

GOLD PAN

Alumni Magazine

SUMMER 2020



CH-CH-CHANGES



NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

FRONT COVER

Top row: (left) Paint the M in October 2019; (right) NMT students pose in front of the 10' snowman they built on campus with typical NMT student can-do attitude and teamwork skills in mid-February, 2020.

Bottom row: (left and middle) Office for Student Affairs food distribution in April, 2020; (right) Geoffrey Knox (B.S. Computer Science, 2020), one of the graduating students who provided their own photo for the first-of-its-kind virtual Commencement in May, 2020.

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Editor In Chief

Colleen Foster

Editor

Rebecca Clemens

Design

Rachel Montoya

Contributing Writers

Lisa Majkowski

Megan Schwingle

Administration

Dr. Stephen Wells
President

Dr. Olin Cleve McDaniel
V.P. for Administration
and Finance

Dr. Peter Phaiah
Acting V.P. for Office of
Student Life

Dr. Van Romero
V.P. for Research

Dr. Douglas Wells
V.P. for Academic Affairs

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BACK COVER

Top row (l to r): Rafting on the Chama alumni trip; Boarding the "Christmas on the Pecos" alumni trip.

Bottom row (l to r): Ready for the WIPP alumni tour; inspecting the WIPP facility up close.

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Office for Advancement and Alumni Relations

Colleen Foster
Director
575.835.5352
colleen.foster@nmt.edu

Lisa Majkowski
Associate Director
575.835.6168
lisa.majkowski@nmt.edu

LaVern Robinson
Donation Specialist
575.835.5525
lavern.robinson@nmt.edu

Mary Gillard
Administrative Coordinator
575.835.5352
mary.gillard@nmt.edu

Megan Schwingle
Major Gifts Officer
575.835.5353
megan.vanwinkle@nmt.edu

Rachel Montoya
Alumni Relations Manager
575.835.5278
rachel.montoya@nmt.edu

Rebecca Clemens
Manager/Database
and Technical Editing
575.835.5292
rebecca.clemens@nmt.edu

Samantha Vigil
Manager, Campaign Project
575.835.5658
samantha.vigil@nmt.edu

Sandi Lucero
Events Coordinator
575.835.5618
sandi.lucero@nmt.edu

Greetings, Alumni

This edition of Gold Pan revolves around the concept of 'Change is Constant,' a most appropriate theme for this publication. We definitely have been adapting to these interesting times by making many alterations to our operations.

Universities face an unprecedented, challenging and changing academic landscape. We are addressing these challenges diligently in order to continue offering a high level of quality instruction to the next generation of Techies.

Through the exhaustive efforts of our NMT COVID-19 Task Force, we have established meaningful changes to our procedures and policies to address the COVID-19 pandemic. All these efforts are intended to ensure a healthy environment for students, faculty, staff, and campus visitors.

In addition to changes on campus, we are working closely with the City of Socorro, Mayor Ravi Bhasker, and our local healthcare providers to ensure a healthy and safe environment for all. We are fortunate to have a mayor who is a physician, whose medical expertise has helped Socorro to implement a number of measures, such as requiring face coverings weeks before the State of New Mexico instituted statewide measures.

The City of Socorro has been diligent about requiring local businesses to observe best practices about social distancing, face coverings, and hygiene practices. The proactive response on the part of the city has benefited both the Socorro and the NMT communities. Together, NMT and the City leadership have taken extraordinary steps to ensure an environment that is as safe as possible for students to continue to learn.

On campus, we have taken strides to reduce exposure and minimize risks. When school resumes in August, every student will receive a special kit that includes two NMT face masks, hand sanitizer, and other items to help ensure that we maintain a healthy campus. We will be working closely with our employees and students on testing and tracing protocols, to maintain the highest level of monitoring.

Tech's classes will be offered in three modes: in-person, online, and hybrid. Students who are vulnerable or uncomfortable with in-person delivery, or have a vulnerable family member, will have the option of participating online. Likewise, faculty are offered the same options for their mode of teaching.

A WORD FROM THE PRESIDENT



Everyone on campus will be required to wear masks at all times, except in private offices and dorm rooms. We will be sanitizing classrooms on a regular basis, and all classrooms have been modified to allow for strict social distancing.

Our dining hall has also been modified. We will no longer offer self-serve or buffet style service during the pandemic. We've removed some of the tables to accommodate distancing rules, and implemented grab-and-go meals. For students who are self-isolating, we will offer delivery service to their dorm rooms or apartments.

We've also changed our residence halls to single-person rooms. Returning students can petition to have a roommate, which will be allowed in certain circumstances.

These are just some of the major adaptations we've made. We've also altered operations in Student Services, Counseling, Disability Services, Skeen Library, the Health Center, and other offices. We've also modified our procedures at the Swim Center and the Tech Gym to provide exercise outlets and mitigate risks.

I want to offer a special note of appreciation to everyone who has participated on the COVID Task Force. This group meets weekly with critical topics and engaging discussions on all the finer points of how to deal with this pandemic. They've truly done amazing work to help transition to the changing landscape of education in this time of pandemic.

For all the news and announcements related to our response to the pandemic, please visit the website devoted to COVID-19 information at <https://nmt.edu/covid19/index.php>.

Rest assured, New Mexico Tech will continue to offer a top-notch education in the safest possible environment.

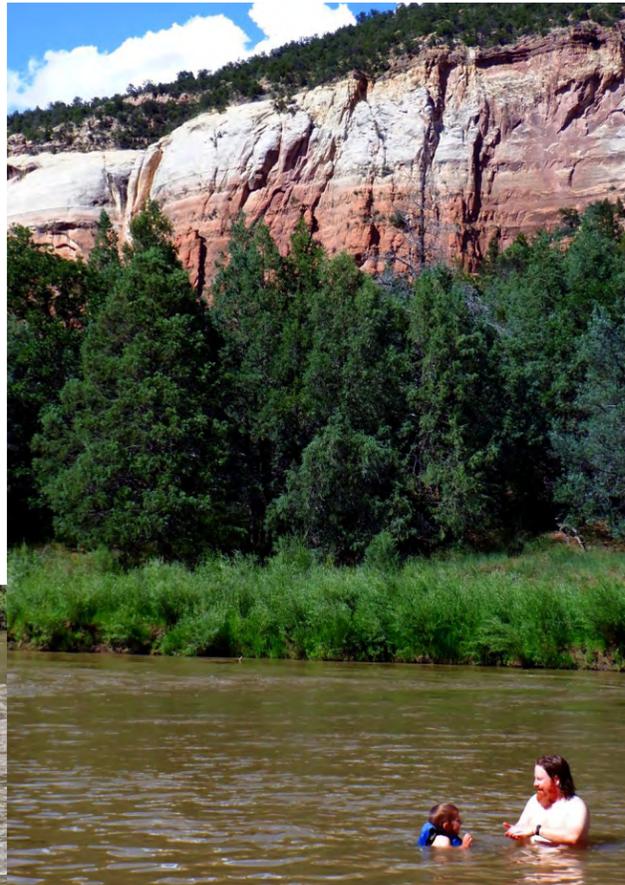
Warm Regards,

Dr. Stephen G. Wells
President, New Mexico Tech

RAFTING ON THE CHAMA (JULY 2019)

Matthew McCleary (Bachelor of General Studies, 2010) My then six-year-old son William and I (shown at right swimming on the last evening on the river) welcomed the opportunity to introduce him to river rafting on the Chama, and for me to raft a river I hadn't before. We had a relaxing (and occasionally very exciting!) time, ate like kings (thanks to Far Flung's excellent cooks), and had a great long weekend of one-on-one, father-son time. Even the occasional thunderstorm did nothing to dampen anyone's spirits. Our favorite experience was the hike to see some dinosaur footprints along the river. We're both looking forward to going again on a future trip, as soon as our "coronavirus life" returns to normal.

Jim Ruff (M.S. Physics, 1988) and **Mary Ruff** (M.S. Mathematics, 1990) - (shown below). The trip was very well organized, the fellow rafters were a great bunch, the food was fine, and nobody died! What more could you want?



WIPP TOUR (NOVEMBER 2019 - RIGHT PHOTO)

Richard "Rick" Supka (B.S. Geological Engineering, 1984) We are continuing to work here at WIPP. Bad ground never sleeps.



SIERRITA MINE TOUR (MARCH 2020 - LEFT PHOTO)

Rick Supka (again) My wife and I really enjoyed the trip to the Sierrita Mine (above). We hope to go to more of them once things settle down.



CHRISTMAS ON THE PECOS (DECEMBER 2019)

Roger Nelson (Bachelor of General Studies, 1972, and M.S. Physics, 1973) September brought a delightful postcard from the NMT Alumni Relations Office, announcing an event for NMT alumni in Carlsbad, NM. The Pecos River is dammed through the middle of Carlsbad creating a 2-mile or so segment with homes on both sides. The Chamber of Commerce offers a pontoon boat ride on this stretch every Christmas season, and the homeowners volunteer to decorate their back yards for the festive season. NMT Alumni office was hosting a reception and ride on one of these boats - I immediately RSVP'd!



While I knew a few NMT alumni in Carlsbad from living there for >20 years, I hoped to meet many more. I was not disappointed. On December 7, my spouse (married in Socorro, 1969) and I met a dozen+ alumni from around the area and thoroughly enjoyed an evening of reminiscing and entertainment. I am grateful to Megan Schwingle and NMT Advancement for the opportunity to make new local contacts; I hope to attend many more NMT alumni events.

CORRECTIONS

Gold Pan Winter 2020 - Our thanks to **Lester Welch, Ph.D.** (B.S. Physics, 1962), who notified us that there was an error in Rozanne Waldron's recollection (p. 19). The Chair of the Physics Department at that time was Dr. Marvin Wilkening.

FY2019 Advancement & Foundation Annual Report - We regret the omission of several donors' names in the FY2019 Wellspring Society listings, and thank those who notified us. The donors whose names were inadvertently left out are:

Wellspring Giving Society - FY2019 Annual Members

ORGANIZATIONS	INDIVIDUALS
E. Eugene Carter Foundation	John* Crum
First State Bank	Dr. Raul* and Shari Deju
	Ken* and Margie Fagan
	Anita Gleason*
	Dr. Melvin Hatch
	Deborah Peacock

Wellspring Giving Society - FY2019 Lifetime Members

ORGANIZATIONS	INDIVIDUALS
City of Socorro	Dr. Catherine Aimone-Martin
DXC Technology	Willow* and Jean Burand
First State Bank	Dr. Stirling and Rosemary Colgate
Hewlett-Packard Company	Dr. Raul* and Shari Deju
Holiday Inn Express	Ken* and Margie Fagan
Estate of Rene Mills	
Nusenda Credit Union	
Sandia National Laboratories	
	Brian* and Cheryl Luginbill
	William* and Cheryl Macey
	Dr. Van* and Barbara Romero
	Don* and Rosie* Tripp

Asterisk indicates donor is an alum

The digital version of the full annual report has been corrected and is available on our website at <https://www.nmt.edu/advancement>.

Dr. Virginia T. McLemore (B.S. Geology, 1977, and M.S. Geology, 1980)

I started going to Society of Mining, Metallurgy & Exploration (SME) annual meetings about 1986 and have attended many since then. I have been on many SME committees, including the executive committee for the Environmental Division, and I chaired the Environmental Division in 2014-2015. Through these committees I learned about SME and specific committee functions, but I also developed skills and knowledge that helped in my paying job as the Economic Geologist for the New Mexico Bureau of Geology and Mineral Resources, a research division of New Mexico Tech (since 1980). My favorite committees have been Information Publishing, Government Affairs, and the SME Journal Oversight committees.

I have developed many professional relationships throughout the mining industry that have helped my career and even helped with some of my day-to-day challenges. Now I am one of the section editors for SME's new journal *Mining, Metallurgy, and Exploration* by Springer and excited to be part of the team getting this new journal recognized!

I particularly enjoy the SME conference exhibit hall and for a few years, when budgets were tight, I only went to the exhibit hall, not the technical sessions! The field trips are great and recently I started going to the SME Midyear Meeting.



The 2020 conference in Phoenix, AZ was interesting. I gave a presentation on Rare Earth Elements in Proterozoic peralkaline igneous rocks (Pajarito Mountain) and pegmatites in New Mexico, which was quite well received. One of my current students, Nico Harrison (*center front, photo at left*), gave another presentation (a study of abandoned mine lands in New Mexico) that involved two other students and me. Nico's presentation was so good, the Mining and Metallurgy Society of America invited one of us on the team to present a similar talk at their AML summit in April 2020 (*ed. note: summit postponed until Fall 2020*).

I caught up with old friends, met new ones, and enjoyed the event. I have a few ideas on future projects and assisted some of my students in getting potential job contacts. There haven't always been a lot of local colleagues that specialize in economic geology that I can interact with - SME has definitely filled that gap. It looks like New Mexico Tech will be getting some new faces who are economic geologists, or at least have research goals in economic geology, and I can't wait to expose them to SME!

Also, I received an award from SME this year (*photo at right*), the SME Environmental Distinguished Service Award. I owe tremendous gratitude to my students and colleagues for their assistance in my receiving this award!

In summary, SME has provided me with a lot of fun, new friends and colleagues, new skills and challenges, and a variety of different opportunities my job would not have otherwise provided.



Has your address, email, or phone number changed?
 Prefer to go digital only? Prefer postal mail only?
 Have news to share?

 Send updates to rebecca.clemens@nmt.edu

Even though we are physically separated, we've never been more together as a community of students, scholars and families.
President Stephen Wells



Class of 2020 Vital Statistics

Including the Class of 2020, NMT has awarded

- 8,556 bachelor's degrees
 76 in Mechanical Engineering in 2020
- 3,301 master's degrees
 15 in Mineral Engineering in 2020
- 461 Ph.D. degrees
 5 in Chemistry in 2020

Facts about undergraduate recipients:

- Average GPA is 3.31
- More than 72% have GPAs of 3.0 or greater
- 4 students graduated with a perfect GPA of 4.0
- 78 students received at least one F
- Youngest recipient is 19 years old
- 86% are from New Mexico
- 12 graduates are alumni of Socorro High School

Faculty Awards

Each year at Commencement, three Faculty Awards are presented. 2020 was a special, and unprecedented, year: all three winners were from the same department - **Mathematics** (*see page 16 for full details*).

