanas, let's be honest!). The project includes online interactive pieces, 360$^{o}$ videos from the Galapagos, interviews with scientists doing research in the islands and local residents who support the scientific work, and lots to think about how geology, biology, chemistry, and physics all contribute to this amazing place. Colgate undergraduates with majors from geology to physics, biology, peace studies, computer science, environmental studies, and education have all participated over the past few years in this project designed by students for students. We anticipate having a pilot of the first Galapagos "mystery" (how endemic marine and land iguanas separated from a common South American ancestor longer ago than the age of the oldest Galapagos Island!) in a pilot form sometime this summer, as we work remotely.

B) I continue to work on research in the Galapagos, primarily exploring the development of the eastern islands and the compositional structure of the Galapagos mantle plume.

C) Erica Nathan and I have almost finalized a website that will provide access to videoconferences by researchers around the world on the front lines of mantle plume research, which were held as part of the 400-level mantle plumes classes offered over the last few years, so keep an eye open for that, coming sometime near the end of the summer/early fall.

D) Alison Koleszar and I received funding for a new ICP-MS, since the old one has been orphaned by its manufacturer at least twice and is showing its age. We hope to get that process going in the next few months as well.

My best to everyone, we miss you, and hope you are doing well!

## Di Keller
Senior Lecturer

Hello Alums! Bruce used to jokingly refer to the years between his time as a student at Colgate and when he returned as a professor as the "inter-Selleckian period." Following Bruce's lead, it seems we are currently transitioning into a new era on the Colgate geologic timeline. We have been in a time of marked turnover in department "taxa," one more akin to the end Pleistocene "extinctions" than the end Cretaceous bolide impact. Paul Pinet retired in 2015, we lost Bruce in 2017, Rich April retired in 2018, and Connie Soja retired in 2019; and there are other non-faculty retirements on the horizon. Of course, as any of you who took *Evolution of Planet Earth* know, such events open up niches for new life, and throughout these recent years we also have enjoyed welcoming new colleagues, who will shape the next era in the department.

In the classroom, my roster of lab courses has remained much the same but for Mineralogy in particular, the labs themselves have changed quite a bit. Since Rich's retirement, William and Karen team-taught lectures for the course during its first new iteration, and William has taken the reins for the two following years. Sadly, the much-loved stereographic projections lab is gone from Mineralogy but now all of optics is taught solely in lab, which has been an interesting and rewarding challenge. To those of you who may be wondering - No worries! We still do *Minerals of the Week!* quizzes and a lab practical, and the three cafe muggers still all crawl free to neso three. (Quick Minerals of the Week re-quiz: This mnemonic is for which mineral's chemical composition (1 point), and what is that composition (1 point)? (Please email your answers to dkeller@colgate.edu) :- )

Research-wise, my focus has shifted in recent years also. The soil pit that I described in the last newsletter was my last to date. However, as much as I miss soils, I feel fortunate that William invited me to join his research study on wollastonite weathering and its role in $CO_2$ sequestration. Although digging in splintery wollastonite mine stockpiles does not bring the same soothing joy that digging in soil brought me, the project has been interesting and fun, allowing me to explore new areas of scientific research while applying some of my expertise in mineral weathering and x-ray + SEM techniques. Our findings have raised new questions that led to learning new methods and developing new lab protocols. For instance, in an effort to try to find evidence for possible microbial influences on weathering processes, we examined naturally cemented aggregates from mine stockpiles at very high magnifications on the SEM last summer. Those SEM studies revealed a fantastic array of various Wow-inspiring weathering textures and precipitated weathering rinds, at a scale and resolution that we hadn't experienced before. There is still a lot to learn and figure out but thanks to the excellent work of Victoria Arnold '19, Faith McDonald '19, Lily Kuentz '21, and Paul Nugent '21, we are off to a good start! Take care!

Above: 4867 feet above sea level - a side trip to the top of Mt. Marcy during 2019 wollastonite sampling trip with students, Paul Nugent '21, Lily Kuentz '21, and William Peck (photographer). SEM image of precipitated weathering rinds (scale bar: 10 microns) taken by Lily & Paul.

## Alison Koleszar

Senior Lecturer

Hello Geology alumni and friends! This fall will start my fourth year teaching in Colgate's Geology department, and I'm particularly excited that this will be my first year as a Senior Lecturer! Most recently, I've been teaching Environmental Geology (GEOL 101) and the new course Sustainable Earth (GEOL 102), along with the Core Scientific Perspectives courses Earth Resources and Dangerous Earth. Dangerous Earth was new to me this spring but was a ton of fun as students explored non-fiction literature (with first-hand narratives of experiences of natural hazards) and merged the technical details of geologic hazards with the human experience of living through them. I'm looking forward to teaching this class again in the future!

This spring had an unconventional twist when we all left campus and went online after spring break. Many of the hands-on volcano demos had to happen in my kitchen (with assistance from a six-year-old) and be broadcast to students virtually. Discussions had to move to Zoom and to online discussion threads, and "office hours" occasionally included audio of my dog barking at the mail carrier. Students did an amazing job with this shift, though, and I really enjoyed our interactions in virtual meetings for classes, independent studies, and senior thesis projects!

Although the project start has been slightly delayed by COVID-19, I'm really enthusiastic to be launching a new research project with Colgate students on Augustine Volcano in Alaska. This project was recently funded by the National Science Foundation and includes support for five Colgate student research projects over the next three years. Together with undergrads from a partner institution and scientists at the Alaska Volcano Observatory, we'll be looking at the number and sizes of bubbles and crystals that are trapped in lavas to help us understand how magma ascends through a volcano. This has important implications for volcanic hazards at Augustine and at other volcanoes around the world, and I'm really excited to start this project with some keen Colgate undergrads!

## Amy Leventer
Professor

It's hard to believe that I have been teaching here in the Geology Department for over 20 years! I'm still having a great time, both in the classroom 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. This past year, however, I was fortunate to teach Oceanography during the spring semester also, to the Benton Scholars. The course was completed with a 10-day sail on the *SSV Corwith Cramer*, a 134-foot tall ship owned and operated by Sea Education Association. Our voyage departed from Brooklyn Piers and returned to Woods Hole Massachusetts. Along the way, we visited the Northeast Canyons and Seamounts Marine National Monument, and sailed through the Block Island Wind Farm. Over that short time, we developed an understanding of the science supporting selection of marine protected areas, sampled for plastic pollution, and were thoroughly engaged in every aspect of shipboard life – raising and lowering sails, manning the helm, standing lookout, and cleaning the ship, top to bottom, every day. Thanks to the Benton Scholars Program and to all the folks at SEA - an incredible experience!

At the upper level, I enjoy teaching Paleoclimatology and Marine Geology, both courses that have direct ties to my own research on climate change in the Antarctic and help me bring my science to my students. Students in the 2019 Marine Geology course amazed me with their proposal ideas – ranging from underwater archeology as a tool to understand the peopling of the Americas, to a direct sampling and photo mapping program to study the longer term environmental impacts of the Deep Water Horizon oil spill on benthic communities in the Gulf of Mexico.

I've had two wonderful field seasons recently. From December 2018 - January 2019, I worked on the Antarctic Ice Sheet, part of a team that hot water drilled through a kilometer of ice and sampled a sub ice lake that sits above bedrock but beneath the glacial ice. Mercer Subglacial Lake is 15 meters deep and the size of Manhattan. The lake sediments record the history of the overlying ice sheet. During January 2020, I was lucky to sail on the *Hesperides*, a Spanish Naval research vessel, in the Weddell Sea and Antarctic Peninsula. What a wonderful experience, both the science and the total immersion in Spanish culture and language. Next time, I promise to take a language class first!

Lake Mercer Camp Drone Billy Collins

Thanks to all the students who have worked in the lab, and who have completed senior projects with me – Meghan Duffy, Lillian Ganske, and Austin Sun (class of 2018), Allie Callanan, Isabel Dove, Sara Gillis, Natalie Kozlowski, and Camila Loke (class of 2019), Rachel Meyne, Meaghan Kendall, and Grace Schreiber (class of 2021), and Lauren Horstmyer (class of 2022).

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

## Joe Levy

Assistant Professor

It's been a busy couple of years since arriving here at Colgate—time flies when you're having fun teaching an outstanding cohort of students in the field!

In the classroom, the highlight since the last newsletter has been getting out with classes like Seds, Geology of America's Parks, and the Cryosphere to explore sedimentary landforms from New York to the Grand Canyon, and everywhere in between. We've become regulars in the Shawangunks, and have started tracing the Catskill Delta sediments from their coarsest expressions in the eastern part of the state, to the organic-rich, offshore Devonian shales that crop out on Lake Erie in the west. We're visiting many of the same iconic Hamilton Group outcrops pioneered by Bruce Selleck and Bob Linsley, making Colgate geology vans a common sighting every fall up and down US-20 and our surrounding roads. Other labs have ventured even further afield to check out ice-age landforms like drumlins on the Lake Ontario shore or outburst flood megapotholes at Little Falls, NY. For a complete lowdown on the biggest class adventure I've had in the past year or two, check out the description of GEOL 120 elsewhere in the newsletter!

