SUMMER 2022

The Bent

Of Tau Beta Pi

THE ENGINEERING HONOR SOCIETY

Summiting Kilimanjaro

Introducing the 2022 TBP Fellows

ALUMNI CHAPTERS

79 ALUMNI CHAPTERS
47 ACTIVE

*Inactive chapters shown in **BLUE***

DISTRICT 1
Central CT, Hartford
Greater Boston Area, MA

DISTRICT 2
Buffalo, NY
Central Jersey, NJ
LI Suburban, NY
Newark, NJ
New York City, NY
New York Capital District, NY
Rochester, NY
Southern Tier, Binghamton, NY

DISTRICT 3
Lehigh Valley, Bethlehem, PA
Philadelphia, PA
Pittsburgh, PA
Wilmington, DE

DISTRICT 4
Baltimore, MD
Hampton Roads, Newport News, VA
Kanawha Valley, Charleston, WV
Research Triangle, Durham-Chapel Hill-Raleigh, NC
Richmond, VA
Washington, DC

DISTRICT 5
Atlanta, GA
Central FL, Orlando
Daytona Beach, FL
Gainesville, FL
Miami, FL
Midlands, Columbia, SC
Palm Beach/ Broward, FL
Piedmont, Clemson, SC
Puerto Rico
Tampa Bay, FL

DISTRICT 6
Bluegrass, Lexington-Frankfort, KY
Central Alabama, Birmingham
Great Smoky Mountains, Knoxville-Oak Ridge, TN
Greater Gulf Coast, Mobile, AL
Louisville, KY
Mid-South, Memphis, TN
Rocket City, Huntsville, AL

DISTRICT 7
Ann Arbor Area, MI
Central MI, Lansing
Cincinnati, OH
Columbus, OH
Dayton, OH
Flint, MI
Ohio's North Coast, Cleveland
SE Michigan, Detroit
West Michigan, Grand Rapids

DISTRICT 8
Chicago Area, IL
Central Illinois, Urbana-Champaign
Indianapolis, IN
Milwaukee Area, WI

DISTRICT 9
Kansas City, KS
Pioneer, OK
Rolla, MO
St. Louis, MO

DISTRICT 10
Central Texas, Austin/San Antonio
North Texas, Dallas-Fort Worth
Greater New Orleans, LA
Texas Gulf Coast, Houston

DISTRICT 11
Ames, IA
Minnesota, Twin Cities, MN

DISTRICT 12
Pikes Peak, CO
Front Range, CO/WY
Salt Lake City, UT
Treasure Valley, Boise, ID

DISTRICT 13
Albuquerque, NM
El Paso, TX
Phoenix, AZ
Sun City, AZ
Tucson, AZ

DISTRICT 14
Columbia River Basin, Richland, WA
Portland, OR
Puget Sound, Seattle, WA

DISTRICT 15
Sacramento Vly, CA
SF Bay Area, CA
SF Peninsula, Palo Alto, CA

DISTRICT 16
Los Angeles, CA
Orange County, CA
Greater San Diego, California
Southern California

COLLEGIATE CHAPTERS

257 COLLEGIATE CHAPTERS
624,200 MEMBERS

*6 Inactive chapters shown in **BLUE***

Α = ALPHA	Δ = DELTA	Η = ETA	Κ = KAPPA	Ν = NU	Π = PI	Τ = TAU	Χ = CHI
Β = BETA	Ε = EPSILON	Θ = THETA	Λ = LAMBDA	Ξ = XI	Ρ = RHO	Υ = UPSILON	Ψ = PSI
Γ = GAMMA	Ζ = ZETA	Ι = IOTA	Μ = MU	Ο = OMICRON	Σ = SIGMA	Φ = PHI	Ω = OMEGA

AL ALPHA Auburn University
BETA University of Alabama
GAMMA Univ. of Ala. at Birmingham
DELTA Univ. of Ala. in Huntsville
EPSILON Univ. of South Alabama
AK ALPHA Univ. of Alaska Fairbanks
AZ ALPHA University of Arizona
BETA Arizona State University
GAMMA Northern Arizona University
DELTA Embry-Riddle Univ., Prescott
AR ALPHA University of Arkansas
BETA Univ. of Ark. at Little Rock
CA ALPHA UC Berkeley
BETA Calif. Institute of Technology
GAMMA Stanford University
DELTA University of Southern Calif.
EPSILON UC Los Angeles
ZETA Santa Clara University
ETA San Jose State University
THETA Calif. State Univ., Long Beach
IOTA Calif. State Univ., Los Angeles
KAPPA Calif. State Univ., Northridge
LAMBDA UC Davis
MU Calif. Poly St. Univ., San Luis Obispo
NU Calif. State Poly Univ., Pomona
XI San Diego State University
OMICRON Loyola Marymount Univ.
PI Northrop University (inactive)
RHO California State Univ., Fresno
SIGMA UC Santa Barbara
TAU University of California, Irvine
UPSILON Calif. St. Univ., Sacramento
PHI University of the Pacific
CHI California State Univ., Fullerton
PSI UC San Diego
OMEGA Harvey Mudd College
ALPHA ALPHA Calif. St. Univ., Chico
ALPHA BETA UC Riverside
ALPHA GAMMA San Francisco St. Univ.
ALPHA DELTA UC Santa Cruz
ALPHA EPSILON Univ. of San Diego
CO ALPHA Colorado School of Mines
BETA Univ. of Colorado at Boulder
GAMMA University of Denver
DELTA Colorado State University
EPSILON Univ. of Colorado at Denver
ZETA U.S. Air Force Academy
CT ALPHA Yale University
BETA University of Connecticut
GAMMA University of Hartford
DE ALPHA University of Delaware
DC ALPHA Howard University
BETA Catholic Univ. of America
GAMMA George Washington Univ.
FL ALPHA University of Florida
BETA University of Miami
GAMMA University of South Florida
DELTA University of Central Florida
EPSILON Florida Atlantic University
ZETA Florida Institute of Technology
ETA FL A&M Univ.-FL State Univ.
THETA Florida International Univ.
IOTA Embry-Riddle Aero. Univ.
GA ALPHA Georgia Institute of Technology
BETA Mercer University
GAMMA Georgia Southern Univ.
ID ALPHA University of Idaho
BETA Idaho State University
GAMMA Boise State University
DELTA Brigham Young Univ.-Idaho
IL ALPHA Univ. of IL at Urbana-Champaign
BETA Illinois Institute of Technology
GAMMA Northwestern University
DELTA Bradley University
EPSILON S. Illinois Univ. at Carbondale
ZETA University of Illinois at Chicago
IN ALPHA Purdue University
BETA Rose-Hulman Inst. of Technology
GAMMA University of Notre Dame
DELTA Valparaiso University
EPSILON Trine University
ZETA Indiana Univ.-Purdue Univ. Indpls.
IA ALPHA Iowa State University
BETA University of Iowa
KS ALPHA University of Kansas
BETA Wichita State University
GAMMA Kansas State University
KY ALPHA University of Kentucky
BETA University of Louisville
GAMMA Western Kentucky University
LA ALPHA Louisiana State University
BETA Tulane University
GAMMA Louisiana Tech. University
DELTA Univ. of Louisiana at Lafayette
EPSILON University of New Orleans
ME ALPHA University of Maine
MD ALPHA Johns Hopkins Univ.
BETA University of Maryland
GAMMA U.S. Naval Academy
DELTA Univ. of Maryland Baltimore Co.
EPSILON Morgan State University
MA ALPHA Worcester Polytechnic Inst.
BETA Massachusetts Inst. of Tech.
GAMMA Harvard University (inactive)
DELTA Tufts University
EPSILON Northeastern University
ZETA University of Mass. at Amherst
ETA Boston University
THETA Univ. of Massachusetts Lowell
IOTA Western New England Univ.
MI ALPHA Michigan State University
BETA Michigan Technological Univ.
GAMMA University of Michigan
DELTA University of Detroit Mercy
EPSILON Wayne State University
ZETA Kettering University
ETA Lawrence Technological Univ.
THETA Oakland University
IOTA Univ. of Michigan-Dearborn
KAPPA Western Michigan Univ.
LAMBDA Grand Valley State Univ.
MN ALPHA Univ. of Minnesota-Twin Cities
BETA Univ. of Minnesota, Duluth
MS ALPHA Mississippi State University
BETA University of Mississippi
MO ALPHA Univ. of Missouri-Columbia
BETA Missouri Univ. of Science & Tech.
GAMMA Washington University
DELTA Univ. of Missouri-Kansas City
EPSILON Saint Louis University
MT ALPHA Montana State University
BETA Montana Tech. of the Univ. of MT
NE ALPHA Univ. of Nebraska-Lincoln
NV ALPHA University of Nevada, Reno
BETA Univ. of Nevada, Las Vegas
NH ALPHA Univ. of New Hampshire
BETA Dartmouth College
NJ ALPHA Stevens Institute of Technology
BETA Rutgers University
GAMMA New Jersey Inst. of Tech.
DELTA Princeton University
EPSILON Rowan University
ZETA The College of New Jersey
NM ALPHA New Mexico State University
BETA University of New Mexico
GAMMA NM Inst. of Mining & Tech.
NY ALPHA Columbia University
BETA Syracuse University
GAMMA Rensselaer Polytechnic Inst.
DELTA Cornell University
EPSILON New York Univ. (inactive)
ZETA Brooklyn Polytechnic (inactive)
ETA City College of CUNY
THETA Clarkson University
IOTA Cooper Union School of Eng'g.
KAPPA University of Rochester
LAMBDA Pratt Institute (inactive)
MU Union College
NU SUNY at Buffalo
XI Manhattan College
OMICRON SUNY at Stony Brook
PI Rochester Institute of Tech.
RHO NYU Tandon School of Eng'g.
SIGMA Alfred University
TAU Binghamton University
UPSILON U.S. Military Academy
NC ALPHA North Carolina State Univ.
BETA Univ. of North Carolina (inactive)
GAMMA Duke University
DELTA Univ. of NC at Charlotte
EPSILON NC A&T State University
ZETA East Carolina University
ND ALPHA North Dakota State University
BETA University of North Dakota
OH ALPHA Case Western Reserve Univ.
BETA University of Cincinnati
GAMMA Ohio State University
DELTA Ohio University
EPSILON Cleveland State Univ.
ZETA University of Toledo
ETA Air Force Institute of Tech.
THETA University of Dayton
IOTA Ohio Northern University
KAPPA University of Akron
LAMBDA Youngstown State Univ.
MU Wright State University
NU Cedarville University
XI Miami University
OK ALPHA University of Oklahoma
BETA University of Tulsa
GAMMA Oklahoma State University
OR ALPHA Oregon State University
BETA Portland State University
GAMMA University of Portland
DELTA Oregon Institute of Tech.
PA ALPHA Lehigh University
BETA Pennsylvania State University
GAMMA Carnegie Mellon University
DELTA University of Pennsylvania
EPSILON Lafayette College
ZETA Drexel University
ETA Bucknell University
THETA Villanova University
IOTA Widener University
KAPPA Swarthmore College
LAMBDA University of Pittsburgh
MU Penn State Erie, Behrend College
PR ALPHA University of Puerto Rico
RI ALPHA Brown University
BETA University of Rhode Island
SC ALPHA Clemson University
BETA University of South Carolina
GAMMA The Citadel
SD ALPHA S. Dakota Sch. of Mines & Tech.
BETA South Dakota State University
TN ALPHA University of Tennessee
BETA Vanderbilt University
GAMMA Tennessee Tech. University
DELTA Christian Brothers Univ.
EPSILON University of Memphis
ZETA Univ. of Tenn. at Chattanooga
TX ALPHA University of Texas at Austin
BETA Texas Tech. University
GAMMA Rice University
DELTA Texas A&M University
EPSILON University of Houston
ZETA Lamar University
ETA Univ. of Texas at Arlington
THETA Univ. of Texas at El Paso
IOTA Southern Methodist University
KAPPA Prairie View A&M University
LAMBDA Texas A&M Univ.-Kingsville
MU Univ. of Texas at San Antonio
NU Univ. of Texas Rio Grande Valley
XI University of Texas at Dallas
UT ALPHA University of Utah
BETA Brigham Young University
GAMMA Utah State University
VT ALPHA University of Vermont
BETA Norwich University
VA ALPHA University of Virginia
BETA Virginia Poly. Inst. & State Univ.
GAMMA Old Dominion University
DELTA Virginia Military Institute
EPSILON Virginia Commonwealth Univ.
WA ALPHA University of Washington
BETA Washington State University
GAMMA Seattle University
DELTA Gonzaga University
WV ALPHA West Virginia University
BETA West Virginia Univ. Inst. of Tech.
WI ALPHA Univ. of Wisconsin-Madison
BETA Marquette University
GAMMA Univ. of Wlisconsin-Milwaukee
DELTA Milwaukee School of Eng'g.
EPSILON Univ. of Wisconsin-Platteville
WY ALPHA University of Wyoming

SUMMER 2022

The Bent

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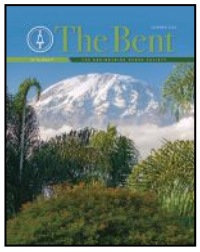
FEATURES:

DEPARTMENTS:

6 Meet our 89th group of TBΠ Fellows.

18 Test your skills with Brain Ticklers; and remembering a beloved BTs judge.

30 Check out our TBΠ District Conferences, regional officer meetings for each District.



COVER: Mount Kilimanjaro in Tanzania, Africa. Image from *pixabay.com*
Artist: Dali Polivka

Editor: Dylan S. Lane

Managing Editor: Patricia B. McDaniel

Copy Editor: Angela Boles

Tau Beta Pi was founded at Lehigh University, South Bethlehem, PA, June 15, 1885, by Edward H. Williams Jr., A.B., A.C., E.M., Sc.D., LL.D. (1849-1933). Key and name registered in U.S. Patent and Trademark Office.