A few things I learned in the last six weeks of the Spring 2020 semester:

Veronica Espinosa, Student Regent, Macy Scholar, B.S. Chemical Engineering 2020

- I'm not as much of an introvert as I thought I was.
- Watching Zoom lectures at 8:00 am while still in bed wasn't the best combo to keep myself focused.
- While graduation may be one of the greatest achievements in your life, this day can mean much, much more to your loved ones.
- While situations like this may bring out the worst in [some] people, the NMT community went far and beyond....Faculty, staff, students, and alumni came together to provide academic, emotional, and financial support.
- How adaptable we Techies truly are. We have proven we can roll with the punches.
- As Techies we were there for each other. Whether it was a late night homework group or on Discord or Facetimeing, we let each other know we're not alone.

You can watch the 2020 Virtual Commencement and the 15-minute pre-show montage of student-submitted photos (produced by Advancement's own Rachel Montoya) on YouTube: <https://youtu.be/oYv6KDokSc>.

EMERITUS FACULTY SPOTLIGHT Kent C. Condie, Ph.D.

BY LISA MAJKOWSKI

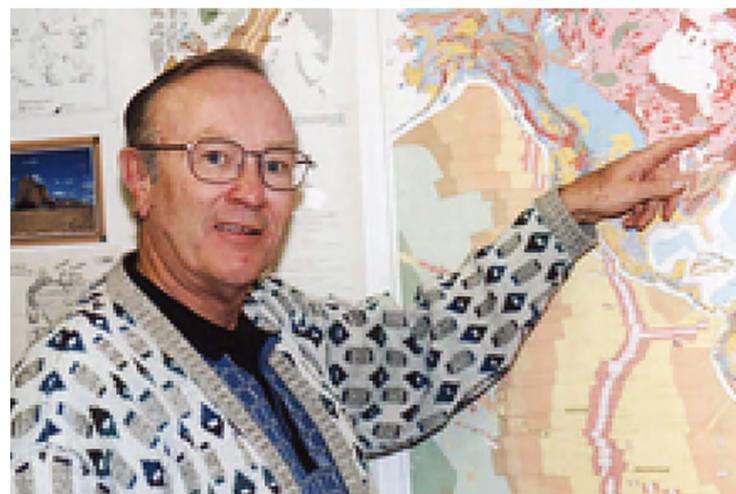
Dr. Kent C. Condie is Professor Emeritus of Geochemistry in the Earth and Environmental Science Department at New Mexico Tech. He received the Geological Society of America 2018 Penrose Medal, the oldest and most prestigious GSA award, that recognizes "...eminent research in pure geology, for outstanding original contributions or achievements that mark a major advance in the science of geology."

Dr. Condie, what brought you to New Mexico Tech?

I was teaching at Washington University in St. Louis in the late 1960s, and my wife and I did not like living in St. Louis. We were anxious to get back out west where our family lived and where I could study geological problems of major interest to me.

You have conducted research all over the world. Do you have some favorite geological locations?

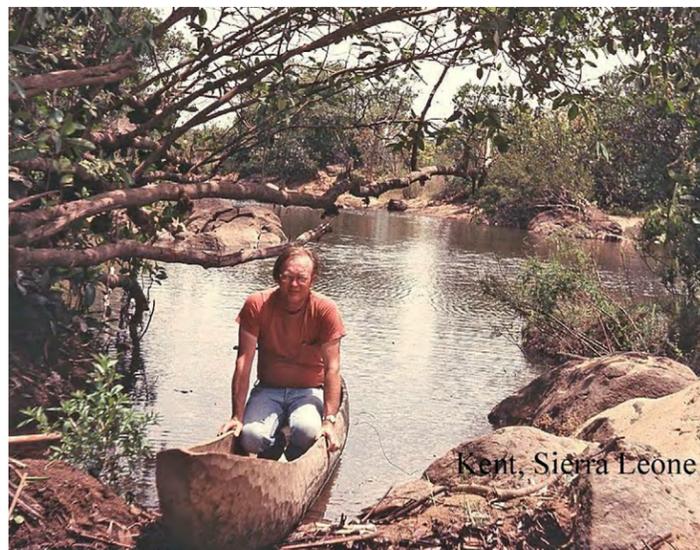
Many. In 1972 I received my first NSF grant that required foreign travel. Since that time, I have taken a minimum of one foreign trip per year. I particularly like southern and eastern Africa. Zimbabwe is a beautiful country.



The big game parks in Zimbabwe and South Africa are among the most interesting features of these countries. I remember my first encounter with an elephant in Wankie Park in Zimbabwe. I ignored the sign that prohibited visitors from leaving their cars and climbed out to take a close-up photo of a bull elephant that was actively engaged in stripping the bark from a tree to eat. He eyed me up as I approached more closely and then suddenly, without warning, he charged. It was lucky for me that I was only a short distance from the car, as it soon became clear, I could not outrun him for a great distance.

During July of 1991, I traveled to South Africa and Swaziland. The purpose was dual: to attend the IGCP 280 Old Rocks field trip and to finalize plans for the next year to begin a study of 3.6-billion-year-old rocks in Swaziland, the topic of my latest NSF grant. We looked at old gneisses in Swaziland, argued about the significance of zircon dates from these rocks, and examined in some detail the Barberton greenstone, an old friend of mine from my first trip to southern Africa many moons ago. We crossed Kruger Park (my fourth or fifth visit here) and went into the deep crustal section exposed in the Limpopo belt near Messina.

In 1992, I again traveled to South Africa and Swaziland. We looked at Bushveld rocks, the Vredefordt structure (which I'm now convinced is a 2-billion-year-old meteorite impact structure), and went underground in a gold mine to see alleged glacial deposits of the Wit-



On the way to Botswana in 1979, Dr. Condie stopped off in Sierra Leone to examine Archean greenstones

watersrand System (which I'm now convinced are not glacial in origin).

Our big trip of 2007 came in late August and early September. I was informed earlier in the year that I had been selected to receive an honorary Doctorate degree at the University of Pretoria in Pretoria, South Africa. So on our way to South Africa (Carolyn was also invited to attend the ceremony), we decided to stop off in Tanzania to visit some of the big game parks. We arranged a tour ahead of time, and it turned out this was the best thing we could have done. The guide we had was especially good and knew where all the game hung out. We saw all of the big game animals, including the black rhino, which occurs in only in Ngorongoro National Park.

As part of the trip, we also visited Olduvai Gorge near the site where the Leakeys discovered the oldest hominid remains (*Australopithecus* "Lucy"). Another highlight of the Tanzania experience was our flight from Serengeti back to Arusha in a small plane. We flew directly over the active volcano Oldoinyo Lenghai, which I have described many times in my igneous petrology classes, since it is the only example we have of an active volcano that erupts sodium carbonate lava and pyroclastics. The summit was white, but not with snow: sodium carbonate is white but turns black in few months due to weathering. Kilimanjaro was mostly covered by clouds during our visit, but we saw the summit (19,000-foot elevation) sticking through the clouds during the small plane trip.

It was great to return to southern Africa after a gap of many years. Africa will always have a place in my heart: the beauty of the countries, the open veld, the jacarandas, poinsettias and bougainvillea in bloom, and most of all the mourning doves. I remember the mourning doves from my first field work in Zimbabwe in 1973 (then Rhodesia). Also one can hardly forget the "wait-a-bits," the acacias that have curved thorns that catch your clothing and skin when hiking in the bush. The friendly African people so eager to talk with you and the school children, usually shy, but always waving to you from the sides of the road. And of course, the great geology, the old rocks of the eastern Kaapvaal craton exposed so well along the streams, such as the Komati River, and on the hillsides.

EMERITUS FACULTY SPOTLIGHT Kent C. Condie, Ph.D.

Dr. Condie, your field courses were very popular, especially the river trips. Would you share some stories about the adventures on these field courses?

In May of 1994 I guided a group from New Mexico Tech on the upper and lower boxes of the Rio Grande near Taos. Although we started off with 2000 cubic feet per second (cfs) of water, we ended up with 4000+ cfs, and capsized two boats on the trip!

Taos Creek was in flood stage when we arrived, and Taos Creek Rapid was larger than I had ever seen it. One of the paddle boats hit the enormous wave on the right side of the rapid and capsized. Fortunately, everyone stayed with the boat and the hardest part was uprighting the boat. The next day the river rose rapidly and Toilet Bowl Rapid was the worst I'd ever seen it, probably III+ rated rapid.

Souse Rapid, the last major rapid before takeout at the county line, is generally of little consequence and easily run. Hence, I was not paying much attention as we came around the blind curve and there it was. The hole in the center, which we were headed for, was a least 15 feet deep, curving to the east. I noticed a photographer on the shoreline, ready to shoot as we entered. I had three students up front with me. When I saw the rapid, it was too late to move to the east side, where one could run it. We had no choice but to enter the hole, and I think I knew as we entered it that we would capsize.



At high water, a tremendous hole stretches entirely across the river in Souse Rapid

EMERITUS FACULTY SPOTLIGHT
Kent C. Condie, Ph.D.

We entered the hole straight on, all of us rowing hard and fast. As the gigantic wave tipped us over, only the tops of two or three helmets were visible. The three students came up adjacent to the boat and rapidly moved to shore, whereas I came up in the middle of the rapid and had to swim across it before finding a place I could pull myself out. I remember going under, taking a deep breath, and holding as long as I could before surfacing. Then it was up and down in the waves as I was carried forward. The water was icy cold and my strength was waning. Could I swim to the opposite shore? I gave it everything I had and made it just before my strength gave out. I returned to the boat, and with the help of a kayaker, the five of us eventually uprighted the boat. Our other boats made it through on the east side of the rapid safely. I certainly looked at Souse Rapid on future trips!

Our final river trip of 1997 was on Westwater Canyon west of Grand Junction - same stretch we ran in 1996, but this time the water was running 7800 cfs due to all the rain in the area. When I heard it was so high, I knew we could have trouble at Skull Rapid with our small, heavily packed boats. We had three paddleboats in addition to my oar boat. How could we safely run Skull? For several nights before we hit Skull I didn't sleep well. In the miles leading up to Skull, I had the paddle boats practice an upstream ferry, knowing that was the only way they could avoid the gigantic hole at the bottom of the rapid. As I approached Skull, I realized this was worse than I could possibly have expected - the reversal went nearly all the way across the river and the giant whirlpool below the rapid would have been all but impossible to get out of. I scurried the left side of the hole, and yelled as loud as I could yell for the paddle boats to go into left upstream ferries! Everyone made it, just barely. It took all of our rowing strength to keep out of the hole.

In addition to geology, many people at New Mexico Tech learned about the local botany from you. Would you tell us more about your interest in plants of the Southwest?

I took local flora classes as an undergraduate at the University of Utah, and that interest stayed with me over the years. I often had students learning about native plants on our geology field trips. I am still active in the New Mexico Native Plant Society.



Recognize these Techies? (L to r) Dr. Kent Condie, Lewis Gillard, Bonnie Frey, and Dr. Penny Boston.

Dr. Condie, what advice would you have for alumni interested in pursuing university faculty careers?

Plan on increasing amounts of competition, if you are interested in an academic career. This means sponsored research, and the number of scientists competing for research funds is increasing much faster than the available funds.

Learn more about Dr. Condie's research, publications, awards, and geologic adventures at:

http://www.nmt.edu/academics/ees/emeritus/kent_condie/kcondie.php

Your gifts further New Mexico Tech's academic and research goals while allowing you to support your special interests.

Visit our **Giving Page** to see the many ways you can contribute to Tech and the students:
www.nmt.edu - click **Give** option at top right

EARTH & ENVIRONMENTAL SCIENCE
GETTING THE ROCKS OUT OF THE LAB!

Geoscience outreach is one of the priorities of the Earth & Environmental Science Department. Thanks to a grant from the Halliburton Foundation, E&ES is developing both traveling and virtual versions of the **NMT Geoscience Roadshow**, with geoscience activities as well as college and career information for students and their families.

The *Traveling Geoscience Roadshow* will include a portable seismograph, Real World globes, 3D maps, and an amazing collection of rocks and minerals. It's temporarily parked due to COVID-19 restrictions; E&ES is looking forward to getting it back on the road when it is safe to do so.

In the meantime, work is almost completed on the *Virtual Geoscience Roadshow*, which will be hosted on the E&ES Department website at <https://nmt.edu/academics/ees>. Featured videos will include geoscience activities, options for majoring in a geoscience, and testimonials from NMT alumni who work in geoscience-related fields.

Additionally, science teachers can request a **Rock Kit** for their classroom and **Geoscience Explorer Kits** for their students. Department Chair Dr. Bruce Harrison said that this endeavor is part of the department's strategic plan to increase enrollment in earth science. "We want to meet with students and their families to show that earth science is not only fun and interesting - it's a great choice for a college major and career. We are very appreciative of Halliburton for enabling us to connect students with the geosciences." Stay tuned for the launch of the Geoscience Roadshow webpage and feel free to contact Dr. Bruce Harrison at james.harrison@nmt.edu for more details.

We need your help.

I am pleased to let you know that the Mechanical Engineering Department is ready to welcome our returning Mechanical Engineering majors and also begin teaching a new cohort of students this Fall semester. As part of the COVID-19 safeguards that we have put in place to protect our students, our lab classes will be taught online.

This is where we need help from our alumni.

All of you remember taking Introduction to Mechanical Lab, Mechatronics, and/or Robotics during your time at NMT and you know how important they are. To give our students the best options while complying with COVID-19 precautions, the department would like to provide each Mechanical Engineering student in these classes with an Arduino kit.

Would you consider sponsoring a student kit for \$150? Between your contribution and the department's funding, we will be able to put together a complete Arduino kit and not pass the cost on through increased lab fees. Many of our students had their summer internships or jobs cancelled, and we don't want to cause them more stress.

My wife and I will be donating money to sponsor several student kits, my colleagues have pledged to support kits, and several alumni have already offered to sponsor kits. Will you join us? All donations help and are greatly appreciated.