Students in Sedimentary and Surface Processes (GEOL 225) check out cobble distributions and discharge patterns on the Sangerfield River near Camp Fiver

On the research front, it was exciting to make use of Boyce Fund research support in the department to take a short expedition to the Alvord Desert of eastern Oregon last summer with two just-graduated seniors (Michelle Tebolt and Patrick Matulka). The goal of the project was to develop a new method for measuring soil moisture using the infrared reflectance of barren soils. While you can always measure how damp dirt is in the lab (by drying it) or in the field (with a soil moisture probe), these methods are time-consuming and invasive. If we want to measure soil moisture in fragile wetland systems, like those found in Antarctica, we need a way of figuring out where the water is in the soil surface that is faster, covers more area, and disturbs the environment less. Enter the drone. We mounted a new spectrometer to a surveying drone, and mapped soil moisture across a zone of hydrothermal spring discharge-where it pours out onto the desert's playa floor. The clays in the playa were muddy and ferocious, but no shoes were lost

Setting up a station to monitor insolation, temperature, humidity, and soil moisture.

Patrick and Michelle check out mysterious ridges and furrows on the playa.

(nor drones, nor hats, despite the wind). We came back from the field with ground truth samples, a hard drive full of spectra, and a new appreciation for life in one of America's most remote places. Remoteness doesn't come at the expense of hospitality, though! The Fields Station, in Fields, OR (pop. 9) was a real hit on the way home from the field each evening—they serve up quart-sized milkshakes that are every bit as thick as the playa muds. Worth the visit! A third student, Jessica Johnson, is racing to work to connect the ground-truth measurements made in the desert to the drone-borne spectrometer measurements, in an effort to present the results as a poster at an upcoming conference in Houston.

Getting the survey drone ready to map spring discharge.

## William Peck

Professor

Hello from Hamilton! We have had an exciting few years in the Peck–Kong household. We have a new addition to the family; Samuel Kong Peck was born in June 2017. He joins Julia (now 10) and Henry (13). It has changed the dynamic at home somewhat and has generally added to the happy chaos.

Since Rich April's retirement Karen Harpp and I have taken over the Mineralogy class, with Di Keller teaching the labs. Karen and I co-taught it for the first time a few years ago and I am teaching the lecture solo this year– lots of fun but it has been a real crash course in some aspects of mineralogy that I hadn't thought much about in 20 years! In terms of research I have several ongoing projects, and have finally published some older work. The most ancient is writing up the results of Gary Eppich's ('06) thesis on a magnesite deposit near Kilmar, Quebec in the journal *Minerals*. I also wrote up a project that I had worked on with Bruce Selleck and Matt Quinan ('18) on the origin of Grenville Province sediments in the Adirondacks, Quebec, and New Jersey, which was published in *Precambrian Research* last year.

Julia, Henry, Myongsun, and Samuel at Delphi Falls NY

My main research focus in the past few years has been trying to understand the formation of the wollastonite deposits near Willsboro NY, in the eastern Adirondacks. This has been the focus of thesis projects by Julia Barcello ('18), Lily Daggett ('18), Sam Timothy ('19), Mark LaPan ('19), and Shae Labbe ('19). While working at the Lewis wollastonite deposit in 2017 Bruce Selleck and I noticed that some of the wollastonite tailings at the mine were cemented together by calcite, taking on the aspect of concrete. This is probably a result of reactions where wol-

lastonite + $CO_2$ form calcite + quartz, essentially sequestering atmospheric $CO_2$. This really interesting phenomena has been the focus of two years of work with Di Keller and Victoria Arnold (’19), Faith McDonald (’19), Lily Kuentz (’21), and Paul Nugent (’21). Hopefully we will be able to document aspects of this passive carbon sequestration that may inform engineering approaches to lowering atmospheric $CO_2$. In addition to wollastonite, I am looking again at the spectacular Sterling Hill zinc deposit in New Jersey, which was the thesis of Mary Hurtgen (‘20). More about that in the next newsletter!

## Martin Wong

Associate Professor

Greetings and hello from Hamilton! It has been an eventful time in so many ways since our last newsletter. After finishing serving as department chair two years ago, I was asked to join the Dean of Faculty’s office as an Associate Dean for a three-year term. While I have greatly missed being in the department on a daily basis, it has also been an interesting experience to view things from the administrative side of the institution. I have largely been working on issues related to off-campus study programs as well as the scholars programs, sophomore residential seminars and Colgate centers and institutes, among other programs. It has been a rewarding experience, but I am looking forward to getting back to teaching and research in another year or so. On the home front, we are mostly successfully navigating the new normal with Asher (now 3) and Olivia (now 13) at home. Interesting and new challenges all around! I hope this finds you and your family healthy and well.

2019 Geo-Pizza

# A remembrance of Sheila Seaman

July 10, 1957 - July 27, 2019

**Contributed by**
Art Goldstein

It brings me much sadness to tell you that Sheila Seaman passed away last summer after a long struggle with Cancer. Sheila joined the Geology Department at Colgate in 1987 and rapidly became one of the more popular Professors in the Department: no small feat considering that both Bob Linsley and Jim McLelland were at their primes then. She was an igneous petrologist and taught courses in Mineralogy and Petrology, together with Rich April and Jim McLelland, as well as Intro courses and advanced seminars and, of course, the OC. There have rarely been Professors more dedicated to the students than Sheila. There was, quite literally, almost nothing she would not do to help a struggling student, including staying late in her office and lab, always with the door open so anyone who needed her time could have it. She was also quite demanding of both her students and herself but had a way of making difficult subjects understandable to almost anyone. Sheila came to Colgate from University of New Mexico and she had a passion for the landscapes and geology the Southwest US. She took many students there for research but also learned to love the Maine Coast, through her work on the OC. She spent many weeks on Mt. Desert Island and guided student research there as well as establishing a rigorous research program of her own which continued after she left Colgate. In short, she fit in to the CU Geology Department as well as anyone ever has and changed it for the better, although she only worked at Colgate for five years. It would not be inaccurate to say that she had a mellowing effect on the male bastion we were at the time.

One cannot speak of Sheila without commenting on her love of animals. This was not restricted to pets, although she had many including a 400 lb. pig, but included whatever woodland creatures or feral cats might be hanging around. At one point she was renting an old farmhouse adjacent to woods and spent more money on feed for deer, squirrels, and the rest than she did on herself. One memorable day she and Paul Pinet went to the outdoor track to do running workouts. It had rained the night before and Sheila made Paul walk the entire track with her picking up all the worms so none would be squashed.

I was Department Chair at the time and we tried very hard to keep Sheila. Her husband, Mike Williams, was an Assistant Professor of Geology at UMass, and a stellar geologist, and the long-distance relationship was not a long-term solution for them. With the cooperation of the CU Administration we offered a job to Mike so that we could keep Sheila. UMass made a counter offer and, in the end, they chose to move to UMass. Sheila thrived there just as she had at Colgate. She received awards for her teaching prowess as well as NSF grants to support her research. She received tenure and was promoted to Full Professor as well as serving as Associate Department Head and Graduate Program Director. She is as missed there as she is by those of us who knew her at Colgate. She was one of the world's truly beautiful people and we are all poorer now that she is gone, although we are all richer for having known her.

# Amy Leventer Awarded 2018 Goldthwait Polar Medal

The Byrd Polar and Climate Research Center announced Dr. Amy Leventer, Harold Orville Whitnall Professor of Geology at Colgate University, as the 2018 winner of the Goldthwait Polar Medal in recognition of her distinguished record of scholarship and service in polar science.

Dr. Leventer is an outstanding geoscientist who has made important contributions to polar science, education, and the polar research community at large. Her research spans marine geology, biological oceanography, and paleoclimatology with an emphasis on understanding the coupled ocean-climate system of the Antarctic margin on a range of timescales. She is an expert in the use of marine diatom and other geochemical data, combined with process-oriented studies of modern polar sedimentation and ecosystems. She has published over 76 peer-reviewed publications and has participated in 22 marine research cruises in Antarctica, leading 5 as chief- or co-chief scientist.

According to Dr. Stefanie Brachfeld, Associate Dean and Professor of Earth and Environmental Studies at Montclair State University, “Amy is one of the true pioneers in Antarctic marine geology, as a scientist, as one of the first women to lead international collaborative research teams in Antarctica as chief scientist aboard the RVIB Palmer and LM Gould, and as an advocate for the Antarctic community on the first committees charged with oversight and planning for polar research vessels.”

Dr. Leventer is a dedicated mentor to students and young polar scientists, having advised over 63 undergraduate student research projects, 50 of which were on Antarctic research topics. She has also advised 12 graduate students and served as an invited instructor at numerous research training workshops. Polar and marine science communities have benefited from Dr. Leventer’s frequent and active participation on National Science Foundation panels and advisory committees, particularly those overseeing polar research vessels, as well her roles as convener of many AGU and GSA conference sessions, co-editor of an AGU Antarctic Research Series volume, reviewer of numerous manuscripts and proposals, and coordinator of travel grants for research and training workshops.

Dr. Amelia Shevenell, Associate Professor of Marine Science at the University of Southern Florida, says Dr. Leventer “has achieved research excellence while teaching three to four undergraduate courses annually, planning and participating in international Antarctic research expeditions, mentoring undergraduate researchers, and publishing these results”. Shevenell continues, “Professor Leventer’s over thirty years of outstanding scientific contributions have had a significant and large-scale impact, and together with her tireless commitment to mentoring early career polar researchers, exemplify exactly what the Goldthwait Polar Medal is intended to recognize and honor.”

Established in 1996, the Goldthwait Polar Medal is awarded annually in recognition of “outstanding contributions to polar research.” It is the highest honor bestowed by the Byrd Center. The award is named in honor of Dr. Richard Parker Goldthwait, a leading glacial geologist and the founder and first Director (1960-1965) of The Ohio State University’s Institute of Polar Studies, now the Byrd Polar and Climate Research Center.