Member, *American Society for Engineering Education*; co-founder *Association of College Honor Societies*; and Affiliate, *American Association for the Advancement of Science.*

VISIT www.tbp.org

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COUNCIL'S CORNER

Michael L. Peterson, *IA A '89*, TBΠ 2022 Secretary (Executive Council)

CHANGE AND COMMUNITY — CATALYSTS FOR FUTURE SUCCESS

Tau Beta Pi offers many opportunities to grow our ability to make the most of both of these!

Hello Tau Bates,

Summer is an excellent time to take a few minutes to reflect and look ahead—whether it's on a lake, a hike, or cooking out with friends. With that in mind, let's take a look at two concepts that we strongly believe in at Tau Beta Pi, and which I think apply and reinforce each other in many other areas of life as well: change and community.

From the change perspective, like most everyone and everything else over this past year, Tau Beta Pi has worked hard to adapt to the new and changing realities around in-person meetings, travel, and the need to be flexible and adapt to whatever comes our way. This spring, we've seen great examples of chapters and District Directors being flexible in how they approach their spring conferences — embracing a variety of formats from all virtual to all in-person to everything in between. Each worked, thanks to the flexible mindset that everyone brought to the planning & execution of these meetings, which help equip new chapter officers for their work in the coming year leading their chapters to continued and improved success. We also ramped up new virtual opportunities for students and alumni alike to learn new skills and be inspired by fellow engineers, through online Engineering Futures Sessions and our monthly Tau Bate Talks given by prominent alumni. To all of you who are involved with your local student chapters, alumni chapters, or the Association, thanks for your hard work as we figure out how to move forward into the future and the challenges it is sure to present!

To make those kinds of changes and adaptations possible, and to figure out the best direction to go when the map for how to get there doesn't yet exist, community can be an important source of support. When we have others to talk to and share with, we can better understand ourselves & what's going on in our world, which allows us to create new ideas and directions that didn't exist before. The opportunities we have in Tau Beta Pi to get to know other engineers in other majors/professions, other companies, and other regions and countries is a unique and exciting part of our organization, which we all can enjoy and benefit from. As a thought starter — here are a few examples where I've benefited from TBΠ connections to meet new people:

- The majority of my non-EE friends at my alma mater were fellow Tau Bates and officers, some of whom I still keep in touch with 30+ years later!
- A District Director friend in Boston was the first person I met and spent time with at grad school, and helped me feel welcome and comfortable in new surroundings.
- An Engineering Futures Facilitator let me crash at his place during my first stay at an internship, and also introduced me to my future (and current) wife.
- A wellness advisor at my local yoga club is currently joining Tau Beta Pi at Oakland University (MI Theta Chapter), where I teach.

I also encourage you to take some time to reconnect with TBΠ friends from school or in your local community. I guarantee they will enjoy hearing from you and catching up — you never know where the rekindled relationships may lead. Also, check for an alumni chapter in your area; the list of chapters and more details are available at: *www.tbp.org/?Alumni*. These are excellent ways to make new friends and to get comfortable in a community as you settle into a new job or relocation.

Finally, I encourage all of you to join us for our 2022 Annual Convention in Knoxville, TN, September 29 – October 1. We have been unable to hold an in-person Convention since 2019 and are very excited for this event to take place. It will be awesome! If you're a chapter officer or an alumni chapter member, talk to your officers and make sure one or more of you can attend. This is an amazing opportunity to contribute to and benefit from the change and community that is part of TBΠ. We are looking forward to Professional Development Sessions, meeting members from around the country, and also interacting with companies and graduate schools offering future opportunities. There is also quite a bit of business that was not possible to conduct over the last couple of years. We need ***your*** help to come together and set the future direction of our Association. I hope you will make plans to join us!

In conclusion, opportunities for change and community abound here at TBΠ, and we look forward to your being a part of it! See you in Knoxville!

MIKE PETERSON, a special lecturer in statistics and leadership at Oakland University, co-owns a STEAM enrichment program with his wife Michelle called Challenge Island, providing hands-on workshops to kids ages 4-14. He joined the TBΠ Executive Council in 2019 and has a B.S. in electrical engineering from Iowa State and master's degrees in engineering and management from MIT.

YOUR LETTERS

Send letters to media@tbp.org. Text may be edited for length and clarity; not all letters can be published.

Tau Beta Pi's "First Lady"

This week, a friend of mine forwarded an article written a couple years ago (Winter 2019) by **Jenna P. Carpenter, Ph.D.,** *IN A '83*, for the magazine about my grandmother, **Katharine Cleveland Harelson,** *KY A 1924*. I just wanted to thank you for writing such a piece. I'd heard these stories in my family over the years, but the details your story included were some things I'd never heard.

Every month, as chief engineer at CDOT, I have to make "Chief Engineer's Comments" to Colorado's Transportation Commission. In my comments this month, I plan to celebrate Women's Engineering Month with a discussion about my grandmother-freshly inspired by reading your article.

While my father (William Henry-Hank) and I were not good enough students to be elected to ΤΒΠ — my son **Andrew N. Harelson,** *CO A '20*, did in fact get a key several years ago at the Colorado School of Mines. He knows all about the legacy of his great grandmother. So, though Katharine's good work as a student skipped a couple of generations — it still exists in the world.

Stephen Harelson, P.E.

Baseball Rule Change

Great job with the baseball rule change article! As a dedicated MLB fan, former high school baseball player, and most recently, my daughter's softball coach, I agree that this is an important issue in the sport. I like the proposed solution of returning first base to its 1881-87 position (half in fair territory, half foul). However, I think there is a simpler solution that is already employed in youth baseball and softball. It's called a double safety first base. It's a double-wide base with a full-sized base in fair territory and a different full-sized base in foul territory. The fielder uses the half in fair territory, and the runner uses the half in foul territory. It seemingly eliminates all of the problems addressed in the article, and would elevate a solution that is already used by many baseball and softball players to the major leagues.

Kevin M. Shea, *MA A '95*

Realm of Engineering & Music

I would like to submit a correction to the cover article of the Winter 2022 magazine. I am a professional sound engineer holding a bachelor's of music: sound recording, engineering, and production from Liberty University 2018. My mother is a member of Tau Beta Pi — **Judith E. Oldja,** *NJ Alpha '86*.

The article cites information and graphics that are partially or entirely inaccurate:

1. The graphic depicting microphones states the microphones are depicted "[left to right] Ribbon, two dynamic, and a condenser." The correct order is [left to right] condenser, two dynamic, and a ribbon.

2. The graphic depicting a "Tube sound amplifier" actually depicts a Kemper Profiler. This is a digital device that analyzes and approximates the character of a tube amplifier intended for guitar or bass guitar. There are models that include, and some that do not include, a power amp circuit.

3. In discussion of types of microphones on page 8, it is prudent to note that dynamic microphones are not limited to omnidirectional or cardioid polar patterns, they also include supercardioid and hypercardioid polar patterns. Condenser microphones can also have omnidirectional, cardioid, supercardioid, hypercardioid, and figure 8 polar patterns. Additionally, condenser microphones can be infinitely variable in polar pattern between all options. Ribbon microphones are limited to figure 8 polar patterns by the nature of their design.

4. In terms of application of microphones, condenser and dynamic microphones are equally used in live and recording applications, contrary to the way application is portrayed in the article. Ribbon microphones are used in recording studios more commonly because of the fragile nature of the ribbon element itself. Stages can be dangerous places for sensitive equipment.

Thank you for your consideration and for publishing an interesting article.

Jeremy Oldja (*Son of Member*)

Decarbonizing the Atmosphere

Your latest article was excellent in laying out the challenges and urgency to act on this issue.

As a retired EE engineer working in aerospace, I've been reading and researching quite a bit on this topic and found your 'short' analysis to be very comprehensive and clearly stated. I recently read the book, *A Bright Future, How Some Countries Have Solved Climate Change and the Rest Can Follow*, by Joshua S. Goldstein and Staffan A. Qvist. Their focus is on advocating for a clean though not a renewable source, nuclear power, which you mention as an option. They make the argument there is no way to get to 100 percent renewables without nuclear power and whenever a nuclear power plant is decommissioned, fossil fuels almost always fill the energy gap. They also comment on the 'unclean' hydrogen option and the misleading 'natural gas' (aka methane) push.

It seems climate fundamentalists are like GMO fundamentalists, where the former want all renewables and nothing else and the latter only see GMOs as evil, rather than how they're implemented. In the GMO case, they shouldn't be used to increase the use of pesticides in agriculture, but they should be used to enhance or save a crop (like the papayas in Hawaii).

Letters continue on page 44.

FROM THE EDITORS

Dylan Lane and **Patricia McDaniel**

The Editorial Staff apologizes for the following errors:

In the Spring 2022 issue:

Page 31 of In the Colleges, the profile of Edward Pines, Ph.D., *NM A '79*, included an image of Dylan A. McCreedy, Ph.D., *UT A '08*, instead. This is the correct image of Dr. Pines.

Page 36 of Chapter Eternal, the date of death for Masanao Aoki, Ph.D., *CA E '53*, is incorrect. Dr. Aoki passed away on July 24, 2018, at the age of 87.

Thank you to our readers for helping maintain the accuracy of the magazine. If you find an error or inconsistency, please email dylan@tbp.org *or call 865/546-4578.*

WHO'S WHO IN TAU BETA PI

Recognizing Tau Bate accomplishments.

Anantha Chandrakasan Ph.D.

California Alpha '89

was awarded the 2022 IEEE Mildred Dresselhaus Medal for "contributions to ultralow-power circuits and systems, and leadership in academia and advancing diversity in the profession." Dean of the MIT School of Engineering, professor of EECS, and chair of the MIT Climate & Sustainability Consortium, he serves as co-chair of the MIT–IBM Watson AI Lab.

John P. Holdren Ph.D.

Massachusetts Beta '65

was presented the 2021 Arthur M. Bueche Award from NAE "for national/international leadership in policymaking for nuclear weapons security, energy resources for sustainable development, and efforts to address climate change." He is also the 2022 Public Welfare Medal recipient from NAS, particularly for being the longest serving presidential science advisor (2009-17) since WWII.

Ioannis (John) Kymissis Ph.D.

Massachusetts Beta '98

was selected as an IEEE Fellow — the highest grade of membership in IEEE — in recognition of his "contributions to thin-film electronics for displays and sensors." He is a professor and chair of electrical engineering at Columbia University and his group's work developing new backplanes and integration strategies for LED displays has been licensed by a number of companies.

Aprille J. Ericsson Ph.D.

District of Columbia Alpha '86

has received the Ralph Coats Roe Medal from the American Society of Mechanical Engineers (ASME). She was honored for encouraging young people, women, and underrepresented groups to pursue STEM careers. Ericsson has served as an engineer, technologist, instrument lead, project and program manager at NASA for nearly 30 years, and is a ΤΒΠ Distinguished Alumna.

Jill M. Hruby

Indiana Alpha '81

serves as Under Secretary for Nuclear Security of the U.S. Department of Energy (DOE) and Administrator of the National Nuclear Security Administration after her July 2021 confirmation by the U.S. Senate. Previously, she was director of Sandia National Labs (2015-17), served as the inaugural Distinguished Fellow at the Nuclear Threat Initiative (2018), and has two ME degrees from Purdue Univ.