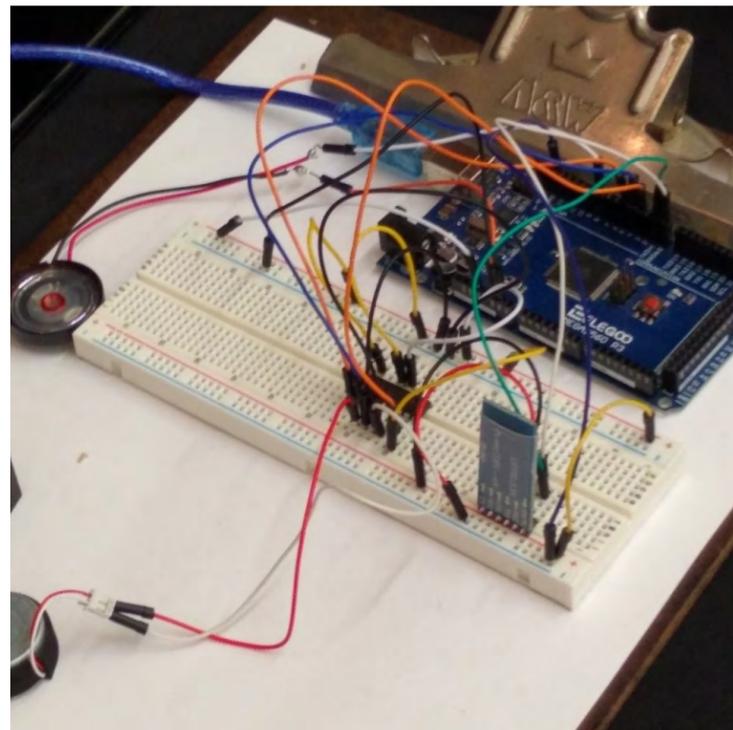
Online donations can be made on the NMT Giving Page at <https://advancement.nmt.edu/donate> or our department website at <https://www.nmt.edu/academics/mecheng/>. (scroll to the bottom of the page and click on the Donate link). Select Mechanical Engineering Arduino Kit from the Designation dropdown list on either site.

Checks can be mailed to Advancement, 801 Leroy Place, Socorro, NM 87801. Please make the check out to New Mexico Tech and write "MechEng Arduino Kits" on the memo line.

Feel free to contact me if you need any additional information. Thank you,



Dr. Curtis O'Malley
curtis.omalley@nmt.edu
 575-835-6631



BIOLOGY

In early March 2020, a Roswellian and a Slovenian walk into a bar...their Biology lab, actually, to pick up some alcohol and mix up a gallon of the World Health Organization Hand Sanitizer for New Mexico Tech.

The University President hears about it and offers funding for increased production to cover the towns of Socorro, Magdalena, and the nearby Alamo Navajo Reservation. The VP for Research hears about it and offers procurement of increased quantities of starting materials for the sanitizer, DIY face-shields, and high-quality handmade face masks.

This folds in six students, who work from home, and the Department Goddess, who designs a face mask, makes kits, and organizes some 25 Socorro and Magdalena seamstresses to intensify face mask production. This gets the growing team integrated into the New Mexico Governor's COVID-19 Response Team via the Assistant VP for Research, who invites an EMRTC Ex-

plosives Chemist, who sources hundred-fold greater quantities of sanitizer components as well as hundreds of containers of varying sizes and labels.

The superbly resourceful Assistant to the Assistant VP for Research acquires thousands of just-about-impossible-to-find spray bottles which then permit the NMT's hire of Riveter Rosie and Formulator Lawrence undergraduates for mixing of the now hundreds of gallons of hand sanitizer and yet another kind of a face mask for NMT students, faculty, and staff.

The Roswellian is coordinating production and NM-wide distribution and the Slovenian is backing it all up as production escalates to 700+ gallons of hand sanitizer and 500 face masks+ (by end of May). All of the hand sanitizer and face masks are distributed, for free, to the neediest and hardest-hit across 15 New Mexico counties, the Navajo and other Native American reservations, and clinics.



Team (l to r): **Dr. Snežna Rogelj**, Slovenian; **Dr. Danielle Turner**, Roswellian; **Idalis (Ida) Hernandez**, Riveter Rosie; **Eric Bartlett**, Formulator Lawrence; and **Vanessa Quiñones**, Department Goddess.

Not pictured: **Dr. Stephen Wells**, University President; **Dr. Van Romero**, VP for Research; **Dr. Carlos Romero**, Assistant VP for Research; **Tom Pleva**, EMRTC Explosives Chemist; **Erika Rivera-Alvarez**, Assistant to the Assistant VP for Research; plus more than a hundred other folks across New Mexico to whom the team are deeply grateful.

BUSINESS AND MANAGEMENT TECHNOLOGY

The research work of **Dr. Toshiyuki Sueyoshi** and **Dr. Youngbok Ryu** on “Measuring the Technology Transition Performance by Data Envelopment Analysis” was published in the *Proceedings of the 17th Annual Acquisition Research Symposium* on March 30, 2020. You can check out their study at <https://event.nps.edu/conf/app/researchsymposium/unsecured/dlprop/737/52>

Dr. Toshiyuki Sueyoshi and **Dr. Youngbok Ryu** received a research grant of ~\$120,000 from the U.S. Department of Defense (DoD). From May 29, 2020 through July 31, 2021, they will study *Technology Transition Performance of the U.S. DoD Small Business Innovation Research Program*.

Dr. Youngbok Ryu and **Tech Policy Group**, the first and only science policy group in New Mexico affiliated with the National Science Policy Network, hosted a series of webinars in June and early July, 2020, on health data security with support from Research!America. Topics included “Navigating the Healthcare Cybersecurity Landscape” and “The Past, Present, and Complicated Future of Health Care Privacy.”

CHEMISTRY

The department has launched an **Elements of Success** fundraiser - see page 30 for details.

Department Chair **Dr. Michael Heagy** has accepted an offer at Rochester Institute of Technology to be the new head of their School of Chemistry and Materials Science. Among other initiatives, he'll be tasked with launching a doctoral program of equal impact and productivity as RIT's current R2 doctoral programs. It includes a joint appointment at their Institute for Sustainability and generous support of his group's research.

CLIMATE AND WATER CONSORTIUM

Climate and Water Consortium (CWC, <https://cwc.nmt.edu/>) executed a collaborative international scientific project, *Organization of Tropical East Pacific Convection (OTREC2019)*, funded by the National Science Foundation with \$5.4M, to study the weather in the tropical eastern Pacific and western Caribbean.

The field phase of OTREC took place from August 5 to October 3, 2019. Dozens of scientists and students from the USA, together with colleagues and students from Costa Rica, UK, Colombia and Mexico, flew onboard the NCAR/NSF Gulfstream V (GV) aircraft gathering data. We performed 22 research flights; 648 dropsondes were deployed. We had Hiaper Cloud Radar, which can see rain-bearing clouds onboard the GV. Radiosondes were launched from the ground from locations in Costa Rica (Limon and San Jose) and Colombia (Nuqui). Intensified radiosonde launching was done all over Colombia at their regular sites.

Field projects are hard to pull off because there are so many unexpected things that can happen. Some of those are extraordinary, such as “hurricane hunters” from NOAA joining us with their aircraft P-3 and us flying jointly into developing tropical storm Ivo!

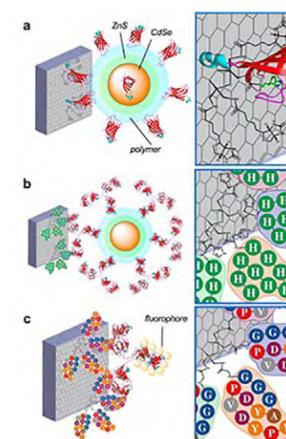
The project was led by physicists **Zeljka Fuchs-Stone** (pictured right, with colleagues on the aircraft) and **David J. Raymond** from CWC, New Mexico Tech. Their newest project is with the Office of Naval Research, and they recently received \$500,000 to study rapid cyclone intensification.



MATERIALS ENGINEERING

Dr. Nikolai Kalugin is expanding his research activities towards biomedical applications. One of his recent projects, described in his paper in *Scientific Reports (a Nature journal)*, *Scientific Reports* (2019) 9:17805 (<https://doi.org/10.1038/s41598-019-54000-9>), is focused on the creation of long-term, minimally perturbative carbon based biocompatible electrodes for neurointerfaces. Brain electrophysiology requires electrodes to seamlessly integrate into surrounding tissue. Dr. Kalugin and his team demonstrated electrodes composed of covalently functionalized graphite, decorated with various functional affinity and epitope tags, and used them to detect changes in electrical potential on the surfaces of illuminated quantum dots and near fluorescing molecules. Affinity and epitope tagging of carbon was achieved using direct attachment of biotin and solid phase peptide synthesis (SPPS) of histidine (His)- and human influenza hemagglutinin (HA)-tags.

These results are promising steps on the path to organic, biofunctionalized, fully molecularly-defined electrodes for neuronal applications, with potential to address some of the fundamental problems of electrophysiology related to tissue disruption and toxicity, stability of long-term contacts, and signal quality and specificity. The demonstrated result opens up a wide range of other secondary reactions and modifications of carbon. The potential applications include affinity chromatography, DNA sequencing technologies, biomolecular sensors, and surfaces and scaffolds for targeted interfaces with biological tissues.



Surface-tagged graphite surfaces with attached biomolecules.

(a) Biotin-functionalized surface with associated streptavidin-coated quantum dot.

(b) His-tag-functionalized surface with associated His-tag antibody-coated quantum dot.

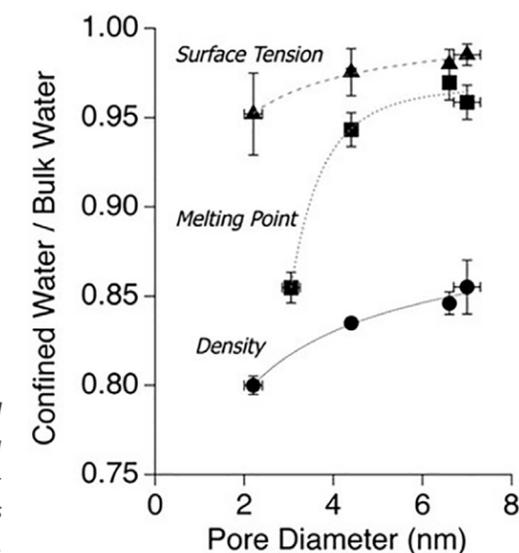
(c) HA-tag-functionalized surface with associated fluorophore-coated HA-tag antibody.

Insets show molecular detail of graphite surface attachments. Some amino acids are drawn as spheres with corresponding letter codes for simplicity of view (H = histidine, G = glycine, A = alanine, Y = tyrosine, D = aspartic acid, P = proline, V = valine). Streptavidin crystal structure obtained from PDB 1KTR, and IgG crystal structure obtained from PDB 1IGT.

Adopted from *Scientific Reports*, (2019) 9:17805, <https://doi.org/10.1038/s41598-019-54000-9>

Another of Dr Kalugin's recent results is about investigations of physical properties of nanoconfined water. Confining water in nano-scale domains, as encountered in sedimentary rocks, in biological, and in engineered systems, leads to deviations in water's physicochemical properties relative to those measured for the non-confined phase. In collaboration with researchers from Sandia National Laboratories, Dr. Kalugin demonstrated that nano-scale confinement leads to the decrease in the melting/freezing point temperature, density, and surface tension of confined water. This result was recently published in *Scientific Reports (a Nature journal)*, *Scientific Reports* (2019) 9:8246, <https://doi.org/10.1038/s41598-019-44651-z>.

The calculated relative surface tension and density, determined by N₂ and water adsorption studies, along with relative melting point temperature, determined by differential scanning calorimetry, versus silica pore radius. Adopted from *Scientific Reports* (2019) 9:8246, <https://doi.org/10.1038/s41598-019-44651-z>.



MATHEMATICS

We had the unprecedented honor in 2020 of receiving all three Faculty Awards. As President Stephen Wells stated in his commencement speech, "The number of math majors is rather small in comparison to other departments, however, every single student at NMT has to go through the rigors of Calculus 1 and 2 and a large segment of students take other courses in the Math Department. As an institution, NMT has placed great importance on providing quality instruction and effective teaching in mathematics."

Distinguished Faculty Research Award:

Dr. Bixiang Wang (right) - his research focuses on partial differential equations and dynamical systems including stochastic equations. His work has been cited 2450 times (Web of Science) and 3079 times (Google Scholar). He has published more than 110 papers in refereed journals.



Distinguished Faculty Teaching Award:

Dr. Todd Wolford (left) - was the department's first Ph.D. graduate (2012) and after spending several years teaching at Northern Arizona University he returned as a lecturer. He is the kind of Instructor who changes people's lives. Todd's students say his passion for teaching and excitement about math could get anyone interested in numbers. He is not only an outstanding math Instructor, but he deeply cares about his students.



Distinguished Faculty Service Award:

Dr. Brian Borchers (right) - his passion for taking care of his students and helping the well-being of the university truly shines through in his work. Dr. Borchers has held several leadership positions at NMT, such as Chair of the Mathematics Department, Project Director for a \$4.3 million US Department of Education HSI-STEM grant, and he has twice served as chair of the Faculty Senate.



MECHANICAL ENGINEERING

Dr. Andrei Zagrai has been working with a team of students on a NASA EPSCoR project, "In Orbit Structural Health Monitoring of Space Vehicles." Space travel is perhaps the most challenging and inspirational of human endeavors.



Above: NMT team attending the NG-12 CRS launch (l to r): Isaac Flores, Matthew Rue, Dr. Andrei Zagrai, Douglas MacNinch, and John Sanchez

With commercial space transport opening space travel opportunities to the public, among the most challenging questions raised are those concerning improving safety and reducing operation cost of the spaceflight.

Structural health monitoring (SHM) technologies could address these questions by reporting structural conditions during the flight and providing guidance to a vehicle's operation and maintenance. The purpose of this project is to demonstrate the utility of the embedded ultrasonic SHM in a low Earth orbit (LEO) environment.

MECHANICAL ENGINEERING (CONTINUED)

The New Mexico Tech team has developed a payload for the MISSE-12 platform on the International Space Station (ISS) which includes a host of experiments to explore elastic wave propagation in space structures under LEO conditions, to demonstrate in-space detection of an imitated crack and a loose bolted joint, and to investigate performance of piezo-electric sensors in LEO.