Dr. Leventer received her award and presented the Goldthwait Lecture at the Byrd Center on February 7, 2019, after returning from yet another trip from "the ice" as part of the SALSA project.

# Robert M. Linsley Geology Museum

Contributed by Di Keller and Rich April

2019 marked the 10-year anniversary of the Robert M. Linsley Geology Museum, and what a year it was! The Linsley Museum continues to be the most popular museum on campus and is a key component of Colgate's science outreach program, which brings in over 2500 schoolchildren each year to enjoy the outstanding science resources at the college, including the Ho Tung Visualization Lab, the greenhouse, and the Linsley Museum. Setting a record of nearly ten thousand visitors in 2018-19, this banner number was in large part due to a special Bicentennial display conceived and made possible by Rich April. After a year of determined effort, Rich (who, along with Di Keller, continues to curate the museum and collections in his emeritus years), secured a loan of precious mineral carvings and rough stones from the American Museum of Natural History (AMNH) to create a display highlighting the 150-year association between Colgate and the AMNH. This rich history begins with the fact that a professor at Colgate, Albert S. Bickmore, founded the AMNH in 1869. The story continues through numerous philanthropic donations to the AMNH by various members of the Colgate family through the years, and the AMNH-funded expeditions that led to the discovery of our famous dinosaur egg. In more recent years, Colgate's 12th president, George Langdon, went on to serve as president of the AMNH after leaving Colgate in 1988. If you would like to hear more about the stories behind this exhibit, you can listen to an interview of Rich talking about the display at: https://www.youtube.com/watch?v=cl6pbxcUJhs

Oddly enough, it seems that many of the other noteworthy happenings at the Linsley Museum over the past couple of years have ties to this Bicentennial display story in some way. For example, after receiving a generous donation of pearls from Mikimoto America during the summer of 2017, we installed a new exhibit featuring beautiful examples of both fresh and saltwater pearl varieties along with snippets on how pearls form and a few fun facts about the gems. Included in this display are shells from pearl-producing oysters and mussels, the largest of which is a *Pinctada margaritifera* black-lip oyster shell collected and donated to the Colgate collections by Albert Bickmore. A second notable experience for the Linsley Museum occurred in November of 2018, when it made its TV debut on the Travel Channel show, Mysteries at the Museum. Footage of the museum and our famous dinosaur egg was filmed for a full day in June of that year and was featured at the beginning and end of the show's re-enactment of Roy Chapman Andrews' discovery of our dinosaur egg during his 1923 AMNH-funded Gobi Desert expedition. Last but not least, a new plaque was added to the museum on the occasion of Rich's retirement in 2018. In addition to celebrating Rich's contributions to the museum and the department, the plaque designates that the specimens acquired by Rich during his time here at Colgate have been named the Richard H. April Collection. The collection numbers over 400 specimens to date, some of which are displayed in the Linsley Museum's pearl and gem exhibits, and several other spectacular samples, such as this striking cluster of ferruginous quartz crystals, are located throughout the museum.

# Geology 120: Cataclysms in America's Parks

Last summer, sixteen students and Assistant Professor Joe Levy set out from Colgate for a 5,500 mile road trip through America's state, local, tribal, and national parks. The course was a new iteration of Geology 120, the introductory field course for the geologically curious. This year the class was an exciting mix of aspiring Geology majors, pre-meds, history buffs, and students from all backgrounds looking to get out into the world for a few weeks of summer.

Our first stop was the oil shales at Point Gratiot, on the shores of Lake Erie in Dunkirk, N.Y. This is about as close as you can get to the end-Devonian extinction. There's a lot of organic matter locked up in these shales, and this was many students' first change to sniff rocks, feel for grain size, and get up close and personal with the story of the Earth written in stone.

A day or two later, we arrived at the Buffalo National Scenic River, Northern Arkansas. The group took to canoes to consider the effects of runoff, discharge, bank erosion, and bar formation. We got caught in a thunderstorm, too. Taking shelter on a sandbar was team-building fun.

In the the Guadalupe Mountains we spent a day exploring the fossil reef that makes the site a beacon for carbonate geologists, hiking from the muddy forereef basin up to the towering coral peaks. Scoping out incredible fossils and calcite rhombs was the reward for battling the ferocious wind.

Diving down into Carlsbad Caverns the following day for a candle-lit cave tour was a relief from the elements. Getting underground let us explore the same carbonates from the inside--Carlsbad Caverns formed in a large slump block off the Guads which experienced subsequent karstic erosion.

A short hop into New Mexico brought the class to White Sands National Monument. We found the one shady spot in the park to try to figure out what kinds of dunes we had been traversing over. The vegetation was the give-away--parabolic dunes grow when blowouts liberate sediment from the root-bound soil.

We diverted south for a few days to thaw out in Sedona, AZ. The crew encountered its first photogenic sandstones — layer after layer of rock built out of sand dunes frozen in time. We'd trace the Kaibab and the Toroweap all the way up to the Grand Canyon.

Of course, we visited Grand Canyon National Park. It's obligatory. But we woke up to snow on our tents and swirling in the canyon. A taste of up upstate New York in the desert southwest.

Rather than dwell on rocks we couldn't see, we diverted around to Lake Powell, near Page AZ, and spent the morning on the water, viewing exquisitely cross-bedded sandstones by boat.

From meteor impacts, to droughts, to floods, extinctions, and windstorms, the trip gave first and second year students a chance to see the Earth sciences live in the field. There were no shortages of dramatic changes wrought on the Earth's surface to excite a new class of budding geologists

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## Geology 320: Techniques of Field Geology (The OC)

Our summer field course was canceled for the summer of 2020 by the COVID-19 crisis, so we are planning on 2021 if all goes as planned. These pictures are from the summer 2018. The OC began in the area of Golden Colorado, spending time mapping Dinosaur Ridge and the Proterozoic rocks of Golden Gate Canyon with Alex Wrobel ('15). After Colorado the group worked on projects in the Moab area with Joe Levy. In Idaho the group mapped part of Craters of the Moon National Monument with Karen Harpp and Alison Koleszar followed by a visit to Yellowstone National Park with Aubreya Adams. Martin Wong finished the program with the final mapping project at Seminoe Reservoir, WY.

# Geology 260 - Volcanology in Hawaii

In March 2018, more than 20 students from the Volcanology class that semester traveled to the Big Island of Hawaii for a week of fun with basalt, organized by the instructors of the class (Alison Koleszar and Karen Harpp). Highlights included: a tour of pyroclastic deposits from Don Swanson of the Hawaii Volcano Observatory, who has been reconstructing Kilauea's history using legends told by native Hawaiian people; a full day learning about Mauna Loa's eruptive behavior form Frank Trusdell, also of HVO, a tour of HVO from Carolyn Parcheta, and a visit to a green sand beach where olivine is the dominant mineral (in case you geologists didn't figure that out already…). We had the unique pleasure of staying in a lodge where we were hosted by a gentleman in a toga who may or may not have been trying to start his own religion (a very different experience from the last Hawaii trip's Kilauea Military Camp housing, needless to say!). Because that lodge was on the east side of the Big Island, we learned a lot about how much rain falls when the prevailing winds blow from west to east across the island chain. Fortunately, the rain cleared for a spectacular day hiking across freshly deposited lava on the south side of the island, where it was actively erupting. We camped out there into the evening as the sun set, to watch the incandescence of the eruption; Pele was in fine form for us that night! The hike back in the dark was an adventure, of course, and somehow Chenglu's shoes survived walking on (very warm) basalt, quite the miracle of modern shoe science. Within a few days of returning, the major eruption of 2018 broke out not far from where we were staying on the Big Island…we of course had nothing to do with that event. Thanks to all alumni who have supported field trips for students; these are amazing experiences that we hope to do more of in the future.


The group sets off to hike to some ongoing eruption sites on the Big Island. Chenglu (second from right in the front) prepares to test how sneakers will function when you walk across hot basalt

The group in front of an active eruption on the Big Island. Remarkably, Chenglu's sneakers continue to remain intact and have not liquefied yet.

Dhara Patel pretending that there is not any very hot lava behind her.

Cassie Ferrante and Ahmad Khazaee enjoy the warmth of the lava.

Emily Weaver showing us the geology of the green sand beach region.


Peter Donohue explaining some fundamental eruptive concepts to renowned Mauna Loa expert, Frank Trusdell.

A visit to the green sand beach on the southern tip of the Big Island. Olivine is the dominant mineral in the sand, hence the green, as you already realized.

# STUDENT AWARDS

The Geology 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 seniors who best demonstrates a combination of excellence in the classroom and creativity and perseverance in research.
**Recipients:** Isabel Dove ‘19, Meghan Duffy ‘18, Alexander Taylor ‘18, Emily Weaver ‘20

**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:** Victoria Arnold ‘19, Megan Emch ‘18, Mary Hurtgen ‘20

**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:** Isabel Dove ‘18, Rachel Meyne ‘20, Emily Weaver ‘19

**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. Fellowships support Geology & Geography major travel associated with their Junior terms abroad.
**Recipients:** Rikki Borkowski ‘19, Mary Hurtgen ‘18, Lily Kuentz ‘19,
Celia Meyer ‘20, Jeri Stoller ‘20, Emily Weaver ‘18

Geology students who received academic awards gather with faculty at the awards ceremony in 2019. Front (left to right): Victoria Arnold, Isabel Dove, Emily Weaver, Rikki Borkowski . Back (left to right: Martin Wong, Shae Labbe, Natalie Kozlowski, William Peck).