Steven R. Little Ph.D.

Ohio Lambda '00

was elected Fellow of the American Association for Advancement of Science "for remarkable service to charities that advance education in science in impoverished countries and leadership in science internationally." A Distinguished Professor, department chair of chemical & petroleum eng'g at the Univ. of Pittsburgh, he is recognized for research in pharmaceutics & drug delivery.

James E. Fesmire

Alabama Alpha '87

was appointed chief architect and chief technology officer at GenH2. He is a NASA Hall of Fame Inventor specializing in all aspects of liquid hydrogen storage and transfer and his pioneering cryogenic systems design work helped to advance the space shuttle and future Mars exploration. Known as founder of the NASA Cryogenics Test Laboratory, he is also a NASA Distinguished Service medalist.

Aditya M. Kunjapur Ph.D.

Texas Alpha '10

was presented the 2021 Langer Prize for Innovation and Entrepreneurial Excellence by AIChE which will support his work to boost the efficacy of live vaccines by engineering cells to produce an immunogenic amino acid. He is an assistant professor at the University of Delaware, a ΤΒΠ Fellow (2010), and earned his chemical engineering B.S. degree from the Univ. of Texas at Austin.

John B. Slaughter Ph.D.

Washington Beta '56

was selected as the 2022 IEEE Founders Medal recipient "for leadership and administration significantly advancing inclusion and racial diversity in the engineering profession across government, academic, and nonprofit organizations." After a distinguished career in the private sector, President Reagan named him the first African-American director of the NSF in 1980.

NATIONAL ACADEMY OF ENGINEERING

2022 Bernard Gordon Prize Recipients

The NAE awarded The Bernard M. Gordon Prize for Innovation in Engineering and Technology Education to recognize new modalities and experiments in education that develop effective engineering leaders. Congratulations to Yannis C. Yortsos, Thomas C. Katsouleas, Richard K. Miller, and Jenna P. Carpenter, for creating an innovative education program that prepares students to become future engineering leaders who will address the NAE Grand Challenges of Engineering.
More information at: www.nae.edu/gordon2023/

Yannis Yortsos Ph.D.
California Delta '73
Dean, School of Engineering,
Univ. of Southern California

Thomas Katsouleas Ph.D.
California Delta '84
President,
University of Connecticut

Richard Miller Ph.D.
California Lambda '71
President,
Olin College of Engineering

Jenna Carpenter Ph.D.
Indiana Alpha '83
Founding Dean & Professor,
Campbell University

NATIONAL ACADEMY OF SCIENCES

In recognition of their distinguished and continuing achievements in original research, the following Tau Bates were elected as members to the 2022 class of the National Academy of Sciences.

Alfred V. Aho Ph.D.
New York Alpha '63
Professor Emeritus,
Columbia University

Lance J. Dixon Ph.D.
California Beta '82
Professor, SLAC National
Accelerator Lab (Stanford)

Edward Ott Ph.D.
New York Iota '63
Distinguished Professor,
University of Maryland

Julio M. Ottino Ph.D.
Massachusetts Zeta '76
Dean, School of Engineering
Northwestern University

Ronitt A. Rubinfeld Ph.D.
Michigan Gamma '85
Professor, Massachusetts
Institute of Technology

Nancy R. Sottos Ph.D.
Massachusetts Zeta '86
Dept. Head & Professor,
Univ. of Illinois Urbana-Champaign

TBP FELLOWS

Fellowships have been awarded to 31 members for a year of graduate study in 2022-23.

Adedoyin A. Abe AR A '18
Anderson No. 19 | Mechanical eng'g

Suzanna R. Barna FL A '22
Matthews No. 25 | Structural eng'g

Harsh G. Bhundiya CA B '20
Spencer No. 67 | Aero & Astro eng'g

Maison R. Clouâtré GA B '22
Centennial No. 37 | Aerospace eng'g

Andrew C. Cochran OH I '22
Brandt No. 1 | Elec & comp eng'g

Luciana M. Custer NH A '21
Fife No. 234 | Biomedical eng'g

Malley A. Gautreaux MS A '22
Fife No. 236 | Biomedical eng'g

Shinjini Ghosh MA B '22
Hanley No. 12 | Comp Sci. & eng'g

Eric J. Greenlee NH B '18
Fife No. 237 | Elec & comp eng'g

Meghan R. Griffin MA H '21
Fife No. 238 | Biomedical eng'g

Samantha J. Guldan MN A '22
Swalin No. 6 | Orthotics & Prosthetics

Ailon Haileyesus AR A '16
GEICO No. 7 | Engineering

Adam J. Hall NY M '21
Anderson No. 20 | Mechanical eng'g

Maya I. Hamka MI I '22
Williams No. 43 | Systems eng'g & design

Daniella R. Hébert NY O '21
Record No. 33 | Mechanical eng'g

Amanda K. Hertel KS A '22
Dodson No. 9 | Medicine

Lindsey Jacobson NC A '22
Record No. 34 | Mechanical eng'g

Valerie E. Kay SC B '19
Zimmerman No. 11 | Bioengineering

Yashica Khatri AZ Δ '18
Hennis No. 3 | Aero eng'g Sciences

Martin P. Kilbane OH Θ '21
Record No. 35 | Mechanical eng'g

Ashley Kuhnley CA K '22
Forge No. 10 | Biomedical eng'g

Ashwin Kumar TN B '22
King No. 61 | Elec eng'g & Comp Sci

Brandon F. Lee MO A '22
Tau Beta Pi No. 835 | Plasma Physics

Tristan K. Marchena SC B '22
Tau Beta Pi No. 836 | Bioengineering

Sabrina C. Mierswa WI Δ '20
Tau Beta Pi No. 837 | Biomedical eng'g

Audrey C. Parker ID Γ '22
Stark No. 43 | Environmental eng'g

Ashutosh P. Raman NC Γ '20
Tau Beta Pi No. 838 | Biomedical eng'g

Gabrielle A. Rogie GA B '21
Fife No. 235 | General eng'g

Julianne N. Rolf CA AB '16
Nagel No. 25 | Chem & environ eng'g

Raymond L. Turrisi RI B '22
Tau Beta Pi No. 839 | Robotics

J. Elvis Umana KS A '21
Sigma Tau No. 48 | Chemical eng'g

The **Anderson Fellowships** are named for Mabel E. and Marshall Anderson, *MI Γ '32*, who was TBΠ Fellow No. 19 and left a bequest to the Society in 2005.

The first **Brandt Fellowship** is made possible thanks to a gift by Larry D. Brandt, *OR A '67*, which will permanently endow a fund in support of TBΠ member graduate studies.

Given for the 37th time, the **Centennial Fellowship** honors the Society's most outstanding fellow and commemorates Tau Beta Pi's 100th anniversary.

The **Dodson Fellowship** is named for the late Charles R. Dodson, *MD B '30*, who made a gift to the Association in 1998 and 1999.

The five **James Fife Fellowships** are presented in memory of the father of the late member William Fife, *CA A 1921*.

The **Forge Fellowship** is named for Charles O. Forge, *CA Γ '56*, who left a bequest in 2010.

The 12th **Hanley Fellowship** is awarded in honor of Mary A. and Edward P. Hanley, *IL B '42,* TBΠ Fellow No. 84, who left a bequest to TBΠ in 1991 and 2021.

The **Hennis Fellowship** is awarded for the 3rd time thanks to a generous gift from Lee A. Hennis, *CA Δ '65*, to continue mentoring young engineers.

The **Harold M. King Fellowship,** awarded for the 61st time, honors the 1954-58 president of TBΠ, Harold M. King, *MA A 1910,* and is given to that recipient whose participation in his/her technical society is judged worthy of special mention.

The **Matthews Fellowship** is awarded in honor of R.C. "Red" Matthews, *IL A 1902*, who served as Secretary and Secretary-Treasurer from 1905-47 and as Secretary-Treasurer Emeritus in 1947-78.

The **Nagel Fellowship** is given in honor of Robert H. Nagel, P.E., *NY Δ '39*, for his service as magazine Editor and Secretary-Treasurer from 1942-82 and as Secretary-Treasurer Emeritus in 1982-97.

The Fellowship Board has announced the selection of 31 engineering students from 278 applicants for graduate fellowships. More than $8,300,000 in stipends will have been given by the Society when this 89th group of fellows completes its graduate work. These awards bring the total to 1,767 fellowships since the progam began in 1929. The Association is grateful to volunteer members for their role in the selection process; reviewers are listed at ***www.tbp.org/?Fellows***.

Adedoyin A. Abe

Anderson Fellow No. 19

Adedoyin graduated summa cum laude from the University of Arkansas (UA) in 2018 with a mechanical engineering B.S. degree. She is from Lagos, Nigeria, and currently a Ph.D. student in mechanical eng'g at UA under Dr. Min Zou. Adedoyin is passionate about conscientious use of resources. Her research focuses on useful surface engineering and lubrication technologies for the mitigation of energy losses. She also studies the tribological behavior of advanced materials: how running conditions affect the wear and friction performance. She won the 2019 Platinum Award at STLE. Outside the lab, Adedoyin is driven to create supportive and inclusive environments. She serves in various local and organizational leadership roles with SWE which include planning and participating in STEM K-12 outreach, mentoring, volunteering, and advocating for students. She participates in NSBE and ASME, promoting diversity in engineering. Adedoyin serves as the AR Alpha Chapter graduate and scholarship coordinator. She plans to pursue a career conducting, and eventually leading, research in the field of tribology and lubricant engineering.

Suzanna R. Barna

Matthews Fellow No. 25

Suzanna graduated summa cum laude from University of Florida (UF) in 2021 with a B.S. in civil engineering and a certificate in engineering project management. She served as FL Alpha Chapter vice president of electees. Suzanna also served as president for the UF American Society of Civil Engineers chapter. As a project manager for the UF Concrete Canoe design team, Suzanna led this team of students to win their regional and national championship titles in 2021. She held the positions of student government senator representing the engineering college, and service chair for the Asian American Student Union. Furthermore, Suzanna conducted undergraduate research about eigenvector and Ritz vector design approaches for seismic analysis of bridge structures. She also worked as a teacher's assistant in the civil engineering department. Suzanna continues her education at UF, pursuing a M.Eng. in civil engineering with specialization in structural engineering. In the future, she aspires to become a P.E. and enhance the civil eng'g profession by focusing on quality practices and sustainable communities.

Harsh G. Bhundiya

Spencer Fellow No. 67

Harsh graduated from California Institute of Technology in June 2020 with a B.S. in mechanical engineering. During his undergraduate education, he developed a passion for structural mechanics through his classes and internships at Boeing and SpaceX. He also conducted research in the Space Structures Lab, developing new ways of deploying spacecraft on orbit. At Caltech, he also served as a teaching assistant for five classes and a volunteer tutor for high schoolers interested in STEM. After graduation, he joined the Cordero Lab at MIT where he is researching a novel in-space manufacturing method for fabricating truss structures on orbit. He has authored two publications on the method and is working towards a demonstration in space. After completing his Ph.D., he hopes to become a professor and research new technologies to enable spacecraft with greater sensing, communication, and propulsion capabilities.

The **Record Fellowships** commemorate Leroy E. Record, *KS A '29*, whose generous bequest will provide earnings to support awards in perpetuity.

The **Sigma Tau Fellowship**, given for the 48th time, perpetuates the name of Sigma Tau, a national engineering honor society founded at the University of Nebraska in 1904 and merged with Tau Beta Pi in 1974. It also commemorates Sigma Tau's former national president and secretary-treasurer, Clarel B. Mapes.

The **Charles H. Spencer Fellowship** is given for the 67th time. Named for Tau Beta Pi's president from 1936-47, Charles H. Spencer, *IL B 1913*, it is awarded to a recipient whose contributions to his/her collegiate chapter are judged worthy of commendation.

The **Donald A. Stark Fellowship** is supported by a gift from a charitable trust named for the man who contributed much to progress in the fluid-power industry.

The **Swalin Fellowship** is named in honor of Helen M. and Richard A. Swalin, Ph.D., *MN A '52*, who left a bequest in 2015 to support ΤΒΠ scholarships and fellowships.

The **Tau Beta Pi Fellowship Program** is supported by matching gifts from companies as part of the annual alumni giving program.

The **Edward H. Williams Jr. Fellowship**, awarded for the 43rd time, honors the founder of Tau Beta Pi. It is given to a recipient who plans to earn a doctoral degree and become a professional engineering teacher, as was Dr. Williams, *PA A 1875*.

The **Zimmerman Fellowship** is named for Marlin U. Zimmerman Jr., *MD A '44*, who left a bequest in 2011.