The payload was successfully launched on a Cygnus NG-12 mission on November 2, 2019 and is currently operating in orbit. Payload design, development, and experimental testing has been presented by undergraduate and graduate students at two international conferences and resulted in a number of publications. It is envisioned that the results of in-orbit SHM experiments will help to understand structural diagnostics during space flight, study LEO environmental factors affecting SHM, and guide designs of future smart space structures with embedded sensors, actuators, and artificial intelligence decision support.

In other department news, the Mechanical Engineering department has selected **Dr. Seokbin Lim** as Department Chair; outgoing two-term Chair Dr. Andrei Zagrai will be taking a sabbatical in Fall 2020."

PETROLEUM ENGINEERING

Dr. Hamid Rahnema and his research team are studying the swelling effect and viscosity reduction of CO₂-Oil systems. In this research CO₂ is injected gradually in different percentages into a visual PVT cell containing reservoir crude oil. The variation of crude oil properties are closely monitored and measured experimentally.

Two valuable pieces of equipment were donated by the Petroleum Recovery Research Center (PRRC): a visual PVT set up (Figure 1) and HTHP viscometer (Figure 2). This apparatus expands the department's research capabilities to conduct experiments on reservoir fluid properties, steam-solvent injection, foam stability, and more.



Dr. Tan Nguyen (left) is Department Chair and Director of the Production and Drilling Research Project (PDRP), and is managing three main funded projects:

- 1) *Development and Field Scale Application of Smart Management for Productivity Enhancement During Unconventional Oil & Gas Well Development* - a research consortium project with three companies. Tests are being conducted on different electrical submersible pumps under severe conditions (high gas and solid concentrations). AI/ML will be applied to develop a system for early detection of pump failures which could ultimately prolong pump run life.
- 2) *Wellbore Integrity for CO₂ EOR Wells in Farnsworth Unit* - a subcontract of the CO₂ Southwest Partnership. A tool will be developed to evaluate the risk level of each well in the Farnsworth Unit.
- 3) *Applications of Friction Reducers in Drilling Fluids* - supported by Chemplex Solvay Company since 2015. The goals are to understand the performance of commercial friction reducers under high salinity, HPHT conditions and to determine if friction reducers can be used in drilling fluids to enhance drilling fluid performance.

PHYSICS

Department Faculty Leads New Outreach Initiatives

Physics Professor and Tech alum **Sharon Sessions** (*B.S. Mathematics and B.S. Physics, 1997*) has engaged in building strong relationships between the Socorro community and NMT. In 2016, she was named the liaison between Tech and the Socorro Consolidated School District. In that capacity, she helped coordinate a mentoring program that employs NMT students to work with local third graders to improve reading literacy. The program in Socorro has become a model for the state owing to the resources that have come together to ensure sustainability.



Building from that model, Dr. Sessions has also spearheaded STORM FORCE (*STEAM Outreach and Mentoring Fueling Opportunity through Relationships, Community, and Education*), a community partnership whose mission is to inspire and empower Socorro County residents by promoting mentoring, skills and a culture of life-long learning. STORM FORCE helped initiate an after-school robotics program and is also supporting efforts to bring a family-centered MakerSpace to Socorro.

Dr. Session's commitment to Tech and the Socorro Community runs deep; she is a Community Co-Organizer for the *Anna, Age Eight Institute's 100% Community Initiative*, she is a member of the Socorro Consolidated School Board, and recently was named the **Director of NMT's Office of Outreach**. In 2019, she was awarded the inaugural Distinguished Faculty

Service Award during Tech's commencement ceremonies, and this year she was named as a Woman of Influence by Albuquerque Business First and a 2020 Woman in Technology by the New Mexico Technology Council.

New Faces in Physics

Dr. Ryan Norris will join the department as Assistant Professor in the Fall 2020 semester. He earned his B.S. in Astrophysics at Michigan State University, his M.S. in Physics at the Catholic University of America, and an M.S. in Physics with a concentration in Astronomy and PhD in Astronomy from Georgia State University. Dr. Norris's research plans at Tech will involve contributing to the development and use of the Magdalena Ridge Observatory Interferometer (MROI), the next-generation optical interferometer for astronomy. His work in simulating optical interferometers and image reconstruction will assist in maximizing the capabilities of MROI and help to establish it as a leader in the field. He is especially excited to observe Betelgeuse, as MROI will be able to image the star with an unprecedented level of detail.

Dr. Norris greatly enjoys teaching and doing outreach. He and his wife, Katie, enjoy hiking and are eager to explore New Mexico's varied landscape.

Dr. Caitano da Silva, Assistant Professor, joined the faculty ranks and a distinguished team of researchers at the Langmuir Laboratory for Atmospheric Research in 2018. He earned his B.S. in Physics at Federal University of Santa Maria in Brazil, his M.S. in Space Geophysics at the National Institute for Space Research in São José dos Campos, Brazil, and his Ph.D. in Electrical Engineering at Penn State University. In his time at NMT, Dr. da Silva has established an active research group that includes five student research assistants. He and his collaborators have garnered three research grants funded by NSF and NASA. His team has published (or submitted for publication) six journal articles. His students have presented their work at international conferences and received several awards, including the competitive New Mexico Space Grant fellowship, the selective REU internship at the Arecibo Observatory in Puerto Rico, and the Physics Department's Brook and Petschek awards.

Dr. da Silva brings a Brazilian's passion for soccer and summertime weather, and he was happy to find both in New Mexico. He lives in Socorro with his wife Aga, and son Bruno.

Hello from my home to yours!

What a year 2020 has been! I remember the production of our last edition of Gold Pan - 2020 was just starting and I was full of optimism and excitement for the new decade. By March that feeling had changed to uncertainty. This pandemic has been one of the weirdest roller coaster rides I've been on. The world feels like it is tilting at an unsustainable angle.

Now, halfway through 2020, I can look back on the first half of the year with a sense of pride for how we have all adapted - I am now proficient at Zoom meetings and I discovered that I can work just as well barefooted as I can in three inch heels! On a more serious note though, I saw NMT react quickly to the crisis and move all NMT courses online for the remainder of the Spring semester. I watched a beautiful virtual graduation ceremony online. Classes in the fall will now be offered both in the classroom and online; many other adaptations are being made to safely provide learning for all the returning students. Everyone has worked together to make the most of these forced changes.

Change is difficult under any circumstances - but it is constant. Sometimes it is foisted upon us, other times we choose it. Sometimes change is achingly slow and at other times it happens so quickly it takes your breath away. But as the world spins, it (and we) continue to evolve and adapt. The pandemic forced all of us into drastic changes. Choices had to be made about how best to adapt to these changes. The Advancement and Alumni Relations team, much to my beaming pride, embraced these forced changes and responded with a plan to ease the distress of our students during this pandemic.

The **Random Acts of Kindness Campaign** kicked off at the beginning of April and, with the help of the Foundation Board, the administration, friends of NMT and with the overwhelming support of NMT alumni, raised over \$190K that has been/will be given directly to students. The students were grateful for this demonstration of care and support. They could now buy groceries, pay bills, or acquire the technology they needed to complete the semester online.

When we realized that the pandemic was going to leave a huge hole in our lives with the absence of alum-

ni receptions and face-to-face meetings with alumni and donors, we embraced that change and created Virtual Happy Hours in order to stay connected. Much to our surprise, you - our alumni - responded so positively to this new development that we plan to keep them going no matter what the future holds.



So now, halfway through the year that will go down in history, I reflect on how much change we have absorbed in 3 or 4 months. It's been scary and emotions have run high and low, but many positive things have come from the pandemic. I cannot see into the future, but based on what I have seen so far in 2020, I know that we, as Techies, will continue to adapt to those changes and will emerge stronger than ever before.

Stay strong and please know that this Techie family is here for you, just as you were here for our youngest family members - the students. We will survive these changes and emerge stronger and better.



Colleen Foster
Director of Advancement and Alumni Relations

New Mexico Tech is pleased to announce that the NMT Board of Regents has voted unanimously to extend the contract of President Stephen G. Wells for a second five-year term.

Read the full story at <https://www.nmt.edu/news/2020/wells-extension.php>.



RANDOM ACTS OF KINDNESS

THANK YOU!

The **Emergency Student Relief fund**, created to financially assist our students impacted by COVID-19, has raised more than \$190,000 to date. The first disbursement of checks to more than 550 NMT students was completed by mid-May. A second disbursement is planned soon.

You can watch the *Thank You video* from NMT students who received support in May at <https://www.youtube.com/watch?v=dXVjgLPYMO>.

VIRTUAL ALUMNI RECEPTIONS

Due to travel restrictions we began hosting free **Virtual Alumni Receptions** on Zoom, featuring NMT faculty, staff, and researchers. Some recent topics have included *Research in Antarctica* featuring Dr. Nelia Dunbar; *Wine 101 (and 202 and 303)* with Dr. Bill Stone; *Sip & Paint* with Bobbi Jo Lesperance; and department updates with faculty from Materials Engineering, Earth & Environmental Science, Mathematics, etc..

We have received overwhelmingly positive responses from attendees and requests for additional topics, so we're expanding our range of topics and plan to continue holding Virtual Alumni Receptions even after travel restrictions and social distancing requirements are lifted. Upcoming events are listed in the Events Calendar in this issue (page 26) and also available online at <https://www.nmt.edu/advancement/Events.php>. Interested in a particular topic or being a guest presenter for a future Virtual Reception? Email your ideas to sandi.lucero@nmt.edu!

SOCIAL MEDIA AND ONLINE COMPETITIONS

The Advancement Office has increased its presence on social media to inspire, inform, and entertain alumni. We held two online competitions (open to NMT alumni, students, faculty and staff - and also their children):

A **Paper Airplane Challenge** was enticing to parents and kids alike. Prizes were awarded for *Longest Flight Time* and *Most Creative Design (and a special Honorable Mention, shown in photo)*. [See the full list of results here.](#)

The **Life Hacks Competition** winning entries were:

- 1st Place** - Peter DiSimone for "Pete's Guide to Pouring Coffee"
- 2nd Place** - Dr. Julie Ford for "Ode to Shoe Cubbies"
- 3rd Place** - Dr. Dave Thomas for "Filling Water Jugs"

Check us out on [Facebook](#), [Instagram](#), and [LinkedIn](#) for interesting stories, future competitions, and upcoming events!



Honorable Mention: **Thomas Cote** (B.S. Basic Sciences, 1975)

Name of Plane: Spirit of Chem 122-1972
Construction: One page of my student notebook from Dr. Carl Popp's General Chemistry II class (Fall 1972)

NEW MEXICO TECH: CHANGE IS CONSTANT

The following excerpts from the NMT requirements and plans are based upon New Mexico Governor Michelle Lujan Grisham's Executive Orders, New Mexico Department of Health Orders, CDC Best Practices, and practicing good common sense during a pandemic. As a general note, these conditions and requirements listed are only to be followed during the time the pandemic is in existence.

UPDATED JULY 1, 2020 - details and revisions are available online at <https://nmt.edu/covid19/covid19reopening.php>.

CAMPUS REQUIREMENTS

1. All NMT faculty, staff, and student employees must do a self-assessment prior to reporting to work to determine if they are experiencing any of the symptoms associated with COVID-19.
2. By the Governor's Executive Order, all employees, students, and visitors to NMT are required, at all times, to wear a mask/face covering that covers the nose and mouth, designed to inhibit the spread of germs or viruses, even when practicing appropriate social distancing. This applies in all NMT buildings and on NMT grounds.
3. NMT will provide appropriate masks/face coverings to each employee and student.
4. Any visitor coming onto the NMT campus, should follow the posted protocols, as well as NMDOH, CDC, etc. guidelines to help NMT limit the spread of COVID-19.

STUDENT LIFE

Instruction

A mixture of online and face-to-face; the number of online classes will be greatly expanded over those offered in a typical semester, but some classes will only be offered face-to-face. Face-to-face classes will follow strict social distancing protocols and include PPE use as recommended by health authorities. The maximum permissible face-to-face class size will be 30 students. Many on-campus classes will be hybrid and include online sections.

After Thanksgiving, all instruction and testing will be strictly online.

Student Housing and Meals:

Freshmen who apply and submit housing deposits by June 15, 2020, will be guaranteed a single room. Residence Halls will be limited to 1 person per room; apartments will be limited to 1 person per bedroom.

Food service strategy is to accommodate 550 students living on-campus with meal plans. In the Food Court markers will be used for directing traffic through the stations. All staff will wear face masks and gloves and all food items will be served by a staff member; no self-service (buffet line) will be offered.

Visit our **Giving Page** to see the many ways you can support New Mexico Tech students, research, and activities at www.nmt.edu, then click **Give** at top right

NEW MEXICO TECH: CHANGE IS CONSTANT

OFFICE FOR STUDENT AFFAIRS

Resources and Services: Currently services are 90% online, including presentations and streaming events.

Student Engagement: An email consisting of *Tips, Resources, and Fun*, goes out to students one or two times a week. Mostly informational but also a bit inspirational.

Diversity and Inclusion: We are now the lead campus office currently working on a Fall programming and student event schedule. The administration has prioritized making the Diversity and Inclusion Center a reality.

Food distribution: Student Affairs has hosted multiple food distributions for NMT students and staff. The Socorro StoreHouse has been a great partner helping with procurement and volunteers. Food was donated by NMT community members and several NMT students and staff managed the logistics of the distribution. *The Miner Mercantile* will open the weekend prior to the start of school with free food and supplies.

Convocation: Scheduled for opening weekend of the Fall 2020 semester; to be held outside for the first time, on the lawn by Brown Hall.

CAREER FAIR

The **2020 Fall Career and Graduate School Fair** will be held virtually on September 15th on our career platform, Handshake (<https://nmt.joinhandshake.com/>). We are also welcoming employer representatives to come to campus to meet with students in person during the semester through interviews, informational sessions, info tables, workshops, and more.

Employers and alumni can find more information at <https://www.nmt.edu/studentaffairs/careerservices/careerfair.php>.