# SUMMER RESEARCH

A summer research experience is a vital part of their geologic education, and introduces students to the world of research in the field and in the lab. The Geology Department is fortunate to have several funds that support student summer research experiences, all of which are supported by the very generous gifts from alumni and friends of the department. Thank you all for your support of these funds.

### Douglas Rankin '53 Fellowships

Victoria Arnold '19—Natural Carbon Sequestration in Adirondack Mine Wastes
Mark LaPan '19—Metamorphism of Marble at the Lewis Mine, Adirondack Mountains
Faith McDonald '19—Natural Carbon Sequestration in Adirondack Mine Wastes
Dhara Patel '19—Chemistry of Adirondack Skarn Garnets
Samuel Timothy '19—Age of Metamorphism at the Lewis Mine, Adirondack Mountains
Jordan Tockstein '20—Field Work: Earthquakes and Subduction On- and Off-shore of the Alaskan Peninsula
Emily Weaver '20—Polar Marine Diatoms and Antarctic Paleoclimate
Devin Ferri '21—Virtual Galapagos: An Innovative Science Outreach Project
Marie Pugliese '20— Virtual Galapagos: An Innovative Science Outreach Project
Katherine Weber '20—Virtual Galapagos: An Innovative Science Outreach Project
Francis Criscione '21—Virtual Galapagos: An Innovative Science Outreach Project
Ian Armstrong '21—Ice-Sediment Interactions on Earth and Mars: Planetary Mapping and Geological Laboratory Analyses
Meaghan Kendall '21—Diatoms from Subglacial Lake Mercer
Lily Kuentz '21— Diatoms from Subglacial Lake Mercer
Paul Nugent '21—Natural carbon sequestration in Adirondack mine wastes
Tommy Subak '23—Deep Earth Imaging of the Alaskan Subduction Zone
Adam Zaharoni '21— Deep Earth Imaging of the Alaskan Subduction Zone
Shane Knopp '23—Deep Earth Imaging of the Alaskan Subduction Zone

### Norma Vergo Fund

Meaghan Kendall '21—Polar Marine Diatoms and Antarctic Paleoclimate
Rachel Meyne '21—Polar Marine Diatoms and Antarctic Paleoclimate
Marie Pugliese '20—Virtual Galapagos: An Innovative Science Outreach Project
Biancarlo Arcese '22—Virtual Galapagos: An Innovative, Interactive Science Outreach Project
Bronson Cvijanovich '22—Ice-Sediment Interactions on Earth and Mars: Planetary Mapping and Geological Laboratory Analyses
Katie Stansbury '19—Polar Marine Diatoms and Antarctic Paleoclimate
Grace Schreiber '21—Characterizing the Biological Signal of Deglaciation

### Linsley/McLelland Fund

Isabel Dove '19—Polar Marine Diatoms and Antarctic Paleoclimate
Katie Stansbury '19—Polar Marine Diatoms and Antarctic Paleoclimate
Devin Ferri '21—Virtual Galapagos Project
Marie Pugliese '20—Virtual Galapagos Project
Rachel Meyne '21—Polar Marine Diatoms and Antarctic Paleoclimate

### Hackett-Rathmell Fund

Devin Ferri '21—Virtual Galapagos: An Innovative Science Outreach Project
Natalie Kozlowski '19—Polar Marine Diatoms and Antarctic Paleoclimate
Sasha Mikus '20—Where is the limit of life on Earth? Spoilers: In Antarctica
Tam Nguyen '22—Virtual Galapagos: An Innovative Science Outreach Project

# Colgate's Glacial Geology Field Course (1896-1943)

Contributed by William Peck

Field studies in the Adirondacks really took off in the closing years of the 19th century, a time when professionalization in geology was becoming more standardized, and colleges began offering a concentration in geology. This got me interested in looking at how Colgate made this transition, and especially the role of teaching field geology. For Colgate, the real beginning of geology as a major is the 1892-1893 academic year, when Alfred P. Brigham joined the faculty. Brigham (Madison University AB 1879; AM 1882) worked as a Baptist pastor for a few years before attending the Harvard geology summer course and then earning a Masters in geology there. Upon returning to Colgate, Brigham built a modern two-year curriculum for majors, which he initially taught single- handedly.

Brigham's early research focus was on the glacial geology of central New York. His most important publication describing this work was *Glacial Flood Deposits in Chenango Valley*, published in 1897 by the Bulletin of the Geological Society of America. This paper is a detailed description of the glacial geology of the Chenango Valley from Oriskany Falls to Binghamton, with a focus on kame terraces and meltwater features. Brigham incorporated this research into the curriculum, offering to seniors a field geology course for the first time in 1895. From the catalog:

> ***Geology – Field course****. The special study of some Paleozoic horizon near Hamilton. This is chiefly a course in field work, with attention to stratigraphy, geographic distribution and characteristic fossils. To those who prefer, problems in the glacial geology of Central New York may be assigned. This course will include instruction in the history and methods of geological surveying; three to five hours.*

I have not been able to find any details in the university archives about the first offering of this course, but it sounds like an early version of an 'independent study' research course, investigating the same geologic questions that were the subject of Brigham's research. It is not clear how many students took it, or how many picked the sedimentary versus the glacial topics. Eventually this course became more solidly focused on glacial geology, perhaps walking away from the more independent earlier model, or maybe just because of Brigham's interests. From the 1896-1897 catalog:

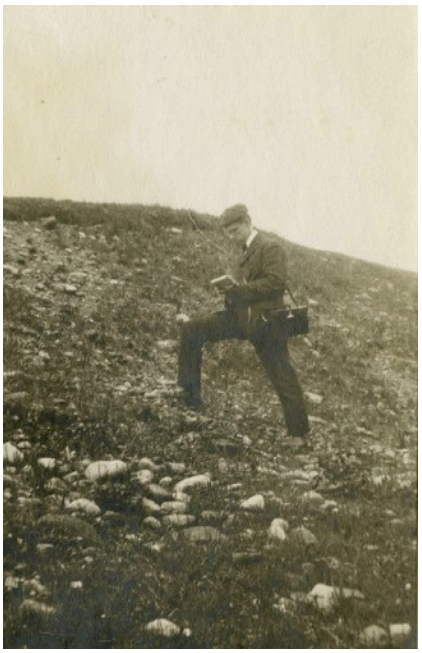
> **Geology - Field course.** *The quaternary geology of a district including fifty square miles in the vicinity of Hamilton, is the usual subject for study. Students carry on field work each week, both with the instructor and independently. All the materials of the drift, with subsequent formations, and the topography as a whole, are investigated in detail, each man presenting a report and map embodying the results of his study. Field problems in Paleozoic geology may be assigned if preferred. Spring Term, three to five hours.*

This course appears essentially unchanged in the catalog for the next decade. Luckily, we have an invaluable record: the 1907 course notebook of George Saunders (AB 1909), which is in the university archives (see next page). Saunders later earned his Masters from Cornell and returned to Colgate to teach physics.

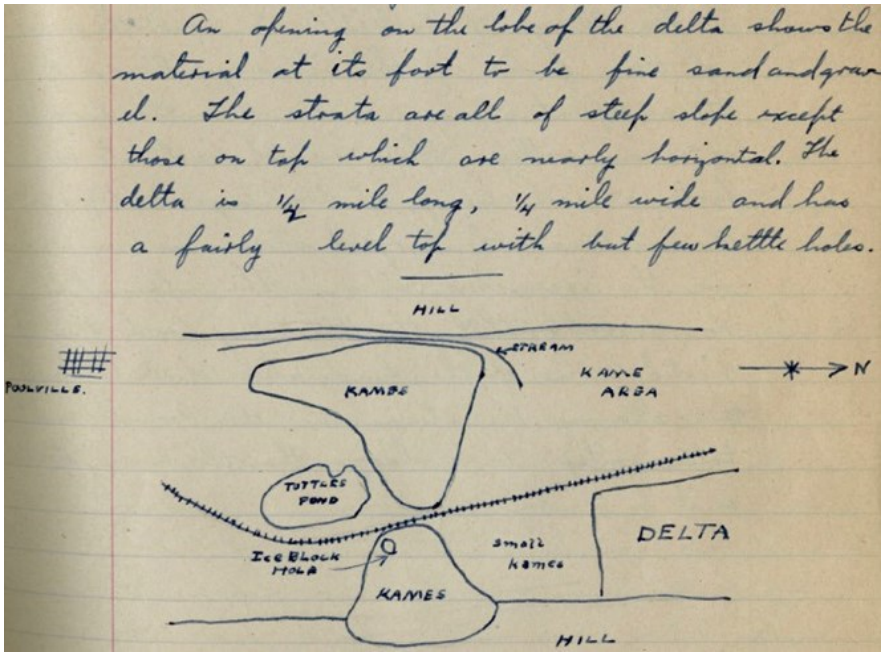
The notebook details a very interesting course that is in some ways sounds very modern (with field based, experiential learning) and in others ways very much a product of the standard 'sage on the stage' lecturing model of teaching that predominated at that time. The course consisted of two classroom lectures, 10 afternoon (2-4 hr) field trips, and two all-day field trips, which totaled, not counting the classroom sessions, 55 hours in the field (!). It is difficult to know exactly what went on during the field trips, because the notebook is too clean to be his actual field notes, and must have been copied and edited. The notes are mostly descriptions of landscapes and surficial de-

posits (shown below), with some fairly sophisticated interpretations and occasionally revealing editorial comments from the Professor:

> *"The idea of Mr. Chamberlin [Professor, University of Chicago] that kames represent an active state of a glacier is doubted by Professor Brigham. Kames are formed when ice is melting and represent a state of ice melting for the glacier front. Kames are always the product of the last ice retreat …"*



*George Saunders (AB 1909), who took the glacial geology field course in 1907.*



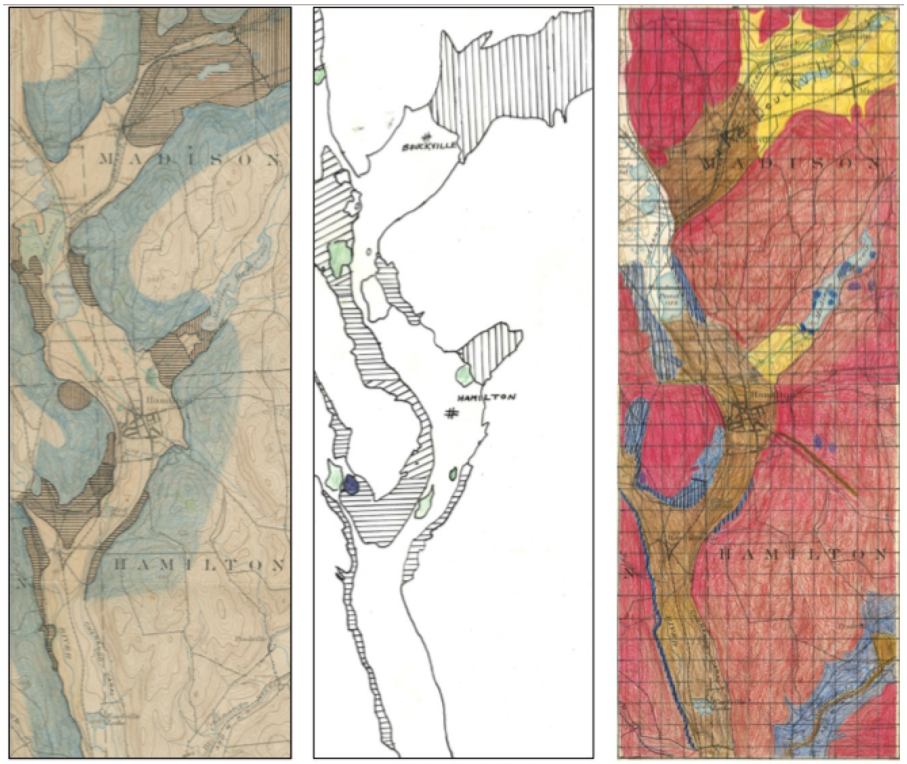

It seems that most of the trips were led by Brigham, who lectured on the features under observation. In all, the notebook contains about 50 single-spaced pages of transcribed field notes, a colored portion of the Morrisville 15 minute sheet, and a very polished 20-page essay on "The Pleistocene geology of the Chenango Valley."

The course continued to be taught until it was not offered for one year, in 1909. This corresponds to a time when the geology department moved into the newly-constructed Lathrop Hall, and the curriculum changed. By this time the geology department also included Harold Orville Whitnall, who joined the department as an instructor in 1903. In 1910 he began to teach the glacial geology course, now with a slightly different description but essentially unchanged from Brigham's course:

> ***Field Course in Glacial geology.*** *This course consists of a few preliminary lectures relating to the advance and retreat of the continental ice sheets of Pleistocene time in North America. As soon as the weather permits, the class is taken into the field and the glacial phenomena studied in detail. Photographic enlargements of the topographical map of the U. S. survey are used and much attention is given to mapping the Pleistocene deposits. Geology 1 is required. Second Semester, 2, 3, or 4 hours.*

According to the catalog, Whitnall taught Brigham's field course in glacial geology for the next 33 years. Like Brigham, Whitnall was a Colgate alumnus (AB 1900) with a Masters degree from Harvard. Whitnall's scholarly focus during his 40+ year career at Colgate was on popularization of science. He published countless newspaper and magazine articles about a variety of geological topics (e.g. *"Howe Caverns", "The World and Art of the Ancient Cave-Man", "The Cardiff Giant", "Coral Reef in Onondaga", "Palisades of the Hudson"), as well as a few books ("The Dawn of Mankind",*

*"A Parade of Ancient Animals"*). He consulted for various departments in state government and was a member of the 150th New York State Assembly in 1927. By the time of his death in 1945 Whitnall was a respected elder statesman on the faculty and for Colgate's chapter of Delta Kappa Epsilon, where he remained active throughout his career. The Harold Orville Whitnall Chair in Geology was named in his honor in 1951 (Whitnall field was donated to the university by his father much earlier, in 1901).




Geologic maps of the Chenango Valley made by students in the glacial geology field course for 1907-1941 (see text). Key for the 1920+1934 map: Green=marshlands, vertical lines=glacial deltas, diagonal lines=kames, horizontal lines=lateral terraces, unpatterened within valley=valley train.

During the first decade of his career, before his emphasis on popularization, Whitnall focused on the geology of the region, similar to Brigham's early research. The archives contain the beginnings of a manuscript written by Whitnall on the glacial geology of the area around Hamilton, based on fieldwork done in 1901. Whitnall is listed as a "Temporary Assistant" for the New York Geological Survey for several years in the period 1905-1915, and it seems that he completed geologic maps for several 15 minute topographic sheets in the Hamilton area (Morrisville, Cazenovia, and perhaps Chittenango and Sangerfield). Unfortunately this work was never published, although the geology of the Morrisville Quadrangle report is listed as forthcoming by the New York Survey beginning in 1906. The university archives don't contain any records of this work, except for a few mentions in the 'memory book' Colgate's chapter of Delta Kappa Epsilon put together to celebrate his 40 years of teaching at Colgate. In it, Robert Stringer (AB 1905) remembers his summer as Whitnall's field assistant while mapping the Morrisville quadrangle:

> *"As I look back over the years, the summer of 1905 stands out above all others... This was back in the good old horse and buggy days and you needed someone to drive old Dobbin and do a little footwork with a pedometer and altimeter. We drove leisurely through the peaceful valleys and over the hills, and at night stopped at the taverns in the clean, quiet, little villages which dotted the Morrisville quadrangle."*

We have two good records of what the field geology course entailed, as taught by Whitnall. One is a 1949 Masters thesis on the bedrock and surficial geology of the Morrisville quadrangle by John Greiner. The bedrock information comes mainly from the thesis of G. Arthur Cooper (Colgate AB 1924, MA 1926), and the surficial information from Whitnall's field course:

> *The chapter on Pleistocene geology was written by editing and adding to the field notes of 20 former geology students of Colgate University. They were all under the instruction of the late Dr. Harold O. Whitnall, professor of Geography and Geology and at Colgate University, from whom they received their information. Dr. Whitnall's story of the glaciation of the valley has never been published, and the material taken from*

*the field notebooks is considered a fairly accurate picture of his lectures. He required of his students a map, colored, to show the location of the various glacial phenomena. A composite of these maps was made by the writer and is included in the report. Credit is hereby given to the men whose names are found in the field notebooks of the years 1924 and 1930.*

It seems that as taught by Whitnall, the course visited about 35 'stations' while describing and mapping the Chenango Valley. For comparison, we also have Ted Fitch's (AB 1941) field notebook for the course, which I found on Ebay. His notebook is in many ways very similar to what modern Colgate students might write, for example:

*April 11th, 1941 Stop 2 [next to Lelands Ponds]*

*An old cut into till shows no stratification present. The particles and rocks are angular these being both large and small ones, showing no evidence of sorting having taken place. All the rocks may be connected with beds located to the north further indicating transportation by glacier.*

Fitch shows about 50 localities visited, and his field notes and map are only partially complete. When comparing the 1924 & 1930 stations to those from Fitch's 1941 notes it seems that Whitnall would change the sites visited in the field (probably based in part as roadcuts in surficial deposits deteriorated over time)– only about a third of the field sites near Hamilton are repeated between the two maps.

Between Brigham's early work and the different student maps we have a remarkable record of how the geology of the Chenango valley was taught for almost 50 years at Colgate. It is amazing to think of the hundreds of geology students who were toured through the Chenango Valley by Brigham, and then by Whitnall, for the first half of the 20th century, all recording their interpretations of the landscape and producing almost identical maps. When compared to the current state geologic map, what Brigham and Whitnall taught probably over-emphasizes delta deposits and terraces, but on the whole Brigham's is a remarkably modern interpretation of the glacial geology of the Chenango Valley. Although the glacial field course stopped being offered during World War II, the field trips and summer field courses Colgate students take today follow a long tradition started by the first geology professors at Colgate in the late 19th century.

*Undated photograph from the Colgate archives of H. O. Whitnall lecturing on the geology of the Chenango Valley*

# GIFTS TO GEOLOGY

Our deepest thanks to all of you who have made a gift to the department over the past few years. Thanks to your generosity, Geology students are able to participate in summer research, explore the country and the world to see amazing geology, travel to labs to conduct analytical work, attend professional meetings and so much more. If you are planning to make a gift to the department in the future, you can specify where those funds go if you wish. Gifts to the Geology Department support our discretionary fund, which is our most flexible fund that we use to support areas of greatest and immediate need. Funds can also be directed to a specific fund to support students, including:

The Norma Vergo Fund (supports the Norma Vergo Prize and student summer research)

The Linsley–McLelland Fund (supports student summer research)

The Hackett–Rathmell Fund (supports student summer research)

Robert M. Linsley Prize

The Kevin Williams '11 Memorial Fellowship

and the

Rich April/Bruce Selleck Endowed Fund for Geology Student Travel.