The **GEICO Fellowship** is supported through a partnership with GEICO Insurance.

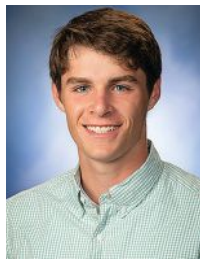
Maison R. Clouâtré

Centennial Fellow No. 37

Maison received B.S. degrees in electrical engineering and mathematics from Mercer University where he served as both Georgia Beta Chapter president and treasurer. He is pursuing a Ph.D. degree in aerospace eng'g at Texas A&M University. Throughout his undergraduate career, Maison worked in the lab of Prof. Makhin Thitsa. During 2019, he worked as a research intern at the Georgia Tech Research Institute and the Vehicle Systems & Control Lab at Texas A&M. During summer 2021, he was a visiting researcher at the Wireless Communication and Network Sciences Lab as part of the MIT Summer Research Program. His research interests include control, optimization, and machine learning and their applications in aerospace engineering and quantum information science. Maison is also a 2022 NSF Graduate Research Fellowship Program awardee, a 2020 Barry Goldwater Scholar, and a 2018 Stamps Scholar. He hopes to pursue a career as a researcher and professor.

Andrew C. Cochran

Brandt Fellow No. 1



Andrew is graduating summa cum laude from Ohio Northern University with a B.S. in electrical engineering and a minor in Spanish. He was a 2021 ΤΒΠ Scholar and served as OH Iota Chapter president. As an undergraduate, Andrew competed on the varsity tennis team, served as the IEEE chapter president, a campus tour guide, and an electromagnetics TA. He completed seven internships working at Schaeffler Automotive, Marathon Petroleum Corporation, Artiflex Manufacturing, Idaho National Laboratory, and Consolidated Cooperative where much of his work involved sensors, testing, and automating data analysis. His research included work on anti-reflective coatings and oscillators. In fall 2022, Andrew will start his Ph.D. in electrical & computer eng'g at Carnegie Mellon University with a focus in Micro-electromechanical systems. His research will focus on developing frequency multiplexed neuron probes using optoelectronics for brain machine interfaces.

Luciana M. Custer

Fife Fellow No. 234

Luciana (he/she/they) graduated summa cum laude from Great Bay Community College with A.S. degrees in biotechnology and bioengineering, and then magna cum laude from the Univ. of New Hampshire with a B.S. in bioengineering. They are now a biomedical eng'g Ph.D. student at the Univ. of Southern California. As an undergrad, they pursued diverse research and internship opportunities with projects in protein characterization, animal models of addiction, and advanced manufacturing. As a Ph.D. student in the Armani Research Lab, Luciana plans to use their extensive interdisciplinary experience to unite engineering and neuropsychological research. As a nonbinary, mixed race, learning disabled, and first generation student, they are committed to promoting diversity and accessibility in STEM and will continue to serve as a tutor, mentor, and friend to these populations. Luciana hopes to join a National Institute of Mental Health affiliated lab to apply their skills to mood, psychotic spectrum, and neurodevelopmental disorders they are passionate about.

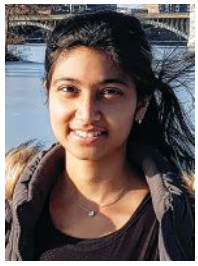
Malley A. Gautreaux

Fife Fellow No. 236

Malley is graduating from Mississippi State University in May with a bachelor of science in biomedical engineering. She serves as MS Alpha Chapter tutoring officer and volunteers weekly at the Bagley College of Engineering Study Hall. As an undergraduate, she participated in multiple outreach organizations, including Global Medical Brigades and Project ENspire. Additionally, Malley joined Dr. Lauren Priddy's Lab in January 2020. As a member of the Priddy Lab, she has co-authored a publication on novel drug-delivery systems for bone infections and authored a review article on biomarkers for longitudinal tracking of inflammation. In September, Malley will begin a Ph.D. in bioengineering at the University of Oregon, where she will focus on biofabrication and tissue engineering. Malley has aspirations to become a professor, researching novel topics in bioengineering and encouraging the next generation of scientists.

Shinjini Ghosh

Hanley Fellow No. 12



Shinjini is a senior at Massachusetts Institute of Technology, double majoring in computer science & engineering and linguistics, with a minor in mathematics. She plans to continue a master's in engineering at MIT EECS with an Artificial Intelligence concentration. Shinjini is interested in research in machine learning, especially healthcare-focused, as well as in both pure and computational linguistics and natural language processing. Much of Shinjini's research has been focused on using her skills to bring around a positive change in the world — such as being able to predict the possibility of cancer for patients in rural areas or being able to diagnose sepsis early in patients before it has the chance to turn fatal. She wishes to continue contributing to similar impactful research throughout and after graduate school.

Eric J. Greenlee

Fife Fellow No. 237

Eric is an incoming computer science Ph.D. student at Georgia Institute of Technology, where he plans to conduct research in the field of information and communication technology for development. In 2018, he graduated magna cum laude from Dartmouth College with electrical eng'g B.A. and B.E. degrees and has been working since then as a radio frequency engineer for the U.S. Dept. of Defense in Washington, DC, through the Stokes Scholarship Program. Eric plans to study under Dr. Ellen Zegura, where he will conduct research at the intersection of networking and human centered computing to revolutionize environmental data collection and bridge the digital divide in remote Internet access. He enjoys volunteering with mentorship and mutual aid organizations and developing environmental sensor networks. Eric intends to focus his career on applying engineering and computer science to pressing issues in social and environmental equity through academia or industry.

Meghan R. Griffin

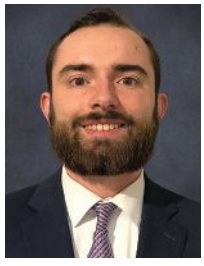
Fife Fellow No. 238

Meghan graduated summa cum laude from Boston University with a B.S. in biomedical engineering and a concentration in technology innovation. She served as MA Eta Chapter president her senior year. During her undergraduate career, she designed a medical device intended to treat apnea of prematurity in premature infants. This device was presented at the Biomedical Engineering Society Meeting in 2021 and won the BMES-Medtronic design competition that same year. She has also worked with microfluidics, studying the pulmonary microvascular response to altered blood flow. As a Ph.D. student at the University of Minnesota-Twin Cities, Meghan is interested in tissue eng'g and regenerative medicine. Her research focuses on using 3D bioprinting techniques in cardiac tissue engineering and her long range goal is to contribute to advancements in clinically available treatments.

Adam J. Hall

Anderson Fellow No. 20

Adam graduated summa cum laude from Union College in 2021 with a B.S. in mechanical engineering and minor in mathematics. He served as New York Mu Chapter president from 2020-21 and concurrently was president of the Alpha Alpha chapter of Pi Tau Sigma. He has helped plan several STEM outreach activities with other chapters and ran the departmental mechanical engineering help desk. He was awarded a ΤΒΠ Scholarship (2020), the Mortimore F. Sayre Prize (ASME), and the Ethel Kirchenbaum Memorial Prize for his scholarship and potential for furthering the ideals of the engineering profession. During his undergraduate studies, he researched efficiency improvements of a unified photovoltaic and thermoelectric module and the effects of fluid injection on a turbulent boundary layer. He is pursuing a Ph.D. at the University of California, San Diego, and will use computational fluid dynamics to model turbulence in stratified environments.



Samantha J. Guldan

Swalin Fellow No. 6

Samantha is graduating summa cum laude with high distinction from the University of Minnesota-Twin Cities, with a bachelor's in biomedical engineering and an emphasis in biomechanics. During her studies, she participated in prosthetics research with the Minneapolis Adaptive Engineering and Design program in the Veterans Affairs Health Care System, served as a TA for the U of M department of biomedical engineering, and acted as a STEM tutor for student athletes. Her undergraduate research with the VA focused on the development of more breathable and comfortable prosthetic products. She served as MN Alpha Chapter communications officer and vice president and was a 2021 ΤΒΠ Scholar. Outside of academics, Sam is an avid musician and enjoys volunteering with FIRST Robotics and local science fair programs. She plans to pursue an M.S. in orthotics and prosthetics from Concordia Univ., with the intent of combining clinical and eng'g expertise to more effectively contribute to the field.

Maya I. Hamka

Williams Fellow No. 43

Maya is graduating with high distinction from the University of Michigan-Dearborn with a dual B.S. in electrical engineering and engineering mathematics with a concentration in modern and classical applied mathematics. She served the MI Iota Chapter through various officer roles including treasurer, media coordinator, vice president, and president. As an undergraduate, Maya conducted research under Dr. Aditya Viswanathan and Dr. Yulia Hristova, developing a fast and robust algorithm to solve the infamous Phase Retrieval Problem. She also worked at Toyota R&D as a design engineering intern working in autonomous driving systems. In her free time, Maya is passionate about introducing young women to STEM through outreach. She has helped lead initiatives such as CoderGals Detroit, Maize and Blue Math Circle, and GirlsGetMath@Dearborn. She will begin pursuing her master's in systems engineering and design at the University of Michigan in fall 2022 and plans to work in the automotive industry to help bring fatal accidents to zero.

Ailon Haileyesus

GEICO Fellow No. 7

Ailon graduated top of her class in 2016, with a B.S. in biomedical engineering and Spanish minor from the University of Arkansas and an M.S. in bioengineering innovation & design from Johns Hopkins Univ. in 2018. Highlights of her college years include establishing an Engineering World Health chapter, performing research through the Harvard-Amgen Scholars program, obtaining a patent and two scientific publications in recognized international journals, as well as numerous study/service abroad trips across five continents. Ailon also received her Project Management Certification and EIT License. Since 2018, Ailon has been working on multi-disciplinary teams to design & develop 3D printed spinal innovations at Stryker while interacting directly with surgeons worldwide. Ailon will pursue her Ph.D. at Johns Hopkins and is eager to explore advanced biomaterials and additive manufacturing techniques to innovate optimal designs for orthopedic applications. As a first-generation Ethiopian American, Ailon is passionate about advancing the global healthcare field.

Daniella R. Hébert

Record Fellow No. 33

Daniella graduated summa cum laude from Stony Brook University with a mechanical engineering B.E. and part of the Women in Science and Engineering honors program. As an undergrad, she conducted research on heat transfer in residential hydronic heating systems at the Advanced Energy Research & Tech. Center and on medical technologies to assist physicians through the Medical Device Innovation Clinic. She also participated in two NSF-funded summer research programs studying water-responsive cellulose materials and laser processing of metal foams. Combining her interests in transport phenomena and functional materials, Daniella is pursuing a Ph.D. in ME at Columbia Univ. as an NSF Fellow researching laser processing of shape-memory alloys. As a grad student, she is co-chair of Girls' Science Day helping organize experiments to engage middle school girls in STEM. She ultimately hopes to work at a National Lab or other research institute developing advanced materials and manufacturing techniques for medical and clean energy applications.

Amanda K. Hertel

Dodson Fellow No. 9

Amanda graduated with highest distinction from the University of Kansas (KU) with a B.S. in chemical engineering. She is a ΤΒΠ Scholar and served as KS Alpha Chapter vice president. Amanda started research in Dr. Dhar's Lab the summer after her freshman year through an NSF-funded research experience for undergraduates. That summer, Amanda studied the impact of nanoparticles on lipid monolayers modeling lung surfactants, of which she is the second author in a peer-reviewed publication. In Dhar's Lab, she recently studied the role of tau protein and lipid dysregulation in the progression of Alzheimer's Disease. Last summer, she was a MERRIT Fellow at Mount Sinai Hospital and worked in Dr. Kaufman's Lab studying biologically active compounds that drive DACH1 expression. Outside of research, Amanda was an undergrad TA, volunteered at Lawrence Memorial Hospital, and has served as a FIRST Robotics mentor for Team 1810, since 2018. In July, Amanda will start medical school at the KU School of Medicine.

Yashica Khatri

Hennis Fellow No. 3

Yashica is a Ph.D. student at the University of Colorado at Boulder in the Celestial and Spaceflight Mechanics Laboratory, working with Dr. Daniel J. Scheeres. Her research involves nonlinear propagation of uncertainty in space and its applications in collision analysis. She grew up in India and graduated summa cum laude with a B.S. in aerospace engineering from Embry-Riddle Aeronautical University (Prescott, AZ) in 2018. As an undergraduate, Yashica was a part of various diversity and educational organizations and was initiated into the ΤΒΠ AZ Delta Chapter in 2016. She completed her M.S. at CU Boulder in 2020, started her Ph.D. immediately after, and was named a 2021 Amelia Earhart Fellow. At CU, she has been involved with the Aerospace Graduate Student Organization, WoAA India, Space Generation Advisory Council, and the ΤΒΠ Front Range Alumni Chapter. During her studies, Yashica has interned at Merit Engineering, Collins Aerospace, OneWeb, and SpaceNav. After her Ph.D., Yashica hopes to continue working on engineering solutions for the domain of Space Situational Awareness.