2020 President's Golf Tournament

SCHEDULE OF EVENTS

A.M. TEE TIME

7:30-9:20 a.m. Registration and breakfast
7:30-9:50 a.m. Tee off at assigned tee time
12:00-12:30 p.m. Box lunches

P.M. TEE TIME

12:00-2:20 p.m. Registration and box lunches
12:30-2:50 p.m. Tee off at assigned tee time
7:00 p.m. Virtual Awards Presentation

- Major sponsors receive first choice of tee time
- Tee time preferences are on a first-come, first-served basis
- Tee time will be confirmed with receipt of payment

SOCIAL DISTANCING

- No handshakes or physical contact
- Players may arrive at the 1st tee no earlier than 10 minutes before their tee time
- Masks will be required until you tee off
- Masks will be provided in your goodie bags
- Once you finish playing the course you will be required to wear your mask



NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

COVID-19
SOCIAL DISTANCING

SEPTEMBER
17TH, 18TH, & 19TH

2020
PRESIDENT'S
GOLF
TOURNAMENT

TITLE SPONSOR \$25,000

- Tagged recognition on all promotional material
- Company logo on NMT website
- Logo on tournament hat
- Event banner recognition at the tournament
- Recognition at virtual awards party
- Logo on each golfer's gift along with NMT logo
- Corporate banner signage
- All sponsorship signs will have company logo
- Four (4) complimentary foursomes with flight choice
- Golf cart for each player
- One meal for each player
- Tee box gift for each player
- Special sponsor gift

PLATINUM \$10,000

- Company logo on NMT website
- Event banner recognition at tournament
- Recognition at virtual awards party
- Logo on tournament hat
- Two (2) complimentary foursomes with flight choice
- Golf cart for each player
- One meal for each player
- Tee box gift for each player
- Special sponsor gift

GOLD \$7,500

- Company logo on NMT website
- Event banner recognition at tournament
- Recognition at virtual awards party
- Logo on tournament hat
- One (1) complimentary foursome with flight choice
- Golf cart for each player
- One meal for each player
- Tee box gift for each player
- Special sponsor gift

LOGO SPONSOR

You can put your company name in front of 400 potential customers by donating items with your logo for our goody bags!

SILVER \$5,000

- Company logo on NMT website
- Event banner recognition at tournament
- Recognition at virtual awards party
- One (1) complimentary foursome with flight choice
- Golf cart for each player
- One meal for each player
- Tee box gift for each player
- Special sponsor gift

COPPER \$3,000

- Company logo on NMT website
- Event banner recognition at tournament
- Recognition at virtual awards party
- One (1) complimentary foursome with flight choice
- Golf cart for each player
- One meal for each player
- Tee box gift for each player
- Special sponsor gift

TEAM SPONSOR \$1,250

- Entry for foursome in morning or afternoon flight on Friday
- Golf cart for each player
- One meal for each player
- Tee box gift for each player

HOLE/CO-HOLE SPONSOR \$400/\$200

Your name or company's name displayed at a tee box/Shared sign at a tee box

INDIVIDUAL PLAYER \$325

- Entry for one player in Friday morning or afternoon flight
- Golf cart for each player
- One meal for each player
- Tee box gift for each player

For more information contact:

Sandi Lucero 575-835-5618

sandi.lucero@nmt.edu

<https://www.nmt.edu/advancement/golf-tournament.php>

ALUMNI SPOTLIGHT

J. Michael "Mike" Kelly, Ph.D.

BY MEGAN SCHWINGLE

You would be hard pressed to find someone more connected to New Mexico Tech than alum, former Regent, and recently retired professor Dr. J. Michael "Mike" Kelly.

Mike's history with New Mexico Tech begins with his father, John, who left Boston in the early 1930's to venture west and start school at the (then) New Mexico School of Mines.

After earning a B.S. in Mining Engineering in 1936 and a P.E. in Petroleum Engineering in 1939, both from NMT, John set off on what would be a successful career. Along with running his own oil company, Elk Oil, John served the state and nation in many capacities including as the director of the New Mexico Bureau of Mines and Mineral Resources, and as the State Geologist.

John was appointed Assistant Secretary of the Interior for Mineral Resources by President Kennedy in 1961, and was instrumental in securing legislation in 1977 that established the Petroleum Recovery Research Center (PRRC), an organization dedicated to solving problems related to the oil and gas industry. The PRRC is housed in the aptly named John M. and Esther L. Kelly Petroleum Building at New Mexico Tech.

Growing up around the family business, Mike knew from a very young age what he wanted to do. After graduating from high school, he packed up and moved to Oklahoma to study petroleum engineering at the University of Tulsa (TU). Its fraternity culture and size were not a good fit and after only a year, Mike traded his TU cape for a NMT pickaxe in 1969.

The differences between Tulsa and NMT were a welcome change. As Mike noted, there was little hand-holding at NMT in the late 60's,

"You're adults. If you want it bad enough, put in the effort and do it."

The Sterling Colgate era offered independence and an opportunity to grow. NMT's hands-off approach to education and social engagements was refreshing compared to Tulsa, which still had house mothers at the time. Mike remembers,

"There was a great freedom on this campus; NMT was small and everyone knew everybody. You knew all the faculty, you partied with them."



1971 Porphyry
Mike Kelly (left) and Michael Crowley (right)

Mike lived on campus for the remaining three years of his undergrad studies; one year in the "Zoo" (West Hall) and two in South Hall, rooming with **Michael Crowley** (B.S. Petroleum Engineering, 1972). Mike couldn't name just one favorite memory as "life was good here," with his petroleum crew and a few geophysics guys thrown in. 49ers and the "Ore House" may have come up in this conversation once or twice, but we won't expand on that.

Like many growing up in the oil and gas industry, Mike planned to gain field experience before going to work for his family. Sadly, close to his graduation, an Elk Oil

employee passed away, so Mike jumped in to help his family's company. After 6 years, Mike left Elk Oil to go out on his own. He started Keltic Services, a well service company in 1982, and ran the business for 30 years. He also started a fiberglass fabrication company in 1988, and ran that for 12 years as well.

During his time in business, Mike never lost touch with NMT. His work in the oil industry kept him very connected with the PRRC, and he had a continued interest in staying involved with the school. His ties became even closer in 1992 when he was appointed by Governor Bruce King to the Board of Regents, where he would serve for five years.

The major accomplishment of the Board during his tenure was to establish the Chemical Engineering Department, a decision that had a lasting impact on the future of NMT, Mike recalls,

"Establishing the Chemical Engineering Department allowed NMT to eventually start other engineering departments as well.... There was resistance, even in the 90's, to increasing engineering on this campus."

Mike credits the influence and impact **Dr. Robert Lee** (Professor of Chemical and Petroleum Engineering), had on the Board's decision. Now, a little over 20 years later, the majority of students at NMT major in engineering.

As if Mike didn't have enough on his plate, during his time as a Regent he decided to take a few hydrology classes to help him in his business. One class became two, and after several more years of classes, Mike graduated with his M.S. in 1997. The ink was still wet on his diploma when Professor Lee mentioned the idea of a doctorate, Mike says,

"I was thinking, I'm not an academic but Dr. Lee said, 'No, you'll fit into my team really well.' So I decided, what the hell, I'll go for it, as I have a lot of respect for Robert Lee. He was my mentor."

As a Ph.D. student Mike taught classes on petroleum economics and production engineering. He received his doctorate in 2000, earning his third degree from

ALUMNI SPOTLIGHT

J. Michael "Mike" Kelly, Ph.D.

NMT. The summer before school began in 2003, a call from Dr. Tom Engler resulted in Mike being roped in as an adjunct professor. Adjunct turned to associate and before he knew it, Mike had taught production engineering at NMT for 17 years.

So how does a self-proclaimed non-academic end up teaching as a professor for 17 years? For Mike, it came down to the students and being a lifelong learner himself, he notes,

"I advised grad students for a while and that was fun.... Some of them were really unique, as NMT has an international reputation and student body. And because I wasn't actively involved in research, the grad students had to find their own projects; many of their projects were quite diverse, and could be applied to research in their home countries.

"I've truly enjoyed Tech's students, whether as a professor or as an advisor. The other reason for turning to teaching was that I was becoming bored in industry, as increasingly the focus tended to be on the business end, rather than on engineering and practicalities in the field."

To add to his roles as alum, regent, and professor, Mike is also a donor to NMT. In honor of their late father and mother, Mike and his siblings established the John M. Kelly Scholarship in 1995 and the John Kelly Endowed Faculty Chair in 2011. Mike has generously supported the President's Scholarship and the Petroleum Engineering Department for a number of years. He also recently established a graduate assistantship in petroleum engineering, the Roustabout Graduate Fellowship. When asked what inspires his support, Mike responded,

"The atmosphere of the school when I was an undergrad helped me later in industry. Not only was the academic and technical education first-rate, but NMT's approach gave me the confidence to try new ideas and innovations in my own businesses.

"The students who go to a small school are different, especially in engineering; and we here at NMT send students out into the world who are not only academically strong, but who are also practical, in-

ALUMNI SPOTLIGHT

J. Michael “Mike” Kelly, Ph.D.

“Involved, and hands-on, and I want to keep that going.”

Retired business owner and professor Mike is ready for whatever captures his attention. If you pass through Socorro, you may catch him on the golf course with **Dr. Her-Yuan Chen** (Associate Professor, Petroleum Engineering). Or he might be hiking near his home in Nogal, listening to live music at the Outpost in Albuquerque, enjoying nature photography, or traveling with his wife, Heidi, a veterinarian. In fact, during his interview, they were supposed to be on vacation in Switzerland, attending the famous art fair in Basel. He says their next trip to the Kara Sea north of Russia is already on the books for the summer of 2021.

Last but not least, Mike wanted to leave NMT students with a little advice,

“When deciding on a major, pick something you genuinely want to do. During oil booms throughout the world, I realized that some students were at Tech only for the potentially high salaries available to them after graduation. That’s going to become a pretty boring life!

“And if you want to work in oil, yes, sometimes it’s going to be hard to find a position, but if that’s what you truly want to do, you’ll find your place in the industry. Whatever it is, do what you really want to do.”

We’re sorry Mike and Heidi had to miss their trip, but we’re glad we got to sit down and talk with him; he is a Techie through and through. We thank him for his commitment to NMT; the impact he’s had on students and the university cannot be measured!



Heidi and Mike Kelly in Antarctica

NMT “ASSAY REPORT” ENEWSLETTER

In May 2020, we introduced a new digital newsletter, the **NMT Assay Report**. Published and distributed online in Spring and Fall. This eNewsletter supplements the Gold Pan alumni magazine with NMT department, faculty, student, and campus updates.

Readers on our Gold Pan email list will automatically receive a copy in Spring and Fall. If you would like to receive this digital newsletter, send your name and email address to rebecca.clemens@nmt.edu.

An archive is available on our website at https://www.nmt.edu/advancement/gold_pan.php.

NMT ALUMNI VIRTUAL HAPPY HOUR EVENTS

State of the University

Featured Guests: Dr. Stephen Wells,
Dr. Cleve McDaniel & Dr. Douglas Wells
Time: 5:30 p.m. - 6:30 p.m. (Mountain Time)

Research & Students

Featured Guests: Dr. Stephen Wells,
Dr. Van Romero & Dr. Peter Phaiah
Time: 6:15 p.m. - 7:15 p.m. (Mountain Time)

My Life Underground *Adventures in Geology*

Featured Guest: Dr. Stephen Wells
Time: 6:30 p.m. - 7:30 p.m. (Mountain Time)

Talent Show

Hosted by: Jim Ruff
Time: 7:00 p.m. - 8:00 p.m. (Mountain Time)

The Ends Justify the Beans: Strong Talk About Coffee

Featured Guest: Alum Dr. Paul Sisson
Time: 5:00 p.m. - 6:00 p.m. (Mountain Time)

WATCH FOR FUTURE EVENTS

<https://www.nmt.edu/advancement/Events.php>

AUGUST

5

AUGUST

13

AUGUST

18

AUGUST

27

SEPTEMBER

1



BY MEGAN SCHWINGLE

Scott Sanders, a former Assistant Professor of English in the Humanities Department at New Mexico Tech (1981-1984) and **Margaret “Margy” Sanders** (M.S. Mathematics, 1985) wanted to make a lasting impact in an area they care about while also furthering a characteristic part of the NMT experience, hands-on learning. Last December the couple established the **Experiential Learning Fund in Technical Communication**. This fund will allow the NMT Technical Communication program to enhance its curriculum and offer additional experiential learning opportunities for students. As Scott noted,

“Experiential learning has always been central to Tech and its educational mission. Whatever you major in at Tech, you’re going to find experiential learning opportunities, so we are not bringing something new to Tech. We just wanted to make sure that we established a fund that’s purpose was central to what Tech does.

“We are forever grateful to Tech because it is the institution where we both really learned what became our professions, Margy in math and I in technical communication, and it was a great place to do it.”

Scott is the son of an English professor and grew up in Southern California. From a young age he had a passion for music, and when it came time to choose a college, having a touring choir was at the top of the list. In 1966, at the age of 17, Scott was accepted into Colorado College in Colorado Springs, CO and sang in their touring choir. However, it didn’t take long for Scott to realize that small, private colleges were not his cup of tea. After a year at CC, and more than a year at Pomona College in Claremont, CA, Scott packed his bags for Tucson, AZ to become a full time singer.

For the next few years Scott sang in a variety of venues in Tucson from hotel lounges to dance bars on Speedway Boulevard. However, taking a close look at the toll this lifestyle had on a few older entertainer friends, sustainable wasn’t the first word to come to mind. Scott decided to finish his bachelor’s degree at the University of Arizona.



(l to r) Dr. Scott Sanders and Dr. Margy Sanders with Dr. Steve Simpson, NMT CLASS Department

By that time, financial support from home had run out so Scott made ends meet through singing gigs and repairing Venetian blinds. Although there was no money in it, he was also publishing poetry and writing songs. Somewhat ironically, he even published a few poems in an NMT publication. Working at night and taking classes during the day, Scott finished his undergraduate degree in three semesters.

Graduate school was next. Choosing mainly on the basis of proximity to good trout fishing, Scott applied to, and was accepted at, the University of Colorado where he received both his Master’s and Ph.D. in English Literature. It was during his time as a Ph.D. student that Scott met Margy.

Margy is the daughter of a Physics professor at CU Boulder, and she grew up hiking, climbing and skiing. In grade school she was introduced to orchestra and set her eyes on the only stringed instrument familiar to her at the time, the violin. The introduction turned to passion; she followed her art into college where she majored in music and education.