Since the last newsletter the following people have made gifts to the department (January 1 2018 to June 30, 2020). Thanks again for your generous support of our department and students!

Bonnie K. Abend '95 & Brian L. Abend
Roger D. Achtermann '82
Kerri Arman-Steinmann
Jay A. Barr '04
Joan M. Bernhard '82
Linda Besse '81
Jonathan Bessette
Susannah K. Boote '13
Chapin L. Brackett '98
Chelsea Brackett
Kim A. Waldron '81 & Hugh Bradford
Christopher B. Brown '92 & Natasha J. Brown
Christopher A. Burns, PhD '82
Edward C. Cazier, III '81
Emma U. Cazier
William M. Centner '75 & Sally Centner P'13
David L. Chaffin '78
Catherine L. Chaffin
Christine E. Chariton '84
Molly G. Clinton '13
Norma Closs
L. Graham Closs '67
Alexis L. Coplin '07
Pamela Crowe
Allan R. Crowe MA'68
Richard D. Cunningham & Catherine A. Cunningham P'13
Barnes Darwin
Pamela T. Darwin '81
Alexandra Dattelbaum '04
Andrew C. DeGory '12
Emily C. Doren '04
Jesse Doren
Bret A. Doverspike '03
Neal D. Durant '87
Samuel D. Ely '12
Gary R. Eppich, Jr. '06
Douglas H. Erwin '80
Richard J. Fahey '74 & Rosemary Fahey P'07
John A. Figurelli '89
Jennifer S. Figurelli
Gavin P. Fisco '06
Dana P. Fisco '08
Carol M. Freel
Lauren C. Frisch '12
Christoph Geiss
William H. Gerdes & Nancy J. Gerdes
Julie Gill
Clifford P. Gill '90
Timothy D. Glotch '99
Jennifer M. Godbout '15
Evan B. Goldstein '04
Amy B. Gonzales '81
Edward D. Gonzales
Adam J. Greenhut '01
Michelle A. Greenhut
Michael Halay
Susan B. Hall
Richard M. Hall '77
Katherine H. Hardock '16
J. Christopher Hepburn '64
Lynn K. Hettinger '95
Janet E. Hickey '77
John W. Hoffman '68
Susan Howell
David G. Howell '66
Jonathan M. Husch '75
Gerri R. Hutner
James T. Hutton '84

Susan Hutton '83

Emily M. Janke '01

Joshua A. Jones

Jason L. Kaplan '06

Sarah A. Katz '16

Kevin F. Kelly '04

Toni M. Kerns '97

Bryan E. Keyt '88

Deborah Keyt

Jonathan J. Kim '81 & Teresa Laberge

Nicole E. M. Kinsman '06

Simon Kline

Daniel J. Korich '00 & Vivian L. Korich

Harold C. Kraus '57

Elizabeth Sherwood Krol '92

Michael Krol

Gene Kwon

Teresa Laberge

Caroline A. LaBriola '13

Joshua A. Lasker '14

Paul D. Leesman '82

Monica Leesman

Deborah A. Levine '77

Barbara A. Lougee '83

Sarah W. Lowenstein '79

Tim K. Lowenstein '78

Crystal Joy L. Macalutas '06

Alison F. MacNamee '12

James A. Maritz, IV '05 & Elizabeth Maritz

Christopher M. Maye

Krista J. Maye '93

Sharon D. McLelland '85

Ellen L. Mecray '90

Misty L. Meendsen

Fred C. Meendsen, Jr. '82

Carrie A. Metzler '08 & Kyle Metzler

Clifford W. Meyers

Linda J. Meyers '05

Peter J. Michael '75

Scott K. Michel '02

Susanna L. Mitchell '81

Raymond W. Mitchell '76

Laura J. Moore '93

Bridget W. Muller

David S. Muller '77

Brad Murray

Jennifer L. Murray '96

Catherine Nanz '82

Robert W. Nanz, Jr. '82

Josephine A. Natale '82

Rebecca C. Newhall '99

James P. Olson

Nancy S. Padian '74

Kevin J. Padian '72 MA'74

Jeffrey J. Palmer '80

Robin K. Palmer '82

Karen Paolini

Michael J. Paolini '81

Kristina Parker

Ronald L. Parker '82

Ingrid Quillen

Todd W. Quillen '89

Matthew P. Quinan '17

Elizabeth B. Rampe '05

Mary Louise Backus Rankin W'53

Judith A. Rehmer-Hepburn

Allison H. Ridder Johnstone '99

Joshua P. Riefler '14

Daniel E. Riker '91

Hunter Robertson '16

Katherine A. Robertson P'16

Emily E. Rodgers '02

Brady Rodgers

Rebecca P. Roe

Deanne Rogers

Edward L. Roy '77

Tam M. Roy

Ted Rydzewski

Ralph R. Sacrison '76

Erik E. Scherer '91

Bianca Schewe

Lynn Schott

Katherine C. Schultz '15

Michael R. Snyder '80

Jared J. Standish '92

Walter S. Steinmann, Jr. '79

Donna Stickle

Richard K. Stickle '73

Austin N. Sun '18

David F. Sunderlin '99

Molly B. Sunderlin '00

Linda V. Swanson '78 P'06

C. Winfield Swarr & Winifred B. Swarr P'07

Alexander T. Taylor '18

Rebecca D. Tortorello '10

Jeffrey A. Trembly '78

Wendy A. Trimble '91

Kyle P. Tumpane '06

Robert Y. Urquhart '60

Lea Vacca Michel '02

Rita A. Van Kirk '13

Kevin C. Varga '16

Jann E. Vendetti '01

Christy C. Visaggi '02

Denise C. Waite '87 P'20

Jonathan B. Waite '87 P'20

Starr W. Waymack '06

Kenneth P. Wenz, Jr. '83

Lisa M. Wenz

Lisa Belgam White '08

Brian M. White '08

Richard W. Wiener '73

Melanie M. Wiener

Julia K. Wilson '03

Robert M. York '85

Paul J. Zangrilli '98 & Megan McCormick Zangrilli

# ALUMNI NEWS

*Arendt, William* ***(1966)*** After graduation from Colgate my career in geology lead me to mineral exploration in Australia and Brazil. I also worked in galena mining project in British Columbia. I eventually returned home to Wisconsin, married, and started a career teaching science and chemistry. I retired in 2014 after 29 years in the education field.

*Beardslee, Paul* **(1959)** I am not sure what follows is the sort of information you seek and I am certainly uncomfortable "blowing my own horn". So, I leave it to you to determine whether you wish this to be included. Last year (May 2019), coinciding with the 200th Colgate anniversary and my class (1959) reunion (#60), I was the class recipient of the Maroon Citation. I was surprised and humbled, but certainly proud, as I suspect Doctors Woodruff, Trainer (my advisor) and Lindsley would have been. The award was not Geology related but, rather, I think, to recognize the fact that I have been the class (1959) "scribe" for the Colgate Magazine (formerly the Scene) for the last 56 years. I would also like to bring attention to a classmate and fellow Geology major--David Beattie. A resident of Hamilton, Dave passed away this past March (Covid 19, I believe). Dave was a staunch Colgate and Geology Dept. supporter. We will miss him. I send best wishes to all in the great Geology Department. Thanks for listening and GO GATE.

*Bishop, John* (**1980**) Staying involved in geology and energy and volunteering with the Houston Geological Society as co-chairman of the North American Exploration Committee. Contact me if you would like to address the HGS at one of our dinner talks.

*Boyce*, Malcolm **(1954)** My wife Sylvia and I are still hanging in there in northern California since retiring from Chevron in 1994, after 38 years. Most of my career was in International Exploration and I spent my last 11 years as Expl. VP at Chevron Overseas. We are still both in good health and physically active. Enjoy chasing down the newer wine areas in Calif and enjoy a pretty good wine cellar of red wines which may well outlast my liver. Sorry to report that Ron Crane, Colgate 1955 died in January in Manteca, CA. Ron and I were roommates at Colgate, took most of the Geology classes together from Woody and Doc Trainer. He followed me to Indiana Univ for grad school and got a PHD in 1960. Like me, he was a Chevron lifer, retiring in 1990. He spent much of his retirement doing field work, drawing cross-sections and interpreting the Geology of Mt Diablo and the Diablo Range in northern CA.

*Braham, Gary* (**2002**) My wife's work in public relations has moved us from the Adirondacks to the Washington DC area. I am teaching HS physics, chemistry and astronomy at a high school just outside of Baltimore and am enjoying exploring new parts of the country.

*Cander, Harris* (**1982**) Chairman of AAPG Unconventional Research Group; Advisory Board Member at UT Austin and Texas A&M.

*Cleary, Zack* (**2017**) My senior thesis on the evolution of Galapagos volcanoes was published in the March 2020 issue of Geochemistry, Geophysics, Geosystems! Though it was my thesis for my physics major, I worked closely with Karen Harpp and she appears as a co-author on the paper.