Lindsey Jacobson

Record Fellow No. 34

Lindsey is graduating summa cum laude from North Carolina State University with a B.S. in aerospace engineering and industrial eng'g minor. At NC State, Lindsey served as Engineers' Council treasurer, a University Honors and Scholars Program ambassador, an Alternative Service Break team leader, and as NC Alpha Chapter vice president for the past two years. In addition, Lindsey was an undergraduate research assistant in the system design optimization lab with research focused on system evolvability. She published her work at the 2021 International Design Engineering Technical Conference. Outside of school, she worked as a risk management intern for the James Webb Space Telescope Program at NASA HQ. While at NASA, Lindsey supported many STEM outreach events, presented at Webb's virtual STEM day, and served as a subject matter expert for the NASA SpaceApps Challenge. After graduation, Lindsey will pursue her Ph.D. in ME at NC State while working as a pathways intern within the Space Mission Analysis Branch at NASA Langley Research Center.

Martin P. Kilbane

Record Fellow No. 35

Martin graduated summa cum laude from the University of Dayton (UD) with a B.S. in mechanical engineering. He previously served as OH Theta Chapter vice president. Martin was the Kinesiology Lab instructor of record and conducted research in the Engineering Wellness Through Biomechanics Lab. He has led biomechanics studies in the clinical, sports, and occupational fields. Martin focuses on rehabilitation engineering emphasizing assistive devices and technologies. At UD, he founded an American Society of Biomechanics student chapter. Additionally, Martin completed four co-op rotations at Heapy Engineering and is involved in outreach activities such as making adaptable toys for children with disabilities, creating STEM kits for K-12 students, volunteering as a middle school science fair judge, and working with the United Rehabilitation Services. Martin will pursue his Ph.D. in mechanical eng'g as a Schmitt Leadership Fellow at the University of Notre Dame with a focus in biomechanics and robotics. Upon completion of his studies, Martin plans on remaining in academia as a postdoctoral fellow and later tenure-track faculty member.

Valerie E. Kay

Zimmerman Fellow No. 11

Valerie graduated summa cum laude in 2019, with a B.S. in chemical engineering and minors in biology and chemistry from the University of South Carolina Honors College. She is a ΤΒΠ Scholar and a member of Phi Beta Kappa honor society. As an undergraduate, Valerie conducted research at the UofSC McNair Center developing continuous nylon-carbon fiber filament for additive manufacturing to strengthen 3D-printed prosthetic sockets. She is pursuing a Ph.D. in bioengineering with an M.S. in chemical eng'g from Georgia Tech, where she was awarded the President's Fellowship. Valerie is performing synthetic biology research in Dr. Corey Wilson's Lab where her projects focus on programming living cells by constructing genetic circuits in S. cerevisiae and mapping allosteric communication in variations of LacI. Passionate about teaching, Valerie was an undergrad TA and won the Outstanding Graduate Teaching Assistant in ChBE award. Additionally, Valerie volunteers teaching classes, showcasing experiments to middle schoolers, and plans to pursue a career in bioengineering research.

Ashley Kuhnley

Forge Fellow No. 10

Ash is graduating with honors from California State University, Northridge (CSUN), with a B.S. in electrical engineering. At CSUN, she served as the CA Kappa Chapter vice president in the spring of 2021 and president for this academic year. Passionate about helping students, she is a peer mentor for over 15 students across the Badge Project and AIMS2 programs at CSUN, which support students in STEM to reach their academic goals. For her undergraduate research, she worked on creating code to model cardiac action potentials for determining electromagnetic phenomena in excitable cardiac tissue. The model will be used to develop sensitive biomagnetic sensors that are easily accessible. She is pursuing her Ph.D. in biomedical engineering at the University of Minnesota where she can continue research with cardiac electrophysiology and devices. After completion of her Ph.D., she plans to work in industry developing new and improved implantable cardiac devices.

Ashwin Kumar

King Fellow No. 61

Ashwin graduated with honors from Vanderbilt University, with a B.S. in computer science & neuroscience, and an M.S. in CompSci. Since his freshman year, he has been interested in applying image processing techniques to understand individual anatomy and improve quantitative MRI techniques. As an undergrad, he worked to understand and characterize the pediatric spinal cord under the guidance of Drs. Seth Smith and Bennett Landman. He also conducted research to better characterize osteoarthritis bone and cartilage progression as part of the Amgen Scholars Program with Dr. Eduard Guo at Columbia Univ. He has received numerous awards including the 2020 Goldwater Scholarship and Vanderbilt Top 10 Outstanding Senior. Ashwin will attend Stanford Univ. this fall as a Ph.D. student in biomedical physics and is excited about investigating the intersection among biomedical imaging, programming, nervous system anatomy, and disorders. After his doctoral studies, he intends to pursue a career in academia.

Sabrina C. Mierswa

Tau Beta Pi Fellow No. 837

Sabrina graduated as valedictorian from Milwaukee School of Engineering (MSOE) with a B.S. in biomolecular engineering and minors in chemistry, mathematics, and physics. She served as the WI Delta Chapter president and corresponding secretary. At MSOE, Sabrina was also VP of the American Society for Biochemistry and Molecular Biology and a national representative of the Society of Biological Engineers. She is a ΤΒΠ Scholar (2019) and received an NSF GRFP Honorable Mention in 2021. She is pursuing her Ph.D. in biomedical engineering at the University of California, Davis, in the Leach Lab. Her research focuses on orthopedic tissue engineering approaches with an emphasis on clinical translational applications. Sabrina is also a recipient of the Floyd and Mary Schwall Fellowship in Medical Research at UC Davis (2020). After her Ph.D., she plans to pursue a career in industry or at a national lab and also hopes to continue working and mentoring women in STEM.

Brandon F. Lee

Tau Beta Pi Fellow No. 835

Brandon graduated in May 2022 from the University of Missouri with dual degrees in chemical engineering and physics. He served as president of the MO Alpha Chapter and the local chapter of Engineers Without Borders while he was a student. He also worked in Prof. Karl Hammond's Computational Materials Lab for about three years, resulting in two co-authored publications, and interned at the Princeton Plasma Physics Lab from January to August 2021. He is a recipient of the ΤΒΠ Scholarship and the Barry Goldwater Scholarship. Brandon received a Fulbright grant to work on a research project relevant to nuclear fusion at the Max Planck Institute for Plasma Physics during the 2022-23 academic year. After completing this project, he hopes to earn a Ph.D. in plasma physics and conduct research that will help enable the use of fusion as a power source.

Audrey C. Parker

Stark Fellow No. 43

Audrey graduated with highest distinction from Boise State University (BSU) as a Top Ten Scholar with a B.S. in materials science and engineering with an emphasis in chemistry and sustainability. At BSU, she served as Idaho Gamma Chapter vice president, directed several STEM outreach programs, and has participated in numerous research positions. Under the guidance of Dr. Paul Davis, she has used advanced methods of Atomic Force Microscopy to characterize various materials as a surface science lab technician over the last three years. Additionally, she participated in the MIT summer research program in 2021 investigating methods of atmospheric methane abatement and polymer degradation. Beginning fall 2022, Audrey will pursue a Ph.D. at the Massachusetts Institute of Technology in the department of civil & environmental eng'g under the supervision of Dr. Desireé Plata. She aspires to research pathways for greenhouse gas mitigation to alleviate immense issues associated with climate change and will remain an advocate for inclusion and representation in STEM fields.

Tristan K. Marchena

Tau Beta Pi Fellow No. 836

Tristan, a native of Aruba, graduated magna cum laude from the University of South Carolina Honors College with a B.S. in biomedical engineering and minors in chemistry, leadership distinction in research, and global learning. As a member of the Gower Lab, he conducted research under the guidance of Dr. R.M. Gower and led an independent project investigating the impact of retinoids on muscle atrophy using in vitro models that he developed. Tristan is the recipient of several undergrad research awards, including the Magellan Scholar Award, McNair Junior Fellows Award, and Honors College Undergraduate Research Fellowship. With a passion for helping others, he served as a Student Success Center peer leader, BMES peer mentor, and is the founder of UofSC Aruba, an organization that strives to help first-year students better transition into college life. Tristan will pursue his master's degree in bioeng'g at the Univ. of Pennsylvania where he will conduct research in cancer immunotherapies. Next, he aspires to pursue an MD/Ph.D. in biomedical engineering.

Ashutosh P. Raman

Tau Beta Pi Fellow No. 838

Ashu is an M.S. student in biomedical engineering at Duke University, with plans to pursue a Ph.D. after graduating in 2023. After a battle with leukemia while at Duke, he went on to graduate summa cum laude and received the NSF Graduate Research Fellowship. His current research, under the direction of Dr. Patrick Codd, focuses on the use of machine learning and sensor fusion for intraoperative surgical planning during minimally invasive neurosurgical procedures. Specifically, he has utilized classification algorithms and a portable device capable of highlighting fluorescence spectroscopy signatures to assist surgeons in tumor identification. Ashu intends to pursue a career in translational medicine, to make healthcare more accessible in low resource areas. Outside of research, he served as NC Gamma Chapter vice president, as a peer coach to teens and young adults navigating school while battling cancer, and also runs a program dedicated to empowering the immigrant senior citizen populace.

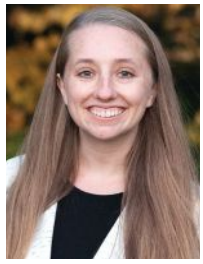
Gabrielle A. Rogie

Fife Fellow No. 235

Gabrielle graduated summa cum laude from Mercer University in May 2021, with a B.S. in biomedical engineering and minors in chemistry and biology. As an undergraduate, Gabrielle participated in numerous research projects that include modifying TSLOs for treatment of Adolescent Idiopathic Scoliosis (AIS), biomechanical analysis of genu recurvatum, and non-rigid bracing options for AIS. She was an Undergraduate Biomedical Scholar, studying roles of diet on cognition in mice under Dr. Abdelsaid at Mercer University College of Medicine. Having dealt with scoliosis, Gabrielle is passionate about research in the field of AIS and has spent almost a decade advocating for young girls with scoliosis through Curvy Girls Scoliosis support groups. She is pursuing an M.D. and M.S. of engineering at Texas A&M College of Medicine as a part of the EnMed program. With her fellowship funding, she will pursue her passion of investigating bracing options for AIS patients to increase patient compliance in brace wear. She hopes to become a pediatric orthopedic surgeon.

Julianne N. Rolf

Nagel Fellow No. 25



Julianne is an environmental engineering, summa cum laude, and honors graduate of the University of California, Riverside (UCR). She served as CA Alpha Beta Chapter community service co-captain and treasurer and was also a Goldwater and UC LEADS Scholar, conducting research for four years at UCR and publishing three articles before moving to Germany as a Fulbright Scholar. In 2017, she joined Yale's dept. of chemical & environmental eng'g to pursue a Ph.D. in water treatment research with Prof. Elimelech. Her dissertation is focused on understanding pretreatment chemicals used in desalination processes to mitigate inorganic scaling. Julianne was an NSF GRFP Fellow and is an Advanced Graduate Leadership Fellow at Yale preparing for an environment think tank research career. Dedicated to diversity, equity, and inclusion service, she was the co-chair for Yale's Equity in the Job Search Symposium for three years and is DEI co-chair of NEWT, an NSF-funded eng'g research center dedicated to increasing water access globally.

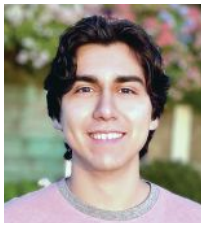
Raymond L. Turrisi

Tau Beta Pi Fellow No. 839

Ray is graduating from the University of Rhode Island with degrees in mechanical engineering and computer science with minors in robotics and mathematics. In the 2020-21 academic year, he served as RI Beta Chapter vice president, was a ΤΒΠ Scholar, and received a Barry Goldwater Scholarship. As a sophomore, he began working in two research labs focusing on mechatronics and automation and dynamic photomechanics. He later joined a new research lab at URI's Graduate School of Oceanography, where he has conducted research for three years in underwater robotics and autonomous systems. He has led a variety of student organizations promoting entrepreneurship and engineering for sustainability. As a captain of URI Hydrobotics, he has rebuilt a robotics club that fosters interdisciplinary research opportunities for underclassmen. Ray will be pursuing a Ph.D. in oceanography and applied ocean science and eng'g at the Massachusetts Institute of Technology - Woods Hole Oceanographic Institute joint program, in the ME & applied ocean physics & eng'g departments.