Although there were few familial influences on her passion for music, her family home was adorned with a Steinway grand piano, a family heirloom shipped from New York to Seattle in 1910. In addition to music, Margy had a fascination with mathematics, an interest that would take center stage later in her life.

It was 1976. Margy was teaching orchestra and playing for the Colorado Springs Symphony. She and her older sister were in Boulder celebrating their brother’s 21st birthday at a hotel lounge when Scott asked Margy to dance, as she reminisced,

“...Scott asked me to dance and we danced a few times but then my brothers showed up and of course Scott assumed these were boyfriends.”

The confusion was cleared up after Margy’s brother and Scott struck up a conversation about Pomona College. Now knowing that these were brothers, not boyfriends, Scott asked Margy to dance again and after an evening of dancing, the two went their separate ways, Scott in Boulder and Margy driving back to Colorado Springs. Over the next five or six weeks Scott wrote to Margy and she wrote back. Letters eventually turned into dates and the dates into a proposal. Scott and Margy were married in December 1977 in Boulder.

At Scott’s first job after graduation, teaching English literature and directing the writing program at Colorado Women’s College, he was introduced to technical writing. There was an oil shale boom in the Rockies and a good portion of Scott’s students were women working as secretaries for oil and gas companies. Instead of using literature to learn how to write, Scott chose textbooks that saw learning to write as something that would further a professional career, as he notes,

“They may have been called secretaries but what they were really doing was writing and editing engineers’ work. They weren’t just typing it.”

Unfortunately after only a year at Colorado Women’s College, the school reorganized radically at the end of the 1980 fall semester, leaving Scott and all but a few faculty to look for another job in the spring.

Scott took up bartending while he applied to 70-80 jobs across the country, hoping to land a position teaching writing rather than literature. In the end it came down to Saginaw Valley State University in Michigan and New Mexico Tech. Tech’s engineering atmosphere and Margy’s hope to not leave the I-25 corridor made Tech the top choice. As Scott recalls,

“The main reason I chose Tech was because it was an engineering school and it had the Bureau and the PRRC, both of which had a lot of publishing. So I knew I would learn more about technical writing.”

In 1981, Scott and Margy packed their bags and headed to Socorro to their new house on the NE corner of Fisher and Neel. It did not take them long to build a community. The couple made quick friends with Bob and Kathy Markwell who were also new to town (Bob happened to be Margy’s doctor), Carole Yee, Deb Shaw, Ross and Josephine Lomanitz, and Dr. Ralph Ball, to name a few. In their free time they enjoyed playing bridge and music. Playing music was getting more and more difficult for Margy, who had been diagnosed with MS in 1979, so she decided it was time to pursue her other long time interest, math.

Margy had always liked math to the point that she chose to take three semesters of calculus, rather than traditional sciences, to fulfill her science credits in college. Even with a degree in music and proficiency in calculus, NMT wasn’t quite ready to admit Margy to its masters program; they made her take differential equations first. The class proved to be no problem for Margy and she began taking classes towards her M.S. in Mathematics. When asked about her favorite professors Margy said,

“I always enjoyed Dr. Ball. We had similar backgrounds. He was a violinist, and I was too, and he



Scott and Margy with little one, October, 1981

DONOR SPOTLIGHT

Scott and Margaret Sanders

was a math professor and I was going into math. But Dr. Gutjhar was probably my favorite.”

Margy managed to take on a Master’s program while pregnant, giving birth, and raising a very young family. That is NMT grit!

While Margy was being a superwoman, Scott was busy teaching more than 100 students English 111 and English 112 each semester and learning about technical communication. As he recalls,

“It was not exactly the job that your average English Ph.D. would say, ‘Oh boy’ about, but I knew I was going to learn, and what I went to Tech to get was essentially a second professional education in Technical Communication. I knew I would be able to meet people at the Bureau and other places and get involved with their publications.”

He did. Scott soon met Deb Shaw, assistant editor at the Bureau and an English major herself. They got together for lunch weekly to peer review each other’s edits and learn together. Scott also started doing his own research,

“I read just about everything there was to read on technical communication in academic journals. There wasn’t much out there in the early 1980’s.”

Eventually, Scott was awarded a faculty grant to research technical communication academic programs and interview technical writers. The report was part of the Humanities Department’s proposal to create a Technical Communications degree program at Tech.

After three short years at NMT, Scott was headhunted by UNM’s English department to build a professional writing program there. The couple said they would have

been happy to stay at NMT but Albuquerque offered more opportunities for Margy, who wanted to pursue additional education and eventually a career involving her math degree.

Over the next 30 years, Scott built UNM’s professional writing program and worked as a consultant for organizations and companies like Sandia National Laboratories and Bohannon Huston.

At the same time, Margy earned her Ph.D. in Statistics from UNM. She worked for 19 years as a statistician for UNM’s medical school and also taught at Anderson Business School.

Now both retired, Scott and Margy spend their time traveling between their homes in Crested Butte, CO and Albuquerque, NM, spending time with their three children and three grandchildren and visiting friends. Due to recent events, their weekly bridge game has moved online.

Last but not least, Scott wanted to leave NMT students with a little advice,

“The value of your education does not become apparent at your first job or even first three years working. It is three to five years out before you realize that skills that didn’t seem important at the time have changed you and made you a better professional.

“In terms of writing, you may not get hired because of your ability to write but it will be the skill that advances your career. Your ability to create a written record not only of what you have done but what the teams you have worked with have done will be what other people are going to know you by.”

To make a financial gift to a department, student club, or scholarship

- **Send us a check:** Call us at 575.835.5352 for mailing and fund designation information
- **Online:** go to www.nmt.edu and select “Give” at the top right

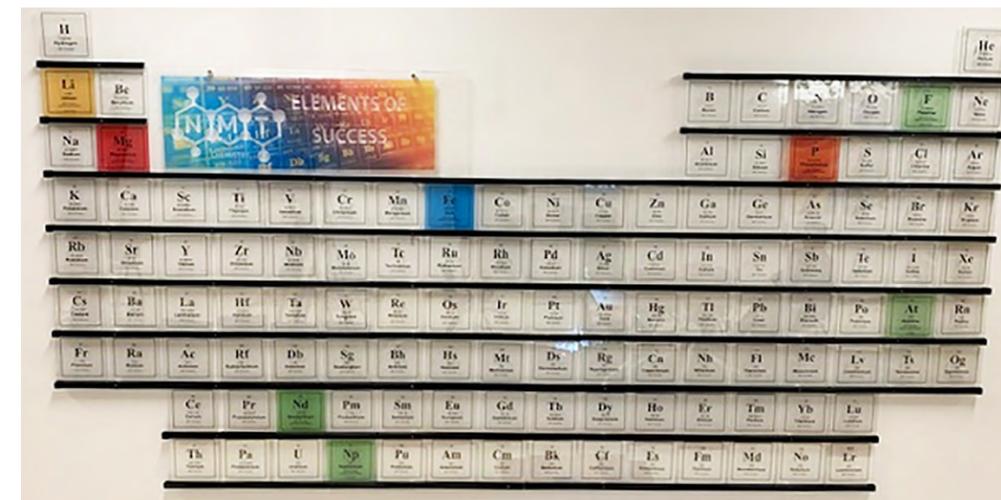
Questions? Contact us at advancement@nmt.edu

WHAT IS YOUR FAVORITE ELEMENT?

Show your support for students by sponsoring your favorite element during the **Elements of Success** campaign. You will help the Chemistry Department grow through increasing funding to support summer research assistantships for Chemistry graduate students.

Dr. Michael Heagy obtained a grant from the Central New Mexico Local American Chemical Society to design and construct an 8’ by 14’ Periodic Table art installation that is now on permanent display in the lobby of the Chemistry Building.

Your element will be featured on the Periodic Table! As each element is sponsored, it is transformed from black and white into color and includes the donor’s name.



Help make our Periodic Table vibrant!

To see the elements price list and sponsor your favorite element, please go to the **Chemistry Elements of Success** website at: <https://www.nmt.edu/academics/chemistry/donor.php>.

Thank you for supporting students!

Virtual Alumni Events

Our Virtual Alumni Receptions and events have been so popular, we’re planning to continue them indefinitely.

Do you have a topic or guest speaker you’d like us to schedule?

A favorite NMT professor? An area of NMT research? An interesting field of science or engineering?

Would you like to be a featured presenter?

We’ve had some great topics!

Drones; Wine; Sip & Paint; How Water Supply Affects Craft Beer; Department Updates; and more!

Contact Sandi Lucero at sandi.lucero@nmt.edu or 575-835-5618

PEOPLE YOU KNOW

Nirupam Chakraborti (M.S. Metallurgical Engineering, 1979) returned to the Tech campus in February 2020, after about forty years, to deliver an invited lecture at the Materials and Metallurgical Engineering Department.

For him this was a very nostalgic homecoming. He dedicated his lecture to the memory of **Ashok Mehta** (M.S. and Ph.D. in Metallurgical Engineering), who died in a car accident in Arizona sometime around 1984.

Materials and Manufacturing Processes, a journal published by Taylor and Francis, has very recently published a special issue honoring Dr. Chakraborti.

He has been a Higher Academic Grade Professor at Indian Institute of Technology; since May 1, 2020 he holds a contractual professorship for another two years.



Mark Ivey (B.S. Environmental Engineering, 1977) spent most of the last four decades working on scientific field studies and engineering-related projects in Oregon, the Bay Area, Montana, Alaska, and New Mexico, as well as internationally. Developing new technology (instruments and systems) for environmental measurements, particularly atmospheric measurements, has been a primary theme in his career.

Mark earned M.S. and Ph.D. degrees in Electrical Engineering from the University of New Mexico. He is a Professional Engineer (NM, electrical) and a Senior Engineer at Sandia National Labs in Albuquerque, where he focuses on scientific and engineering projects in the Arctic, Alaska, and research initiatives related to the Earth and Geosciences.

Starting as a freshman at NMT, he worked for TERA (predecessor to EM-RTC) as a co-op work-study student. Working in Dr. A.R. Miller's lab during his junior and senior years, Mark built and programmed Altair 8800 mini-computers (*photo, right*), early personal computers that used paper tapes, cassette recorders, and teletype machines. These lab experiences led to jobs with EG&G, small companies, and start-ups after Tech.

In addition to the challenging classes and labs, Mark fondly remembers the Owl Bar's incomparable green chile cheeseburgers, Don Juan's gourmet chile verde burritos con queso at the Capitol, music and movies in a Quonset hut theater (the Tin Can), concerts by the Vigilantes, and all of it punctuated by occasional explosions behind M Mountain.



He and his wife, Nicole Blaisdell Ivey, have two sons. Mark is grateful for the solid engineering education and friends he found at Tech. In his work and travels, he frequently encounters other members of Tech's worldwide alumni network.



Mark Ivey is assembling an Altair 8800 computer under the supervision of Dr. A.R. Miller, Associate Professor of Met. and Ceramic Engineering.

Excerpt from 1976 The Silver Bar, a publication of NMT Materials & Metallurgical Engineering,

PEOPLE YOU KNOW



Marvin Rowe (B.S. Petroleum Engineering, 1959), Professor Emeritus in Chemistry, Texas A&M University, is featured in *El Palacio* magazine (<https://www.elpalacio.org/2020/02/looking-for-time-in-a-glowing-bottle/>) in his role as Research Associate, Office of Archaeological Studies, Center for New Mexico Archaeology. The article highlights Rowe's work running a laboratory (low energy plasma extraction of organic carbon for radiocarbon dating) that he invented, built and operates. He has been at that position since 2014.

Photograph courtesy the Center for New Mexico Archaeology Low Energy Plasma Laboratory

Bryan Ulrich, PE, PrEng, D.GE (B.S. Mining Engineering, 1983, and B.S. Geotechnical Engineering, 1985) After leaving Socorro in 1985, I joined the US Bureau of Mines in Denver, CO for a couple of years, and then chose the path of consulting with Knight Piesold (KP), also in Denver. KP is a specialty consulting company, specializing largely in the geotechnical design of heap leach and tailings storage facilities. After a few years of that, I decided that I should pursue a higher degree. After earning my M.E. in Geotechnical Engineering in 1996 at the University of Alberta, in Edmonton, Canada, I returned to KP in Denver, CO for a while. Next, I was convinced that we needed an adventure, so I took a job transfer to KP's office in Rivonia, South Africa, one of the northern tree-lined suburbs of Johannesburg. In South Africa, you don't have to explain where Rivonia is, because that is where Nelson Mandela was arrested in 1962. From 1999 until 2003, my family and I enjoyed much of South Africa, except for the overwhelming safety and security problems that dogged the nation.

We returned to Denver briefly before taking a transfer to run KP's office in Elko, NV, which is the hub for much of the gold mining in the US. That post lasted for about ten years. My wife told me that we had been traveling the globe for the company, and that it was time to go home. I asked her where home was, and she responded that it was Denver. It took a while to fully relocate to Denver. One issue was that in Nevada we had 10 acres of land, and a view of the breathtaking Ruby Mountains. How could you trade that for city living? A compromise! We bought a cabin in the Rocky Mountains - the best of both worlds!

Eventually, I left KP, and joined Stantec for a brief stint. During my time with Stantec, I was inducted into the American Society of Civil Engineers' Academy of Geotechnical Engineers; the ceremony took place in Minneapolis, MN. This professional certification ensures that geotechnical engineers have specialized knowledge and skills in their field of practice.

Geo-Professional Board Certification was created in 2008 to recognize engineers who have an advanced degree of knowledge and expertise in the specialized field of Geotechnical Engineering. Board Certified engineer is one of the highest designations in the Geo-Profession and recognized as a respected and credible professional within the field of civil engineering. It is considered one of the highest designations in the Geo-Profession. Fewer than 400 engineers have achieved the status of Diplomate, Geotechnical Engineering (D.GE). It was my honor to be inducted into the Academy this year, along with 12 other new inductees (*ceremony photo;; Ulrich is 2nd from right*).



Recent Achievements: Mechanical Engineering alumni

Salome Arciniega (B.S. Engineering Specializing in Mechanics, 1996) has been self-employed as an engineer for almost 10 years.

Alex Baldonado (B.S. Mechanical Engineering, 2018) helped the U.S. Air Force update their Nuclear Safety Design Certification criteria.

Carl Bancroft (B.S. Mechanical Engineering, 2019) is supporting a NASA mission in 2021.