*Conlan, Kate* **(2019**) After graduating, I spent several months working at a Renewable Energy Gvt. Relations firm in D.C and then several months teaching English in Seville, Spain. I am now back in the U.S. and am working on some professional certifications (while waiting out the pandemic) and will be moving to Scotland at the end of August to complete my Master's in Energy, Society, and Sustainability at the University of Edinburgh!

*Crawford, Alex* **(2012**) Karen Alley ('12) accepted a tenure-track position in the Department of Environment and Geography at the University of Manitoba, which starts in the Fall. I am following her there, accepting a research associate position at the Centre for Earth Observation Science (also part of the University of Manitoba).

*Crowe, Doug* (**1980**) When I arrived in Athens, GA in 1991 to begin my academic career, I figured I'd be here 1 -3 years at most, and that I'd move on to somewhere not in the south. Now I'm looking at starting my 30th year here! Have really enjoyed being in Athens, wonderful people, supportive university, good schools for my kids, affordable, and it even snows once or twice a year. Having finally stepped down as Department Head, I am organizing a careers worth of materials, and staying active in our department as both a teacher and advising grad students. As cliche as it sounds, Colgate absolutely empowered me to follow the career path that I have, and I am beyond grateful for the education I received, and the mentorship that the faculty provided me. I almost always seem to be either teaching field school or doing field work when reunions happen, but I hope to attend some reunions soon to rectify that, and I really enjoyed being in the department a number of years ago to give a talk, brought back a flood of memories for sure. Anyone who ever ends up down this way, please get in touch, I'm easy to find and always willing to drink a beer and catch up!

*Crowley, Seamus* (**2018**) Project Analyst: working on local greenhouse gas reductions and state & federal climate action policy engagement.

*Eppich, Gary* ***(2006)*** After spending two years in Vienna, Austria working for the International Atomic Energy Agency, performing clean laboratory-based mass spectrometry analyses in support of nuclear safeguards, I've since relocated back to the U.S. Late last year I accepted a post in the National Nuclear Security Administration, in an office that focuses its efforts on deterring the smuggling and trafficking of nuclear materials worldwide. Now based out of Washington D.C., I provide scientific and technical expertise to the office, mostly on how to use of the types of instrumentation familiar to us geologists (mass spectrometry, SEM, etc.) to analyze nuclear materials, to determine their origins, when they turn up after having been lost or stolen. I work

with a good number of international partners on this; lots of work in Central Asia (Kazakhstan, most notably), but also Brazil and Argentina, as well as a number of partners in Europe. The goal is to utilize U.S. expertise (based in D.C. and at the Dept of Energy Labs, including my home lab, Livermore) to help our global partners in the continuing development of their own counter-nuclear smuggling capabilities.

*Fitzpatrick, Kate* **(1996**) Checking in from Bend, Oregon where I work to restore streamflows to the Deschutes Basin. On occasion, I see a couple other Colgate geology alum running around Bend- Cooper Morrow (95) and Gillian Friedrichs (now Ockner).

*Gaudiano, Dan* **(1996**) Over the last two years our science department has run week long intensive field trips to the US desert SW: Grand Canyon, Bryce, Zion, (Jan. 2019) and Grand Teton and Yellowstone (Jan 2020). I've tried to pull from the great experiences of the 1994 OC program. At the moment our 2021 trip is on hold due to the pandemic. Hawaii continues to be a wonderful place to live, work and raise kids. Please reach out if you visit - I know a few great spots to hike and visit really fun geology!

*Gill, Clifford* (**1990**) I'm currently sheltering in place in Kansas City, where I live 8 months of the year, and about to go to Homer Alaska, where I live for the summers, with wife and 2 kids, 15 and 4. After a masters degree in geology at US Santa Cruz, I ended up working in Alaska doing non-geology as a pilot and adventure travel guide, with stints flying floatplanes for fishing lodges, air taxi pilot and bush flying, and web development also mostly in Alaska. This work evolved into doing aerial surveying and airborne remote sensing around the US, and eventually starting my own very small aerial survey company.

*Glotch, Tim **(1999)*** I was promoted to Full Professor in the Department of Geosciences at Stony Brook University in 2018. Since that time, I've also been serving as the Associate Dean for Operations and Facilities in the College of Arts and Sciences. I continue to do research in planetary science. I've enjoyed participating in NASA's Lunar Reconnaissance Orbiter and OSIRIS-REx missions and leading one of the nodes of NASA's Solar System Exploration Research Virtual Institute.

*Goldhirsch, Douglas* **(1979**) Love the coast of Maine, Building and caring for great boats.

*Hakes, Bill* **(1968**) Besides being retired and locked down in London, there is little to report. I suppose the challenge is to try and figure out what professional societies I still want to pay dues.

*Henderson, Joe* **(2003**) I recently co-edited a book-length collection of best practices in climate change education from around the United States. "Teaching Climate Change in the United States" was published in April of 2020 by Routledge Earthscan as part of their "Advances in Climate Change Research" series.

*Hoffman, John* **(1968**) Had to cancel a fossil collecting trip (Tully, NY) with my 8 year old grandson due to the pandemic. Fond memories of classes and trips with Bob Linsley. Safe and sound so far, here in NW Connecticut.

*Howell, David **(1966)*** Ever since 1964 during my first year as a field assistant for Jim McLelland I have been doing geology of one sort or another. Geologists are always in demand but exactly how demanding is the task of course can vary quite a bit. Of late I have found a nice home in the wine realm, terroir, writing geologic narratives for winemakers and vineyard owners. This includes teaching an on-line class for Stanford University: The geology and wines of California and France as well as partnering with two wine buddies in a touring enterprise: wineandgeologytours.com. In a glass of wine there can be a 100 million years of earth history, and believe me, many folks can't get enough of it, the geology and the wine.

*Husch, Jonathan* (**1975**) After 40 years at Rider University in the Department of Geological, Environmental, and Marine Sciences (GEMS), I retired after the Spring 2020 semester. Despite the unusual and unexpected way my career there ended because of Covid19, I had a great run. In addition to chairing GEMS FOR 11 years, I also served as Rider's NCAA Faculty Athletics Representative for 15 years.

As a last hurrah before retiring, I co-taught a course at Rider called Nature's Business, which focused on eco-tourism in Tanzania. The culminating event of the course was a week on safari in Tanzania, including the Serengeti, Ngorongoro Crater (actually a caldera), and Olduvai Gorge. It was an amazing experience with more animals than you could count.

*Hutchins, Patricia* **(2005)** Trisha will reach her 12 year anniversary of working with the U.S. Department of Energy at the Energy Information Administration in June 2020. Trisha also got engaged in February 2020 to her fiance, Kerry Fitzpatrick. Her fiance will be deploying overseas with her Army National Guard Unit in June 2020 and they plan to get married in the Fall of 2021.

*Inman, Kerry* **(1979**) I retired from oil and gas in March of 2016 after a wonderful career in exploration. I'm currently running a contemporary art gallery in Houston, and will celebrate our 30th birthday this fall. (I did both for many years!). I miss geology!

*Kaplan, Jason* (**2006**) My wife Stephanie and I welcomed our son, Henry, on February 10, 2019. I also joined a renewable energy software company, PowerMarket, two years ago and now serve as the Chief Operating Officer. We manage community solar assets across the country, enabling everyone to participate in our clean energy future.

*Kavanagh, Andrew* **(2013**) I've worked in 42 out of 50 states doing In-Situ remediation for a suite of groundwater contaminants. Regenesis (my employer) is currently positioned to corner the PFAS/PFOA market with our cutting edge liquid activate carbon suspension, so it has been exciting to be a part of developing and implementing new approaches that are actively shaping the future of groundwater remediation. On the personal side of things, my band Praise The Fallen was geared up to do a small Midwest tour prior to the COVID -19 pandemic, but 90% of the dates have been cancelled :(. We did play a show with John5 from Rob Zombie last year and he signed my guitar and gave me a hug. I haven't washed the shirt I was wearing since. LOL.

*Kim, Jon (aka Yun)* (**1981**) I regularly collaborate with Keith Klepeis ('86) and students from the University of Vermont Geology Dept. on structural geology projects, lately utilizing drones and photogrammetry. Andrew Schroth ('93?) and I

are working on different aspects of a project at Lake Carmi in northern Vermont on cyano-bacteria blooms. I just saw Barry Doolan (‘64) last week at a retirement event and Jeff Frederick (‘93) and I frequently attend the same hydrogeology conferences. I recently visited with Dave MacLean (‘83) at a January conference at UMASS/Amherst.

*Lasker, Josh* **(2014**) I'm still living in San Francisco and running the company I started with Colin Shipley ('15) in 2016. While I'm still not working in geology, I married a scientist last year and like to make it known that we are both trained scientists despite her many more credentials. Thank you to the department for making that possible! I miss you all and hope everyone is staying safe!

*Lattimore, George* (**1975**) Heading up a fascinating project in Northern Myanmar (Burma); re-entering a remote oil field India Burma Oil Company produced from 1912 until the Japanese invasion in the early 1940's. Targeting high pressure gas below the shallow oil they produced. Technical challenges with a component of archaeology; Great fun.

*Leslie-Bole, Ben* **(1980**) I have been living in SF Bay area for 35 years and loving California. I had a wonderful 30-year career as an ERM partner, but did a much needed retirement in 2016. I am now teaching a field class on California Water at a local high school, and working as a guide for wilderness vision quests at two other local high schools. I am doing what I love and find stimulating, and amazingly, I'm getting (lightly) paid for it! Life is wonderful!