J. Elvis Umana

Sigma Tau Fellow No. 48



Elvis is a chemical engineering Ph.D. student at the University of Wisconsin-Madison where he utilizes neural networks to investigate the dominant properties of ion transport in ionic liquid solutions. He graduated in 2021 with a B.S. in chemical engineering from the Univ. of Kansas with university and departmental honors. Initiated into ΤΒΠ in 2019, he served as KS Alpha Chapter professional development chair and initiation chair his junior and senior years, respectively. He was also active as a member of Theta Tau, peer tutor, engineering ambassador, TA for undergraduate heat and mass transfer, and Engineering Undergraduate Research Fellow. His research on the stabilization of antigen via adsorption onto metal oxides resulted in a department award and co-author paper in ACS Langmuir. Outside of research, Elvis is an active community volunteer and promotes diversity and inclusion in STEM. Upon graduation, he plans to pursue a career in academia as a professor.

The STORY BEHIND The PHOTO

Announcing the Summer 2022 "Caption This Photo" Contest!

This photo was among a collection of miscellaneous shots from the 1998 Convention held in Manhattan, KS. While we can't be sure, we suspect the camera captured a rare group singalong to "Tau Beta Pi, To You." (For words and sheet music see *www.tbp.org/?TBPsong*.)

How to Enter: Send us your witty caption(s) for this photo from *The Bent* archives. If the judges vote yours as one of the top three (and you have not been a previous winner), **we'll send you a ΤΒΠ t-shirt of your choice!**

DEADLINE: MONDAY, AUGUST 1, 2022 5 P.M. (ET)

Submit your entry using this form: *www.tbp.org/?CaptionSub* or mail to *The Bent* of Tau Beta Pi, Caption Contest, P.O. Box 2697, Knoxville, TN 37901-2697. Questions? Contact *pat@tbp.org*

The WINNERS of the Spring 2022 "Caption This Photo" Contest:

The judges were overwhelmed by the 76 captions received for the Spring 2022 contest. Thank you! You can read all entries, including captions and results from recent contests, at: **tbp.org/pubs/captionContest.cfm**.

1ST PLACE:

"A member of the host chapter instructs everyone to select their Convention souvenir. Then he whispers to his colleague on his right:

If you fill it, they will come."

Paul J. Rutkowski, *MI Δ '69*

2ND PLACE:

"I am setting these up for one big 'mug shot.'"

Steven A. Berkowitz, *NY H '69*

3RD PLACE: (TIE)

"I know it is just a temporary display, but it was out of position by 3 millimeters!"

Charles W. Leibrandt, *MO B '80*

3RD PLACE: (TIE) :

"And they said my three summers working as a pin setter weren't applicable experience!"

Thomas G. Hippe, *MO A '75*

CONGRATULATIONS TO OUR WINNERS!

▲ The Spring 2022 image (above) was taken at the 87th Convention in East Lansing, MI. A member of the host chapter instructs everyone to select their Convention souvenir.

Top of the World (Almost) — Summiting Kilimanjaro in a Different Kind of World

BY LAUREN J. SWETT, P.E., *Maine Alpha '04*

ANTICIPATION IS EVERYTHING

In early 2020, I saw an Instagram post about a group of women who were planning to climb to the top of Kilimanjaro that spring. **Kilimanjaro**. I'd heard of it before. It was a "big" mountain on another continent, and there was no way that I, a 30-something civil engineer from Maine who had really only just gotten into hiking in the past few years, could ever do that...or could I?

I'm the kind of person who will get an odd idea in my head, and just never let it go — this was one of those ideas. I did some research and found that Kilimanjaro was truly a hike and seemed like a reasonable challenge for someone who wasn't a technical climber. The true test was in the elevation, and that was something that you really couldn't prepare for until you tried it. You could be a marathon runner, or a hiking newbie and altitude sickness could hit you the same way — hard or not at all. I live at sea level (in a town with the word "beach" in the name...) and the highest point in Maine is actually lower than the starting gate for the Kilimanjaro hike, so all I could do was try!

In February 2020, I decided I was going to do it and signed up with a group hiking at the end of the year. I would spend 2020 gaining more hiking experience in and around New England and then I would ring in the New Year on the Roof of Africa!

In the spring of 2020, we all know what happened...COVID reared its head and took hold of the world. Everyone stayed closer to home than they usually did. I had already been planning for a year of hiking, so I was ready to spend my time exploring the great outdoors in Maine mostly, with some New Hampshire and Vermont thrown in too. I found plenty of new places to explore and hone my camping and hiking skills.

COVID forced me to push my trip ahead another year. Not sure what the next year would bring, I was cautiously optimistic that the trip could still happen a year later. This gave me another year to get my hiking feet under me, including a fun trip in the spring to hike Mount LeConte in the Great Smoky Mountains of Tennessee with a great group of Tau Bates (see image below).

Figure 1

I was incredibly excited in the fall of 2021 when I started to hear from our guides that they were finalizing the details, and the trip was a go! After almost two years of anticipation, I was going to have the opportunity to make it to almost the top of the world — to the top of the highest free-standing mountain above sea level, to be exact!

GETTING THERE

Landing at the Kilimanjaro International Airport in Tanzania the day before Christmas, it was obvious that I was joining a lot of people who were also planning to celebrate the New Year on Kilimanjaro — there were a lot of backpacks and duffle bags coming down the baggage carousel, ready to make the trip up the mountain.

On **Day 1** in Tanzania, I took a "warm up" hike to see a local waterfall. After that, it was time to get down to business, meet up with the rest of our hiking group and guides, and do a gear check to make sure we were prepared with clothing and supplies for the trip. Each of us would be carrying a backpack with daily supplies that we'd readily need — extra clothing, first aid materials, snacks, and most importantly water! We each carried at least three liters of water with us every day.

All of our other supplies — sleeping bag, clothes, toiletries, and more snacks — were packed into duffle bags that would be carried up the mountain by porters. These men and women were an amazing group of Tanzanians who worked together to make sure that we were able to successfully make it to the summit. In addition to carrying our duffle bags of supplies, the porters carried and set up our tents, food and cooking equipment, and countless other supplies we needed.

GOOD TO KNOW

The Kilimanjaro Porters Assistance Project (KPAP) is an organization that works to ensure the fair and ethical treatment of the porters who assist hikers. The group provides training and resources for the porters when they are off the mountain and establishes standards for partner tour and guide companies to follow during hikes on the mountain. If you plan to climb Kilimanjaro, be sure to hike with a company that has registered with KPAP.

THE HIKE

On the first morning of our five-day hike, we were all excited and ready to go. Our group consisted of 10 hikers, 4 guides, and about two dozen porters; we were one of many groups taking-off that day. While the pandemic had an impact on the number of people who climbed Kilimanjaro over the past two years, numbers have rebounded. A lot of people were excited to get back to the mountain to celebrate the upcoming New Year.

That first day we climbed in the rainforest from the Machame Gate up to Machame Camp. At seven miles, this was one of our longer hikes, but with about 4,000 feet of elevation difference, the incline was not too severe. It rained a bit...but we were still in great spirits, and being a rainforest, we expected it. With camp at 9,350 feet, that was the highest elevation I have ever hiked to — a first of many milestones for this girl from sea level.

Day 2 brought us up to 12,500 feet at Shira Camp. A much shorter hike at three miles, it was still challenging as the air thinned...and the rain continued! This was a trend through much of our hike, but we were typically greeted with clear skies and mountain views in the morning. I was incredibly appreciative of the Gore-Tex® in my gaiters and boots that kept my feet dry every day.

Day 3 was our first serious acclimatization hike. First, we hiked up to the Lava Tower, at an elevation of 15,200 feet. We ate lunch and waited in hopes that the

Figure 2: Each night, Kilimanjaro hikers sleep in tents that are pitched by porters at campsites located along the hiking route. Here, at the Millennium Camp, the tents are placed among the trees at the last campsite on the way back down the mountain on the Machame Route.

Figure 2

Figure 3: December is typically the last month of the rainy season, and 2021 was no exception. It rained, hailed, sleeted, or snowed most days of the trek until the summit hike. Below, Lauren (right) celebrates making it to Shira Camp in the rain with two other hikers, Mae (left) and Mel (center).

Figure 3

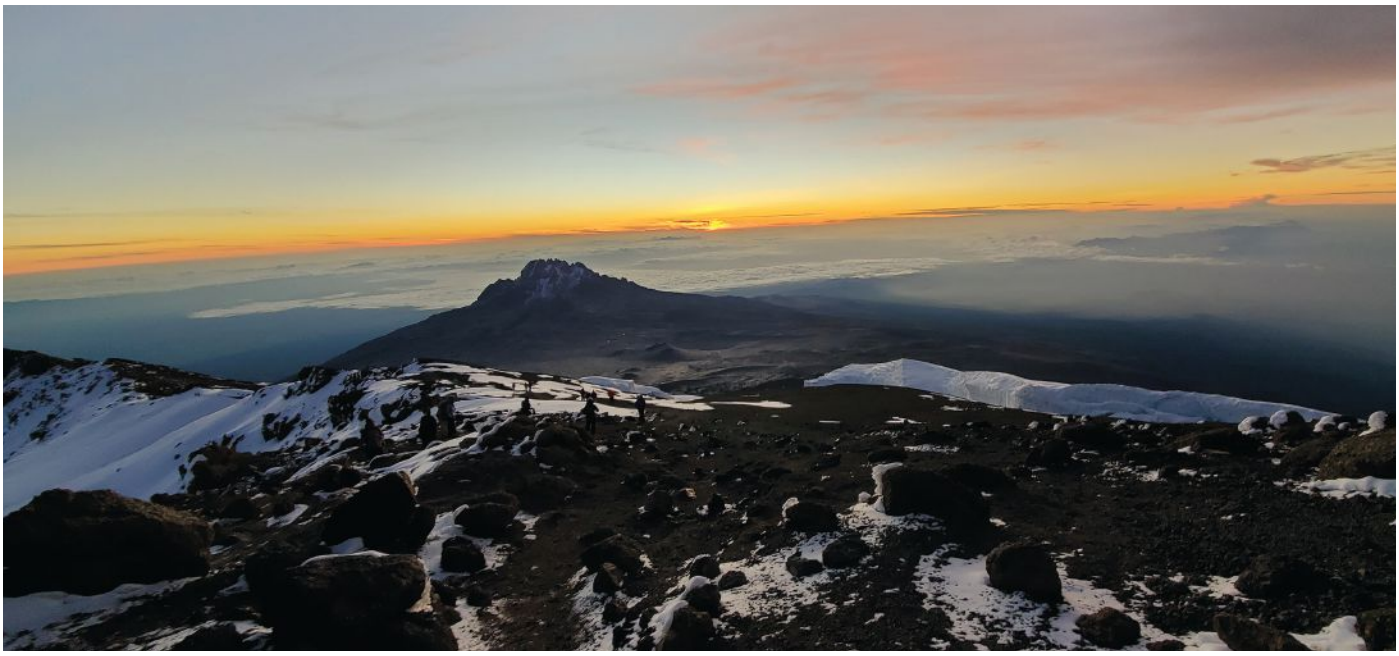


Figure 4

day's rain and hail might stop (it slowed a bit) and then we continued on to Barranco Camp where we slept down at an elevation closer to 13,000 feet. Some in our group were starting to feel the effects of the elevation, but I was getting pretty excited — I was now at a higher ground elevation than ever before and I was still feeling great.

Day 4 thankfully started out bright and sunny, as this was the day that we needed to climb up and over the Barranco Wall. With support from our guides, we were able to make our way up the stone face of the wall carefully, and all together as a group within a long line of hikers. This was an exciting milestone in the trip. We ended the day at Karanga Camp at around 13,100 feet.

We barely gained any elevation and we only covered three miles, but it still took most of the day to complete the hike. The rain continued, of course, and we got to experience thunder and lightning! We also got to see the Dendrosenecio kilimanjari, a giant groundsel prehistoric plant, that is only found atop Mount Kilimanjaro. At this point, we had reached the alpine desert and there was no longer much plant life at all.

Day 5, we made our way to Barafu, the base camp. We stopped at the first Barafu camp, and then continued on for another hour, this time in snow, not rain, to the second Barafu camp finishing at around 16,000 feet. Not everyone can get a space at this second base camp; sometimes it's not open due to weather, but we were lucky enough to be able to stay there. That hour hike makes a big difference for the summit climb.