Isaac Brown (B.S. Mechanical Engineering, 2018) is doing design work as a military contractor on laser weapon systems.

Powell Brown (B.S. Mechanical Engineering, 2014) was involved with the design and test of the world's largest aircraft - Stratolaunch - and subsequent first flight in April 2019.

Tyler Bushnell (B.S. Mechanical Engineering, 2011) earned a M.S. in Mechanical Engineering from Stanford University, has several journal publications, and many granted patents. He's also designing enamel pins and selling art in a San Francisco gallery.

Daniel Castelo (B.S. Mechanical Engineering, 2012) participated in the launch of a casting machine he designed, the Neutec J-zF casting machine, from Neutec/Rio Grande. Also in a side business he does cad modeling, 3d printing, and then uses the prints to make metal parts.

Joseph Cormier (B.S. Mechanical Engineering, 2001) was the first student to graduate under the Mechanical Engineering program at NMT. He then went to Virginia Tech and obtained his M.S. in Mechanical Engineering and later achieved his Ph.D. from Virginia Tech - Wake Forest while working in San Antonio for a biomechanical consulting firm. Currently he works for Biocore in Charlottesville, VA conducting research for the NFL and Waymo and also provides biomechanical consulting in litigation-related matters.

Brigitte Ek (B.S. Mechanical Engineering, 2015) has been working on NASA mission DART (Double Asteroid Redirection Test) that will launch in 2021!

Bryce Hart (B.S. Mechanical Engineering, 2019) became thermal lead for a work project and was nominated for a civilian award by his supervisors.

Mason Hutchison (B.S. Engineering Mechanics, 2000) got the chance to be lead engineer on designing flight controls for the world's largest airplane, Stratolaunch. He helped design the mechanical flight controls over 6 years. Enjoyed first flight April 2019, making aerospace history. It is bigger than Hughes H-4 Hercules by 60 feet. Right time, right place kind of experience.

Weston "Wes" Lee (B.S. Mechanical Engineering, 2012) has two beautiful baby girls he is very proud of. Professional achievement he's most proud of was solving a wheel alignment issue on the Ram 1500 program that reduced customer complaints of vehicle pulling left. Issue was present since 2008 and solved in 2015.

Isabella Ortiz (B.S. Mechanical Engineering, 2014) graduated from law school in 2017 and now works with startups and new inventions from Northwestern University. She has two patents.

Michael Pitonzo (B.S. Mechanical Engineering, 2014) participated in Structures Design on the Airbus A220 for connectivity. He also participated in design for the new Airbus interior cabin design, AirSpace, for the A320 family.

Tyler Pratt (B.S. Mechanical Engineering, 2015) just graduated medical school.

Fun Fact: The theme for 2020 49ers - "The Twilight Zone" - was selected in late 2019

Watch your email for upcoming details:

Part 1 of this series was published in the Winter 2020 issue.

If you have any unusual and amusing stories about your time at Tech we would like to include them in future editions of *The Gold Pan* under the heading of "Thanks for the Memories." Submissions can be from one sentence to 300 words; photos eagerly welcomed! Please include an approximate year. Send to: Rebecca Clemens,, rebecca.clemens@nmt.edu. Subject: NMT "Thanks for the Memories."

**UFOs and Other Memories
Edward "Jay" Vada (General Science, 1963-1966)**

After reading a few of the topics mentioned in Nancy Bilderbeck's "Thanks for the Memories, NMT" article (Winter 2020), I didn't see anything about the famed Zamora UFO incident which took place on April 24, 1964. I remember that when my roommate Rick Cook (February 20, 1952 – September 6, 1995) and I heard the buzz in West Hall dorm we immediately drove out of town (after a quick stop for refreshments at Shirley's Drive-In, lol) and got off near Route 60 and bounced onto the mesa. There was a dirt road which led to a circle of cars already parked there due to the news and excitement - it appeared half the campus had beat us there. Rick and I quickly found the foot-pod impressions left on the ground and burned sage in the area from when the "UFO" purportedly blasted off because of Lonnie Zamora's earlier solo approach in his cruiser. I took a few photos of the ground impressions using my Polaroid camera for the record but I think the prints were heisted by someone in the dorm who knew I had them...tsk tsk.

Needless to say, we all talked and speculated about this for the rest of the year. My good friend, Delbert Fraissinet (April 1, 1945 – September 16, 2011), whose dad was Mayor at the time and also owned a great coffee & doughnut shop on the Plaza, said that his brother Gene, who worked at White Sands missile range, thought it could have been a VTOL platform that ran into a temporary thruster problem while on a test flight from White Sands. Gene said his security clearance could be jeopardized if he elaborated further.

I have done a lot of reading and research on the incident and even found that the Air Force has kept the original records and letters by "experts" at Wright Patterson AFB in the FTD (Foreign Technology Division, remotely akin to Area 51 in Nevada). Sadly, I have read that this UFO incident could have been a hoax cooked up by a few NMT alumni. I've read that then-President Stirling Colgate was queried by one of the investigators about the possibility of a student-staged hoax and he merely replied that he "might" know of a student who was involved and was quietly expelled from the school shortly after the incident.

My memories of NMT and Socorro are very clear. *Side note:* I had a prime opportunity to get away from the distractions of dorm life by boarding with Mrs. Reese on McCutcheon Avenue and having my own room with quiet study area. Her husband was Dr. R.H. Reese, President of Tech from 1942-1946. She told me about the morning of the giant "flash" that occurred at the Trinity Site on July 16, 1945; she said it was so bright it woke her from a dead sleep. Mrs. Reese didn't have a boarding house in the usual sense, she simply sublet a room in her adobe home. She was a widow by that time and needed help around the house, which I was happy to provide.

I bought a 10-speed bike and rode every day to and from campus which helped me physically and mentally. Great experience and may she rest in peace; I will never forget her, nor NMT and all the friends I had there!

Delbert and I were friends for many years while at Tech and both studied general science from 1963 to around 1966. We both left NMT around that time, he to pursue a degree in education at UNM; I decided to join the USAF and get the GI Bill behind me before pursuing further education. Delbert returned to eventually become Superintendent of the Socorro Consolidated School system, a dream he always told me about. I served my four years with the USAF in Virginia, then

NMT: THANKS FOR THE MEMORIES (PART 2)

Germany, where I met and married my wife, an American nurse. I was accepted into the Brooks Institute of Photography in Santa Barbara, CA, prior to getting out of the Air Force. Four years later I graduated with an Industrial/Scientific degree in photography and also my M.A. in Education from Pepperdine University. Used that to full effect by accepting an Associate Professor teaching position at the Columbus College of Art and Design in Ohio. After four years I accepted a teaching position at the Ohio Institute of Photography in Dayton, OH (where I now live).

Ultimately I accepted my best teaching job ever at the Miami Valley Career Tech Center where I stayed for 26 years as Senior Commercial Photography instructor. Taught senior high school students the craft of analog and digital photography in one of the best equipped labs/classrooms in the state.

I hope this provides a little bit of reminiscing for fellow classmates of the era and a little entertainment for the young 'uns. Hopefully there are many of my buds still around to read it (I'm 74 so who knows?). Being an ex-Army brat I left MANY friends behind around the east coast, west coast, and Europe but would certainly smile if we all could reconnect... especially during this ragged time for us all.

FIMF and 49ers

Joseph "Joe" Milbourne (B.S. Metallurgical Engineering, 1974)

I attended NMT from 1969 to 1974. It was at that time very much a male-dominated institution with way more men than women, so a group of us from Presidents and Fitch Halls formed an organization, FIMF.

The way it worked was that for big social events (like 49ers and St. Pat's) we would invite sorority sisters from UNM to come to Tech as blind dates. We sold tickets at the NMT cafeteria that guaranteed a male student a date with a sorority sister. Included in the invitation package was round-trip transportation for the sorority sister (we had rented a bus) to NMT and back to UNM, a room at the Val Verde Hotel, and admittance to a variety of social functions at the Ore House and other venues.

Weeks before 49ers we visited the UNM campus and went to several sororities and explained the arrangement. We had great success in getting sorority girls to come to Tech due to the favorable male/female ratio and exciting promised activities.

The day of 49ers we rode up to UNM on the bus and collected the girls; as I recall we had 25-40 (but it was a long time ago). On the bus ride back to Tech with the other FIMF organizers and the ticket halves from the blind date sale we skillfully arranged the dates.

Upon arrival at Tech there was a crowd of eager guys waiting to see who their dates were. Most were very happy - in fact there was one marriage that resulted from the FIMF organization.

We had a great group of motivated guys who had some serious fun along with all the hard work associated with completing our programs. We continued FIMF for two years and had good participation for 49ers and St. Pats.

We were really wild then, with lots of partying, dancing, and carrying on. Not sure I'd characterize it as "nice," but certainly civil.



From the 1971 Porphyry: Organizers with sorority sisters in Albuquerque before boarding for the ride down to 49ers at New Mexico Tech.



Samuel A.
Bowring

M.S. Geology, 1980

Samuel A. Bowring passed away July 17, 2019. Born in Portsmouth, NH on September 27, 1953, he graduated from the University of New Hampshire with a B.S. in Geology in 1976, then from NMT, and earned his Ph.D. in Geology from University of Kansas in 1985.

He was an Assistant Professor at Washington University from

1984-1990. In 1991, he joined the faculty of MIT in Earth & Planetary Science; he stayed there for 28 years. Sam was the Robert R. Schrock Professor Emeritus of Geology in EAPS. He was a legend in geochronology and a world expert in constraining rates of geologic processes and the timing of significant events in the geologic record. He investigated the explosion of multi-cellular life in the Early Cambrian as well as the end-Permian and the end-Cretaceous mass extinctions.

He is also highly regarded for his work on the origin and evolution of continental crust, showing, for instance, that the Acasta Gneisses in the Northwest Territories of Canada were 4 billion years old. Sam made many contributions to EAPS, including as Chair of the (former) Undergraduate Committee.

Sam received the highest honor by being inducted into the National Academy of Sciences and

the American Academy of Arts & Sciences. He was recognized by the American Geophysical Union, Geochemical Society, Geochemical Society of America, and at MIT as a Fellow of the Margaret MacVicar faculty.

He was a great cook who could make anything from scratch. Sam had a profound passion for the outdoors, especially anything connected to geology. He was an amateur photographer, and enjoyed many travels throughout his life. As a devoted educator, he exhibited a steadfast commitment to countless students during his career.

He was the loving husband for 30 years of Kristine (Fox) Bowring, and is also survived by two stepdaughters, Kelley Kintner and Sara Henrick, as well as his siblings, James Bowring, Joseph Bowring, and Margaret Ann Bowring-Price.

Donations in his memory may be made to a charity of one's choice.



Ronald Maloy
Brimhall

B.S. Petroleum Engineering, 1961, and M.S. Hydrology, 1969

Ronald "Ronnie" Maloy Brimhall passed away on May 17, 2020. Born on January 16, 1939, in Durango, CO, he later lived at Counselor's Post, NM, with his parents and three younger siblings.

His mother homeschooled all of the children during the years his entire family managed the remote trading post on NM Highway 44. His parents settled the family permanently in Farmington, NM where Ronnie often spent time as a "floor maintenance technician" at the Big Chief Trading Post his parents owned and operated. At

school, Ron found his passion for classical and swing music. He played saxophone in his own jazz band and served as drum major for the Farmington High School Marching Band and then served in the New Mexico National Guard.

After earning his B.S. and M.S. degrees from New Mexico Tech, Ron obtained his Ph.D. in Petroleum Engineering from Texas A&M University in 1986. He was an expert in the geologic arts and sciences. He worked for various companies in the oil and gas industry, traveling around the world on business trips to Canada, Columbia,

Russia, Siberia, and Uzbekistan. During his career, Ron worked for Schlumberger, Gulf, Tenneco, El Paso Natural Gas, and Williams Brothers Engineering before he accepted a teaching position in the Petroleum Engineering Department at Texas A&M University.

Ron married Naomi Joyce Verner, his forever bride, on May 20, 1995, one of the happiest days of his life. Ron adored his six sons: Michael, Todd, Patrick, Tyson, Derek, and Sean.

Petroleum engineering was more than Ron's career; it was part of what made him the man he was: - a problem solver. If a problem

arose, he observed the situation using critical analysis before finding the most logical solution. He was proud of the academic degrees he earned and as well as his career in teaching. Ron was a scientist.

After retirement, Ron earned an associate's degree in gunsmithing and opened a gunsmithing and custom rifle shop in Bryan, TX.

He also went back to work with one of his former A&M students in Houston as a reservoir engineer at oil and gas well consulting firm, W. D. Von Gonten & Co.

Ron was passionate about his ca-

reer and education. He was proud of his country where he lived a successful and meaningful life. His family was the most important thing to him; he always worked to make them proud. By nature, Ron was loving, caring, and dependable, and will be missed by his loved ones.

Ron is survived by his wife, Naomi Brimhall; six children, eight grandchildren, and two great-grandchildren.

The family asks that donations be made in Ron's memory to American Cancer Society, P.O. Box 22478, Oklahoma City, OK 73123.

CA in 1968 where Mike continued his work at United Geophysical, eventually becoming president of the company. By that time the Clevenger family had lived in 21 different places in six countries over 17 years.

Mike and Billie lived in La Cañada for 25 years. Mike traveled for work, visiting West Africa, China, and South America in the search for oil. Mike and Billie played lots of tennis and enjoyed entertaining friends and family in their close-knit community. Mike retired in 1990 but he never retired from life's adventures.

In 1992 Mike and Billie built a home in Santa Barbara, CA to be close to their family. They spent several years traveling throughout the west and Canada; one of Mike's proudest accomplishments was his ascent of Mt. Whitney. Mike was an avid skier and pas-

sionate fly fisherman, and very proud of being a co-founder of the Santa Barbara Flyfishers and the work he did as a volunteer wilderness ranger for the U.S. Forest Service. "Mike is now on an extended fishing trip."

Mike is survived by his daughter Susan, his son Ralph (Mary Jane), and his grandson.. To honor his memory, the family asks that donations be made to the Parkinson Association of Santa Barbara.



Jeffrey Allen Fischer

M.S. Geophysics, 1977

Jeffrey Allen Fischer passed away on March 14, 2020 in Houston, TX. Jeff was born on June 28, 1943 in Ann Arbor, MI to Carl and Priscilla Fischer.