*Lewis, Reed* **(1996**) Reed's latest venture is in oil, but not in the geological sense. Unless, of course, you are able to distinguish the terroir from which the extracted hemp oil is grown. Reed started Lys CBD Chocolate a year or two ago and is working now to grow it into a national brand. Lys CBD Chocolate (pronounced 'liss' and meaning 'light' in Norwegian) is made from just 4 ingredients: fairly traded, high quality Ecuadorian cacao beans, organic cane sugar, coconut milk, and Colorado organically grown full spectrum hemp CBD. Check out LysChocolate.com for their 60mg or 120mg bars or the ever popular 'calmas', the bite-sized 10mg chocolates. Lys!

*Michaels, Julian* **(2011**) Last year, my wife (Emily Wakim '11) and I moved to Denver, CO. I was relocated from the OKC office of BPX Energy (subsidiary of BP) to the Denver office to work as a geologist in the Eagle Ford play in South Texas. Our team has been actively developing the oil/gas resources since early 2019 and have only recently slowed down due to the drop in global oil price. Otherwise, life is good in CO. The ski season was unfortunately cut short by Covid-19 but we are still managing to get outdoors. We will continue to recreate responsibly this summer and hope that the Rocky Mountain Association of Geologists reschedules their field trips for the fall. Just Google "Corral Bluffs Fossils" the next time you are bored in quarantine! Also, looking forward to socially distanced rafting adventures on the Colorado River, including a trip down the Grand Canyon in September 2020. I would love to connect with more Colgate people here in Denver. Stay Healthy Geos!

*Newton, Alicia **(2002)*** I started as Director of Science and Communications at the Geological Society of London (the UK's main society) about a year and a half ago. GSL was founded by 13 men on the 13th of November, so I feel like I have a bit of a pattern going on. My highlight so far has been launching our mental heath campaign, but attending meetings in Parliament is a pretty close second.

Ed and I are still living on the outskirts of London, and we're definitely appreciating having an ancient forest on our doorstep as we enter month three of coronavirus lockdown. I have taken up trail running, and we are trying out a bit of birding. We are also slowly getting the backyard into shape. With probably another three months of working from home to go, we many finally be able to win the battle against the bramble.

*Padian, Kevin* (**1972) (MAT 1973)** After 40 years at Berkeley, first in the Department of Paleontology and then the new Department of Integrative Biology, I'm retiring at the end of this rather unusual semester. I'll continue to work, of course; the next major projects to be published will be a large monograph on the locomotion of the giant Late Cretaceous pterosaur Quetzalcoatlus, and a book co-edited with a group of Paris colleagues on the bone histology of fossil vertebrates (CRC Press, probably 2021). My last two grad students will be out the door next year (that will make about 18, all thankfully with-good jobs).

In what passes for my spare time, I'm still playing music, and in 2018 I was elected to my local Fire District Board, which has a very large job ahead given that the hills where we live are on the very edge of a very dangerous Wildlife-Urban Interface that hasn't burned in over 120 years. A second house we have in the Sonoma countryside barely escaped burning to the ground in 2017, although most of our neighborhood was destroyed. Now we have the coronavirus, and who's to say when an earthquake will rock the Hayward Fault, just half a mile down the hill? Nature is certainly having her revenge on us …

It's so great that the Geology Department continues to hire such amazing new people, and to produce such great students. I urge everyone to "give back" by "paying it forward" and earmarking your Colgate contributions to keep the Department among the nation's best!

*Palmer, Jeffrey* **(1980**) I retired from ExxonMobil at the end of August 2018, after almost 36 years of working in oil & gas exploration, new development, production and research. Part of the final 3 years was spent working with a team on developing approaches to mitigate or reduce CO2 emissions from power generation.

We've decided to stay in the Houston area and plan to travel extensively - a plan placed on hold by the coronavirus pandemic. We had planned to attend my 40-year reunion in 2020, but will now plan to attend the rescheduled reunion in 2021. Hope to see many other class of '80 and '81 geos there.

*Roesler, Caitlin* (Cunningham) ***(*2013)*** Married a fellow ‘13 Geology Major (he was double major with Astrophysics), Danny Roesler in June 2019.

*Ruderman, Nicole* **(1989**) Franchise Owner- technology services company.

*Schott, Ron* **(1991)** (Contributed by William Peck) We were saddened to hear that Ron Schott ('91) passed away of natu-

ral causes on May 28, 2018. Back in 1994 Ron was my host when I was a prospective graduate student at the University of Wisconsin. I slept on his couch and he made pancakes for breakfast- in addition to showing me and a gang of others around the department, and taking us on a wonderful field trip to see the rocks of central Wisconsin. A big part of what made UW such a great place to go to grad school for me was Ron's welcome, and having him as a friend and colleague. Ron loved geology, and he loved teaching, and he was always generous with his time. He was always in the petrology lab helping students with microscope work, or deciphering their lecture notes, or telling stories. Ron especially enjoyed telling semi-mythic stories about his undergraduate years at Colgate University, and the cast of characters there. My introduction to The Chief, Bruce Selleck, and Art Goldstein were from Ron's fond & funny memories. When I joined the department at Colgate I wasn't surprised to find that they still told stories about Ron! We miss him, his enthusiasm, and his kindness.

*Schulenberg, Ted* **(1952**) I've waited in vain for many years for a Departmental Reunion; which I have proposed on several occasions. If it should ever happen I will now most likely be unable to attend in my dotage (became a nonagenarian in May 2020). Too bad.

I've been teaching a course on "The Geology of the Texas Hill Country" at our Adult Education Center here in Kerrville for the past 10-12 years plus giving talks frequently to various interested groups.

Remarried in 2017 (first wife, Janet, having died in 2010). New bride happens to have been 'oil field trash' as was I for 40 years.

*Snyder, Mike* **(1980**) Back in the oil patch, consulting for a producer in Bakersfield though that will likely end soon given oil prices. Considering a move from Dallas to DC now that my daughter's finished college.

*Solomon, Josh* **(2014**) After a three year victory lap at Colgate as the Assistant Director of Outdoor Education, I will be moving to Burlington to get a Master's in Teaching at UVM. I received a National Science Foundation scholarship for my program to teach high school Earth Science at a high-need public school. Hopefully, I can send a few of my future students to the Colgate Geology department ready to ace every one of those dang minerals of the week quizzes.

*Vendetti, Jann* **(2001**) I have been home with my kids, like many of us, during the coronavirus pandemic. We have a big Kid's Atlas of the World and one of my favorite activities it talking about earth science and geography with my 2nd grader. I'm pretty sure I enjoy this activity more than she does. Stay safe and healthy everyone!

*Vriesman, Veronica* **(2017**) Advanced to PhD candidacy in geology at UC Davis, and earned the National Science Foundation Graduation Research Fellowship Program (NSF GRFP) for work in paleoceanography.

*Vyhnal, Christopher* **(1987**) As I write this (5/5/20), I am currently on a sabbatical year with my family. I had planned to be conducting archaeometric research on ancient Roman pottery in the Campania region of Italy in conjunction with Celestino Grifa of the University of Sannio in Benevento, Italy. But the Italian visa bureaucracy is every bit as challenging as you've heard, and I was unable to obtain my extended -stay visa for scientific research due to a trivial clerical error. (In hindsight, this turns out to have been somewhat of a blessing in disguise, as Italy was hit early and hard by the coronavirus.) We left Italy in November for a few months in Dubrovnik, Croatia before making our way here to Kissonerga, Cyprus, where we are currently sheltering-in-place and riding out the pandemic. With our plans for additional travel in Europe effectively quashed by the virus and EU border closures, I've been spending my time working on several manuscripts (one of my own and two with Celestino and his colleagues) and designing a new course for my high school students on the applications of chemistry (and geochemical analytical methods) to art and archaeology (if you're interested to learn more. see https://pubs.acs.org/doi/full/10.1021/acs.jchemed.9b01093 ). We are healthy and content and feel relatively safe on our Mediterranean island oasis where the virus seems well under control and where restrictions on our movement are gradually lifting. We are targeting a mid-July return to the US if all goes well.

# DEPARTMENT COMMUNITY

The close bond between and among students, faculty, and alumni is one of the things that makes the Colgate Geology experience so special. Last year many of you wrote testimonials about how important the department and faculty were to you during your time at Colgate as part of a project by Jon Powell ('74), who presented a book of these testimonials to Jim McLelland (the Chief) in December, 2019. Thank you Jon!

A PDF of the department testimonials can be found linked to the Department Community web page: https://www.colgate.edu/academics/departments-programs/department-geology/department-community, along with PDFs of this and some past department newsletters.

## DIGITAL NEWSLETTER

If you would prefer to receive a digital copy of the newsletter, please contact us at wpeck@colgate.edu and we will be happy to remove you from our hard copy newsletter distribution list. This helps with our sustainability efforts! You will be able to view future newsletters at the Colgate Geology webpage:

https://www.colgate.edu/academics/departments-programs/department-geology/department-community

We can notify you via email when a new version of the newsletter is available. The newsletter is typically published biennially.

## NOT HEARING FROM US?

We use Colgate's alumni office for all of our department mailings and email contact. If you or people you know are not receiving mailings or email correspondence from us, please check to make sure your contact information is up to date. If you have changes, you can make them online at the Colgate alumni directory:

https://www.colgate.edu/alumni

Alternatively, you can contact the Alumni Office at 315-228-7453 or alumnirecords@colgate.edu

Note: If you have indicated on your account that you do not wish to receive emails from Colgate, then you won't receive emails from our department either.