SUMMIT

Kilimanjaro is a dormant volcano, and Stella Point and Uhuru Peak are both part of Kibo, the tallest of the mountain's three volcanic cones. Kibo is estimated to have been dormant for 360,000 years and could still erupt in the future, while the other two cones, Mawenzi and Shira are extinct.

Hiking to the summit of Kilimanjaro had seemed like such an impossible feat just a short time before, but when we found ourselves at base camp, ***we were almost there***. After a quick lunch, it was time to nap before our summit

Figure 4: (above) The hikers watched the sun rise on January 1, 2022, from the volcanic crater rim in between Stella Point (18,885 ft) and Uhuru Peak (19,341 ft), the highest point on Kilimanjaro.

Figure 5: (right) The group of hikers (Lauren is second from left front row) celebrate with their guides and porters after completing their Kilimanjaro hike.
The post hike meal was pizza, a welcome change after a week on the trail; however, the camp meals were amazing! The camp cooks served lots of vegetables, potatoes, meat, and pasta over the course of the hike, keeping everyone well fed.

Figure 5

Figure 6: A view of a portion of Kilimanjaro's remaining ice cap from Uhuru Peak. It is estimated that the glaciers on Kilimanjaro, considered to be tropical due to their location very close to the equator, may be melted as soon as 2030.

attempt in the middle of the night. I was nervous, but still no altitude sickness, and even with my nerves I was able to get some sleep.

We all gathered in the mess tent in the middle of the night for a meal and to collect final supplies. I brought a batch of chocolate fudge I had made back home and shared with the group for some last bits of energy. We lined up with our guides and a group of summit porters, and were getting ready to go, when suddenly we heard cheering and shouting from all over camp — it was midnight and the New Year had arrived in Tanzania! With that, we were off. One step in front of the other: "Pole pole" (Swahili for slowly slowly) and "Hakuna matata" (it means no worries…I bet you remember that one from Disney's *The Lion King*).

Slow and steady we climbed with only the light of our head lamps, stopping for breaks every 45 minutes or so. We were in snow and ice, and it was **COLD**, but finally no precipitation! As we pressed on, making our way to the summit, we were greeted with an amazing sunrise. After a trip that had been marked with so much rain, it was a beautiful day when it mattered.

I made it to Uhuru Peak at 6:42 a.m. on January 1, 2022. Five others from our hiking group made it at that same time, and three more summited about a half an hour later. We celebrated and took photos for a few minutes and then headed back down. At 19,341 feet, even the hardiest climber can't stay for too long! It was truly an amazing experience to be in that place at that moment. I'll admit, I teared up (complicated when it's that cold and you are wearing glasses…), and all of us were feeling the same way. We were proud of ourselves and each other for making it to the top.

AND BACK DOWN…

What goes up, must also come down… and that happens a **LOT** faster! The goal of our guides was to get us back down the mountain and into a more reasonable elevation very quickly. After hiking back down to base camp, we rested a bit, packed up, ate lunch, and then hiked down to our last camp on the mountain, Millennium Camp. At under 12,500 feet, we were already back to our **Day 2** elevation.

Our final day, we hiked the last eight or so miles back to the Mweka Gate, where we had to then leave Kilimanjaro behind. After a week of lukewarm water and ginger tea, the ice-cold cola I had at the exit gate was probably the best thing I've ever tasted in my life!

After finishing, we went on to celebrate and show appreciation to our guides and porters for the trip. We could never have done what we did without their tireless work — carrying supplies, setting up campsites, cooking our food, and cheering us on. Many of them have climbed Kilimanjaro tens if not hundreds of times, but they still took on the mountain with the enthusiasm as if it was their first journey.

Looking back at the entire trip , I still can't believe that it happened. I've been hiking before, but this was more than a hike, it was an experience that I shared with an amazing group of women, who are now good friends. There were moments along the way where we weren't sure it was where we really wanted to be (one of the women commented one day, mid-rainstorm, "I wouldn't wish this on my worst enemy") but in the end, we all agreed it was exactly what we needed. The only thing left is to figure out where to go next!

LAUREN J. SWETT, P.E. is a principal and technical manager at Woodard & Curran, where her work includes site development and stormwater projects. She has B.S. and M.S. degrees in civil engineering from the University of Maine. Lauren joined TBΠ in 2004 and participated in community service projects with the ME Alpha Chapter. She has been an Association volunteer since 2008, serving as a District 1 Director for nearly 14 years, and finds working with student leaders very rewarding.

Top of the World (Almost) — Summiting Kilimanjaro in a Different Kind of World

BY LAUREN J. SWETT, P.E., *Maine Alpha '04*

Supplemental Images

Image 1:

Even with rain during the day, most mornings were clear and cold. Here, at the Barranco Camp, hikers woke to a layer of frost on the tents, but a perfect view of the snowy summit.

Image 2:

The group of hikers enjoying a break on the Barranco Wall.

Image 3:

The group of hikers celebrated after their first night of camping at the Machame Camp.

Image 4:

The Dendrosenecio kilimanjari, a giant groundsel species that is only found atop Mount Kilimanjaro.

Image 5:

After reaching Uhuru Peak, the group of hikers started back down the mountain, pausing for a bit just off the summit to rest, snack, and take in the early morning views.

BRAIN TICKLERS

Results From Winter

Perfect Scores

Colello, Marc C.	NY	I	'97
Costantino, John T.	NJ	A	'79
*Couillard, J. Greg	IL	A	'89
*Gaston, Charles A.	PA	B	'61
*Gibbs, Kenneth P.	MO	Γ	'76
Johnson, Mark C.	IL	A	'00
*Kimsey, David B.	AL	A	'71
*Norris, Thomas G.	OK	A	'56
Norris Jr., Thomas G.	PA	Γ	'79
Sisco, Michael D.	WI	A	'91
Slegel, Timothy J.	PA	A	'80
*Snyder, Thomas M.	GA	A	'70
Sylvester, Noah	Son of member		

Other

Bannister, Kenneth A.	PA	B	'82
Berthold, Kristopher D.	TX	B	'04
Bertrand, Richard M.	WI	B	'73
Bhatia, Sunita K.	DE	A	'92
*Bohdan, Timothy E.	IN	Γ	'85
Crouse, John M.	PA	B	'74
Curran, Corey B.	NY	Ξ	'22
Dechman, Jim W.	TX	A	'89
Ehrgott Jr., Charles	FL	E	'92
Field, Gregory T.	NY	Γ	'78
*Gresho, Philip M.	IL	A	'61
Grewal, Kalwant S.	TX	H	'73
Grewal, Rashi	NJ	Γ	'09
*Griggs Jr., James L.	OH	A	'56
*Gulian, Franklin J.	DE	A	'83
James, Catherine A.	Wife of member		
Lalinsky, Mark A.	MI	Γ	'77
Maino, Jon	PA	Θ	'20
Marrone, James D.	IN	A	'87
Marrone, James I.	IN	A	'61
Parks, Christopher J.	NY	Γ	'82
Penkala, Stanley J.	PA	Δ	'65
*Phillips, Andrew W.	IL	A	'88
Riedesel, Jeremy M.	OH	B	'96
Scott, Darrell J.	NC	Δ	'82
*Schwam, Susan E.	WA	A	'88
Schwam, Freely	Spouse of member		
Gyselinck, Glenn	Non-member		
Silver, Robert E.	NY	P	'80
*Spong, Robert N.	UT	A	'58
Spring, Gary S.	MA	Z	'82
Spring, Mitchell G.	Son of member		
*Strong, Michael D.	PA	A	'84
Tessier, Thomas D.	MA	A	'90
Voellinger, Edward	Non-member		
Zison, Stanley W.	CA	Θ	'83

*Denotes correct bonus solution

Winter Review

Problems 4 (passcode), 5 (rug), and the Bonus (sliding rod), all had less than 60 percent correct answers. Problem 4 had the lowest percentage of correct answers. Only problem 1 (cryptarithm) had all answers correct.

Winter Review *Continued*

We counted numeric answers without units correct on problem 5 if the values were 21 (yards) or 63 (feet). Many people only answered one of the two questions in the Bonus.

Spring Answers

1: The cable length is **1,117.4 meters**.

The equation for a catenary, which is the curve assumed by a cable stretched between two points, is:

$y = a \cosh \frac{x}{a}$, where a is a constant

The length of the cable is
$L = 2a \sinh \frac{x}{a}$

The dip of the cable is
$H = a(\cosh(\frac{x}{a}) - 1)$

For the dip to decrease by the same amount as the length, we must have $\frac{dH}{da} = \frac{dL}{da}$

Calculating the derivatives and rearranging gives us

$(1 + \frac{2x}{a}) \cosh(\frac{x}{a}) -$

$(2 + \frac{x}{a}) \sinh(\frac{x}{a}) = 1$

Solving numerically with x = 500 m gives a = 606.07 m and L = 1,117.4 m

2: The minimum number of TRICKYs is **76**.

$76_{10} * \text{TRICKY}_{12} + \text{BRAIN}_{12} = \text{TICKLERS}_{12}$

$76_{10} * 1\text{B}0258_{12} + 7\text{B}90\text{A}_{12} = 102534\text{B}6_{12}$

3: The expected number of draws is **10.6**.

The probability of getting an ace on the first draw is $p_1 = 4/52$.

The probability of getting the *first* ace on the 2nd draw is
$p_2 = (1 - p_1) * (4 / 51)$.

The probability of getting the *first* ace on the 3rd draw is
$p_3 = (1 - p_1 - p_2) * (4 / 50)$.

And so on until p_{49}.

The expected number of draws is
$\sum_{1}^{49}(p_n * n) = 10.6$

4: The unoccupied hole traces an ellipse with the equation
$\mathbf{3x^2 - (\sqrt{3})xy + y^2 - 300 = 0.}$
An equivalent version of the equation is
$\mathbf{y = ((\sqrt{3})\,x \pm \sqrt{(1200 - 9x^2)}) / 2.}$

Let the position of the horizontal slider be $(s, 0)$. Let the position of the diagonal slide be $(t\sqrt{3}/3, t)$. Call the position of the unoccupied hole (x, y). The holes in the red bar are 10 cm apart. The right triangle formed by the two sliders and the x-axis gives us:

1. $(t\sqrt{3}/3 - s)^2 + t^2 = 10^2$

The triangle with the diagonal slider, the unoccupied hole, and a horizontal base is congruent to the first triangle, so:

2. $x - t\sqrt{3}/3 = t\sqrt{3}/3 - s$

3. $y - t = t - 0$

Combining (2) and (3), we get:

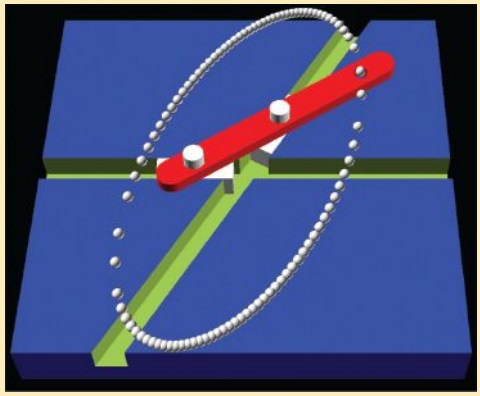
4. $s = y\sqrt{3}/3 - x$

Rearranging (3):

5. $t = y/2$

Substituting (4) and (5) and rearranging:

6. $3x^2 - (\sqrt{3})xy + y^2 - 300 = 0$



5: The expected score is 837242 / 52117 ≅ **16.065**.

For each die rolled, there is a 2/6 chance that the die will be "bad" (i.e. a 2 or 5) and a 4/6 chance that the die will be "good." A good die will, on average, score 14/4 points.

If we have one die left, our expected score is calculated as follows:

- $E_1 = (4/6)*(14/4 + E_1)$
- $E_1 = 7$

If we have two dice left, our expected score is calculated as follows:

- $E_2 = (16/36)*(2*14/4 + E_2) + (16/36)*E_1$
- $E_2 = 11.2$

Calculating E_3 through E_5, we find that $E_5 = 837242 / 52117 \cong 16.065$.

BONUS:

The planets will be collinear **24** times.

By Kepler's 3rd law, the planets' orbital radii are proportional to their orbital periods to the 2/3 power. Knowing the orbital radii and the orbital periods, we can propagate the orbits over the specified time span. We can then calculate the area of the triangle formed by the three planets as a function of time. That area goes through 0 (i.e. the planets become collinear) 24 times.

COMPUTER BONUS:

1,973,580,624 has the nearest square root 44,425 and an absolute difference of 1.