In 1962, Jeff joined the Air Force and was stationed in San Antonio, TX until 1966. After his service, Jeff attended the University of Utah where he received a degree in Mathematics; before earning his M.S. at New Mexico Tech.

He worked at Phillips Petroleum Company for 20 years. Jeff loved all outdoor sports, especially golf, fishing, hunting, and running. Shortly after retirement, he moved to Red Lodge, MT and coached junior high basketball for several years.

He then moved to Las Cruces, NM where he learned to fly single- and twin-engine airplanes and later became a flight instructor. A few years later, he moved to Early, TX where he flew an airplane he built

with the help of his neighbor and good friend, Dean Crofford.

In 2013, he and his wife, Teresa, moved to Smithfield, UT to enjoy the simple and peaceful life of a beautiful mountain community. In 2017, as his battle with Alzheimer's progressively worsened, it was decided that a move back to Houston, TX, where family support was available, would be best.

Jeff was a sweet and loving husband and a great father. He leaves behind his wife, Teresa, who he met in 1994. He is also survived by his daughters, Kelly, Tracey, Jillian (Mike Bisenius), and Sara, as well as his sister, Julie (Rick Staelin). Other relatives include several brothers and sisters-in-law as well as many nieces and nephews.



Michael A. Clevenger

B.S. Geophysics, 1951

Michael "Mike" A. Clevenger passed away peacefully on January 10, 2020 in Santa Barbara, CA.

Born in Spokane, WA on August 13, 1928, he spent his childhood in Houston, TX.

Mike started in the oil exploration

business when he was 17. He went on to work for Geophysical Associates during his college days at New Mexico Tech.

While working on a geophysical crew in Canada Mike met his wife of 60 years, Billie (Wilma Allan). Mike and Billie moved with the geophysical crews in the U.S. and Canada over the next few years and had a son, Ralph, and daughter, Susan.

By this time Mike was working for United Geophysical Corporation and the opportunity to work overseas set the family on a new path. They lived in France, Iran, Libya and Egypt before returning to the U.S. in 1965. Mike's work was instrumental in finding many of the largest oil fields in the Middle East and North Africa.

They spent two years in Metairie, LA before moving to La Cañada,

Chester "Chet" Grandjean passed away peacefully on January 14, 2020 in Socorro, NM. Born on April 10, 1943, he and his first wife, Arnola, had two sons, Kenneth and Loren.

Chester later married Glinda and they enjoyed many years together. Chester had a long career with the Bureau of Land Management, retiring in Taos, NM after 33 years.

A lifelong love of the outdoors was his passion, spending many years hunting and fishing with family and friends. Chester's love of family was a big part of his life. He was

always in attendance at the many Grandjean reunions through the years. One year he recreated his father's famous pit barbecue along with his mother's sauce.

Chester is survived by his sons, granddaughter Jennifer Danae, brother Carter, a nephew and niece, numerous cousins, and his good friends Larry Meeks and family.

The family thanks the staff at Good Samaritan Village, and would especially like to thank Larry Meeks for his wonderful friendship and the care given to Chet the last few years.



Chester J. Grandjean

Bachelor of General Studies, 1975



David Vandenburg LeMone

B.S. Geology, 1955

David Vandenburg LeMone died of congestive heart failure on February 22, 2020, in his home with his family by his side. David was born April 16, 1932 in Columbia, MO and spent his childhood in Long Beach, CA.

David met his beloved wife Peggy at an extracurricular dancing class at NMT; they were married in April 1955. He worked in the mining and oil industry prior to earning his Ph.D. in Geology from Michigan State University in 1964.

He moved his family to El Paso, TX to start teaching at Texas Western College (now University of Texas at El Paso) where he was instrumental in developing the Geology Department. He taught Geology, Paleontology, Petroleum Geology, and Nuclear Waste Management to countless students.

He fully immersed himself in his profession and was well respected. Many past students remember him as the "Smoking Mountain" and would comment on how fast Dr. LeMone could scale up the side of a mountain.

He was passionate about his

work and in the 1960s he went to eastern Europe on sabbatical to study algae. He loved to travel and went to China, Russia, Yugoslavia, Czechoslovakia and several other European countries. David retired after 40 years as a UTEP Professor Emeritus in 2004.

David was a Renaissance man with a fascination for learning. He always had a book with him and was constantly researching new topics. He would often be found at the local coffee shop having an intense conversation on history or politics with friends and colleagues. He was civic minded and a member of several organizations; he especially enjoyed his membership as a Rotarian.

His loving wife, Margaret, preceded him in death in 2011. He is survived by his daughter Kathleen (Owen), son Jonathan (Marysol), and three grandchildren.

ment in Arizona for a couple of summers..

They moved to Capitan, NM; he taught math in Carrizozo for four years., then they moved to Andrews, TX in 2016. He enjoyed hunting, antique cars, and woodworking. He was a quiet man but was always thinking and using his math skills throughout his life.

Wayne is survived by his wife of 64 years, Mollie; son Jerry (Donna); daughter Janell; two brothers, one sister, 5 grandchildren, and 6 great grandchildren. Memorials may be sent to the Second Baptist Church, 107 NW 7th St., Andrews, TX 79714 or the NM Commission for the Blind, 2200 Yale Blvd SE, Albuquerque, NM 87106.



Bernard James Pankratz

B.S. Petroleum Engineering, 1957

Bernard James Pankratz passed away on April 24, 2020 in Houston, TX. He was born in Chesterville, Ontario, Canada on February 20, 1929. Bernard's formative years were spent in Valders, WI before moving to Burlington, WI. He went to Wisconsin Tech for one year and then was drafted into the army.

He did his basic training at Camp Chaffee, AK, then entered OCS in March 1952 and was commissioned as a Second Lieutenant in August 1952. From there he served at Fort Riley, KS in the 10th Infantry Division. After being honorably discharged, he earned his B.S. degree at New Mexico Tech.

He joined Gulf Oil Corporation in June 1958 and progressed up through the company ranks over the years. He was active in the Society of Petroleum Engineers and was the Chairman of Permian Basin Section for the years 1973-74. He retired from Gulf after 27 years, at that time working as Manager of Engineering and Economics at Gulf's Houston headquarters.

Bernard enjoyed helping others and for 23 years served at the Good Shepherd Mission in Huntsville, TX. He was active in various church organizations, Knights of Columbus, Finance Committees, and Parish Councils. Some of his

favorite things: Whataburger, jelly beans, chile rellenos, a good steak (no sand), making egg-in-a-hole breakfast for family, La-Z-Boys, NCIS, Westerns, dry martinis, Boots Randolph music, golfing, Ginny's cooking, any form of car racing, Janet's pretzels, jitterbugging (in younger days), yard work, fishing, and sharing hugs and his jelly beans with grandchildren and great-grandchildren. He was quite proud of the three sons he and Ginny raised.

He is survived by his wife of 67 years, Virginia, their three sons Jon (Marilee), Greg (Janet), and Dan, two brothers Bob and Dan (Barbara); as well as numerous grandchildren, great grandchildren, cousins, nieces, nephews, and friends.

The family would appreciate donations in his memory to the American Heart Association (www.heart.org) or the Alzheimer's Association (<https://www.alz.org>).



William DeWayne Mason

Master of Science Teaching, 1973

William DeWayne "Wayne" Mason passed away on November 28, 2019. Born on October 18, 1929 in Raton, NM, he received his Bachelor of Education from Western New Mexico University and his Master's from NMT.

He served in the U.S. Army during the Korean conflict, and married Mollie Nell Cooper in 1955. They moved to Deming, NM, where he was a math teacher for 30 years. He was a sponsor for the high school Honors Society, taught Driver's Education, and drove the school's activity bus. He worked as a National Park Ranger at the Painted Desert National Monu-



Thomas E. Pearse

B.S. Geology, 1960

Thomas "Tim" E. Pearse passed away on March 10, 2020. He was born in Boise, ID on July 9, 1938, the son of the late C. Kenneth and Jessie Philliber-Pearse.

Tim grew up in many places including Ogden, UT, Washington D.C., Tucson, AZ, and Cairo, Egypt, where he graduated from high school before receiving a Certificate of Education from Oxford University and London University. He earned his B.S. at NMT, then an M.S. in Mining Engineering from Missouri School of Mines.

He was a registered Professional Engineer in the state of New Mexico and was employed for many years in the mining industry. He worked in the maintenance departments at Kennecott Copper, B.C. Molybdenum, Anaconda, and Kaiser Steel in various capacities ranging from trainee to Maintenance Superintendent.

His career path led him to International Mill Service as Manager of Equipment and Machinery in 1973 until his retirement in 2001.

He married Eleanor F. Brawley in

1958 and she preceded him in death. In 1994 he married Betsy A. Ricker-McCoy.

A quote from a past employee rings true in all aspects of Tim's life, "He taught me quite a bit and was always fair and honest." Tim always had fond memories of his time spent at New Mexico Tech; he was a lifetime member of the New Mexico Tech Alumni Association.

In 2008 Tim was diagnosed with Normal Pressure Hydrocephalus (NPH) and for the next twelve years his body and mind were taken away from him. With the

help of Hospice Association his last days were without pain or suffering. The hospice team made Tim's transition quiet and painless; each and every one was caring.

Tim is survived by his wife Eleanor, four daughters, three sons (one preceded him in death), two brothers, eight grandchildren, and three great grandchildren (with a fourth on the way).

The family asks memorial donations be made to BJC Hospice at Alton, One Professional Dr. Suite 180, Alton, IL 62002.



John P. Riegel III

M.S. Mechanical Engineering with Specialization in Explosives Engineering,, 2017

John P. "Jack" Riegel, III was born November 17, 1954, and died September 8, 2019. Jack had a lifelong passion for the sciences, through which he made many personal and professional connections in a long career in defense technology and research firms.

He was more than a husband, dad, and grandpapa; he was a shining example of a man devoted to his family, friends, commu-

nity and making the world a little better through knowledge and personal commitment.

Jack's work took him all around the globe and allowed him to develop lasting friendships in many countries. Jack spent much of his life in San Antonio and had recently returned from living ten years in Washington D.C. to start a new chapter with his wife Roxy in the Hill Country.

His retirement included developing his home into a mini-escape for his three children, their spouses, and his 6 grandchildren, as well as consulting and teaching. His active brain would not allow him to entirely stop searching for answers to the next unknown.

Jack received degrees in Applied Physics (UT San Antonio) and Mechanical Engineering (NMT). He loved learning and teaching and was always absorbing new perspectives that he willingly shared.

Dubbed 'the most interesting man in the world,' he lived up to that claim again and again.

Jack enjoyed scuba diving, photography, riding his Harley, cooking, endless projects, hunting, hosting parties, attending concerts, and traveling the world. He loved spreading kindness and joy to all. He particularly enjoyed being Santa Claus and seeing the smiles on kids' faces. Jack was happiest when he was with his family and friends.

Jack is survived by his wife, Roxann "Roxy" Zamora; two daughters, Julie (James) Riegel-Uphoff and Kelly (Mason) Rasti; son Adam (Carina); six grandchildren; his devoted pup GP; his mother Joan; as well as siblings, nieces, nephews and extended family, all of whom he adored.

Jack left us too soon and will be dearly missed by all.

To honor his life's work, his family has established the Jack Riegel Scholarship (<https://www.gofundme.com/f/jack-riegel-scholarship-fund>) to be awarded to a student with an interest in pursuing scientific studies.

Kalika Pai (B.S. Chemistry, 2020) was the winner of the **2019 Annual Hatch Pentathlon Prize in Chemistry** and the **Popp Senior Chemistry Research Thesis Award**.

She recently reminisced about her New Mexico Tech experiences:

"My decision to attend NMT was largely due to finances. Tech gave me more opportunities than other schools would have, without the student loans I would have needed for other programs. I was able to join a research group my sophomore year, which gave me the experience that helped me succeed in planning my senior thesis project.

"For my senior thesis, I focused on the optimization of a tool for detecting PLA2, a biomarker in various diseases. The basis of the tool is that lipids degrade in the presence of the biomarker. Particles coated in fluorescent lipids are used to allow us to detect the biomarker based on loss of fluorescence. The goal of my thesis project was to determine how the size of particles used affects the sensitivity of the method.

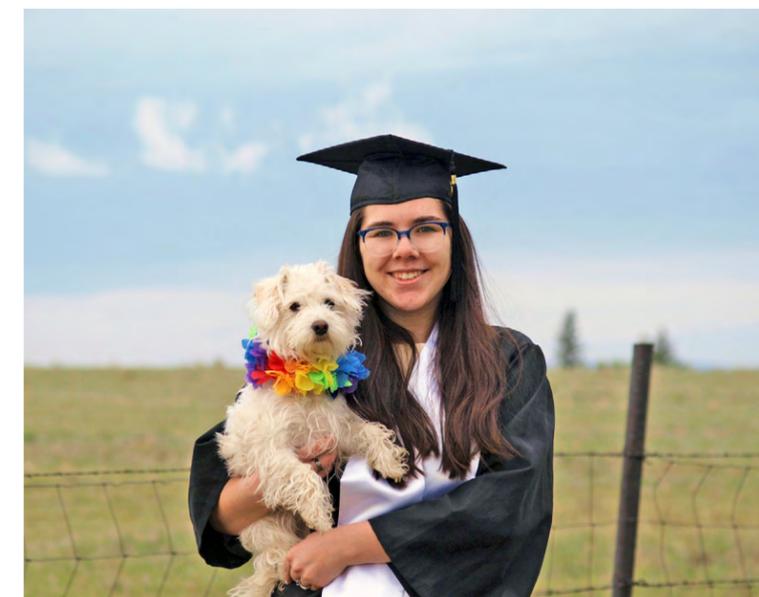
"Unfortunately, I was not able to complete everything I would have liked to, but I'm hoping the results I found can be useful for the continuation of the project. Even with the setbacks, working on my own project has given me more experience and confidence in the lab that will be tremendously helpful to me during grad school."

Kalika's research advisor, **Dr. Menake Piyasena**, added



Dr. Menake Piyasena

We congratulate Kalika on her accomplishments and achievements as an undergraduate at New Mexico Tech, and wish her continued success in all her personal and professional future endeavors.



Kalika Pai and friend ready for Commencement



**New Mexico Institute
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