New Summer Problems

1: Tea Party Walkabouts

Alice is attending the Mad Hatter's tea party. She is sitting at an octagonal table, but only four of the eight places are occupied. If the eight places are numbered consecutively around the table, then Alice is seated at position 1, the March Hare at 3, the Doormouse as 5, and the Mad Hatter at 7. The Hatter explained, "When I shout 'Fudge,' someone is to get up and move round 3 places or 6 places or 9 places — as many threes as you like as long as every third place is vacant — and then sit down. This counts as one walkabout. The party is over when everyone is seated directly opposite their original seats." What is the minimum number of walkabouts required to end the party?

—*Tantalizers* by Martin Hollis

2: Goals Scored

Argentina, Belgium, Canada, and Denmark are four countries whose national soccer teams are drawn into the same group in this year's World Cup. In the tournament, they play each other in round robin fashion: each team plays every other team once. Considering goals scored through all games, Argentina scored the greatest number, Belgium the second greatest, Canada third, and Denmark fewest.

Argentina won their match against Belgium by 4 goals to 1, and Denmark won against Canada. The other four matches were ties. What was the score of the match between Canada and Denmark, and which team had the fewest number of goals scored against it?

—*My Best Puzzles in Logic and Reasoning* by Hubert Phillips

3: Line Segment Value

Select two points at random on a line segment of unit length making three pieces. What is the expected value of the shortest piece?

—Unkown

4: Total Point Probability

In a certain British soccer pool, the objective is to pick games that end in a tie. The ticket buyer picks 8 games from a list of 45 or more. For each of these games, if the teams tie, the player gets 3 points, if the visiting team wins, they get 2 points, and if the home team wins, they get 1.5 points. The entry with the highest point total wins. Assume that for each game, the probability of the home team's winning is 0.5, the probability of the visiting team's winning is 0.4, and the probability of a tie is 0.1. What is the probability that the total points for an entry will be 22 or higher?

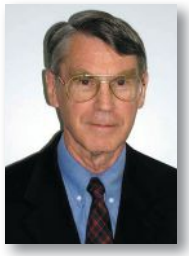
—*Scarne's New Complete Guide to Gambling* by John Scarne

5: Ladder Locations

In the game of Chutes and Ladders, if you land on certain squares you can advance or retreat many squares. In this problem, we are considering a variation in which there are only ladders.

The board is a 10-by-10 grid with the bottom row numbered 1 to 10 from left to right, the second row numbered 11 to 20 from right to left, the next row numbered 21 to 30 from left to right, etc. ending with 100 in the top left corner. Each ladder is a straight line from the center of one square up to the center of another square. No ladder is vertical and no two ladders touch or cross each other. If a ladder, for example, started in the second row and ended in the seventh row, it would jump over four rows.

In Memory of Howard McIlvried



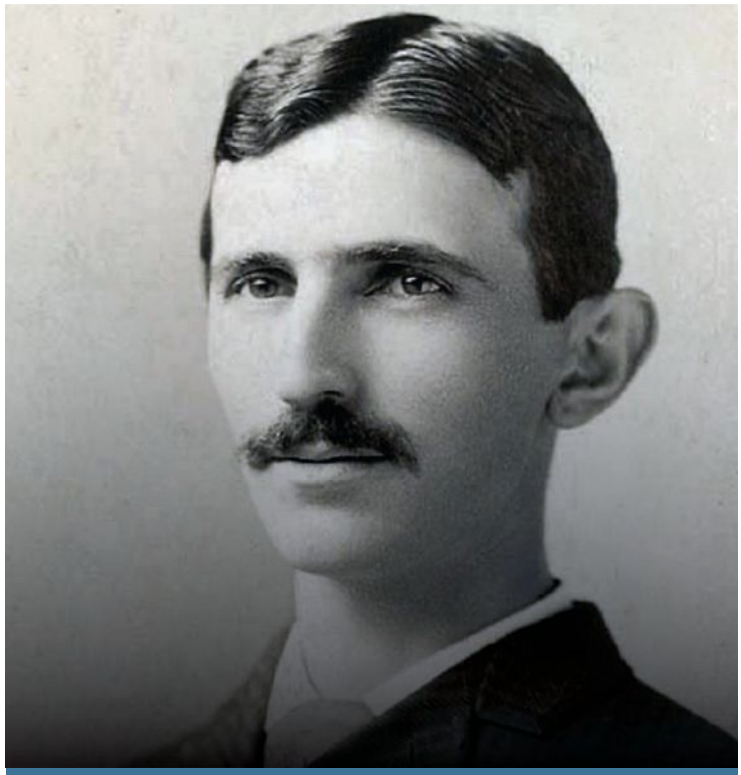
Howard G. McIlvried III, Ph.D., *PA Γ '53*, passed away on March 26, 2022, at the age of 90. Howard submitted his first Brain Tickler entry for the Winter 1954 issue; it was a ***perfect*** entry (as were most of his entries). He became a Brain Tickler author/judge in 1959 and served as a judge for 62 years, until 2020.

Howard was a chemical engineer with degrees from Carnegie Tech (now Carnegie Mellon University). His daughter Heather G. Himmelberger, P.E., *PA B '85*, is also a member and noted that he saved every Brain Tickler column starting in 1951 until 2022 and often spoke about how important *The Bent* magazine was to him for all those years.

BTs continue on page 33.

THIS IS THE ELEVENTH IN A SERIES OF ARTICLES THAT INVESTIGATES THE HISTORY OF SCIENCE AND ENGINEERING.

One way in which this history has been preserved is in the names of the scientific units that we commonly use. Those units will serve as starting points for these articles as we explore "Why do we call it a...?"



WHY DO WE CALL IT A...

TESLA

By: ***Lyle D. Feisel***, *Ph.D., P.E. (ret.), Iowa Alpha '61*

At some time in their lives, virtually everyone has played with permanent magnets, and many have tinkered with electromagnets as well. Magnets and electromagnets are fun toys, but they also are extremely useful. They have been harnessed in many ways, most notably, I suppose, in the motors and generators that are central to our lives and our technology. To fully utilize anything, it is helpful, if not essential, to measure and quantify it. So, if designers are using magnetic devices, they would be interested in the strength of the magnetic field associated with that device and would want to measure it. One measure of that strength is magnetic flux density. Of course, we need to define units for that measurement if it is to be useful. Discretion being the better part of valor, I will not try to explain "field" or "flux" in this brief narrative. Suffice it to say that magnetic flux density is measured in "teslas" in the international system of units (SI). The tesla is named in honor of Nikola Tesla, a Serbian/Croatian/American engineer and inventor who is the hero of these paragraphs. A tesla is defined as one weber of flux per square meter. We will discuss Weber in a future essay.

Nikola Tesla was born in 1856 in the village of Smiljan in what was then the Austrian Empire. Later, the area became a part of Yugoslavia, and, since that country broke up (1991), is now in the Republic of Croatia. Some references list Tesla's birth date as July 10 and others give it as July 9/10, noting that he was born at the stroke of midnight. His father was an ethnic Serb who served as priest of the nearby Eastern Orthodox Church. In 1856, the population of Smiljan was about 2000. The most recent census shows it as 418. Tesla's birthplace and his father's church have been rebuilt and the site is maintained as a memorial to the great engineer. Search "Smiljan" on your mapping software.

Tesla attended elementary and middle school in Smiljan and, at the age of 14, enrolled in the Higher Real Gymnasium (high school) in nearby Karlovac. The institution — now simply Gymnasium Karlovac — still exists and is still highly regarded. Tesla was an excellent student, graduating from the four-year program in three years. It was here, in his physics classes, that he began his fascination with electricity.

By 1873, when Tesla graduated from gymnasium, the Austrian Empire had become the Austro-Hungarian Empire and was drafting young men into its army. Military service not being a part of Tesla's life plan, he left Smiljan and wandered for a bit until he was able to enroll in what is now the Graz University of Technology in Austria. While

there is evidence that he was initially an excellent student, he eventually lost interest and left the university without graduating.

In 1881, following various work and education endeavors, Tesla moved to Budapest and went to work at the Budapest Telephone Exchange. His talents soon became apparent, and he was appointed Chief Electrician which one assumes means electrical engineer. In 1882, he moved to Paris and a new job with the Continental Edison Company, a subsidiary of Edison's American enterprise. The company's primary activity was the installation of incandescent lighting systems, which also involved manufacturing and installing the dynamos that generated the required electricity. It was here that Tesla became interested in electric machines and especially motors based on rotating magnetic fields.

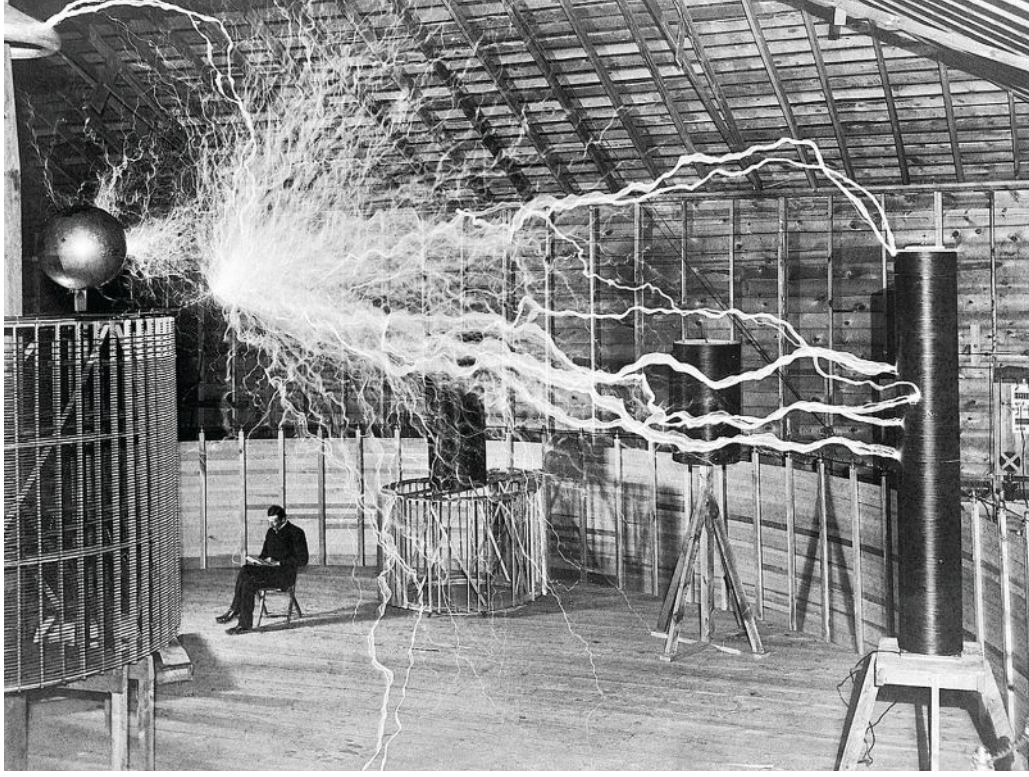


Figure 1: Nikola Tesla with his equipment.

In 1884, the manager of Continental Edison was transferred back to the United States and asked Tesla to accompany him. Arriving in New York, Tesla immediately went to work for the Edison Machine Works, a company responsible for developing and manufacturing the DC generators that powered Edison's incandescent light systems. He worked on various projects, including an arc light system and its associated high voltage generator. Apparently, he felt that he was not adequately rewarded by the company and left after about six months.

In the 1880s, the most important application of electricity was in lighting, which involved two complementary technologies — arc lights for outdoors and incandescent lamps for indoors — and two competing technologies — alternating current and direct current. As had been the case in Europe, Tesla was involved in the arc lighting business, primarily in the design of the dynamos that generated the electricity to drive the arcs. He also continued his interest in electric motors based on a rotating magnetic field. In 1888, he patented an induction motor, bringing him in contact with George Westinghouse. Westinghouse, an astute engineer and entrepreneur, recognized the technical and commercial potential of the induction motor and purchased Tesla's patents.

In the mid-1880s, "electricity" generally meant direct current (DC), where the current flows always in one direction. Edison had developed the incandescent light bulb and, along with it, a system for generating DC at a central location and transmitting it through wires to businesses and homes for illumination. Alternating current (AC), where the current reverses in a regular cycle, was used in outdoor arc lighting, and was beginning to be used in indoor illumination because it could be efficiently distributed over a greater distance than DC. Use of AC expanded with Tesla and Westinghouse's development of AC machines and high voltage transmission. The so-called "War of the Currents," AC vs. DC, ensued. The "war" essentially ended when the 1893 World's Fair was illuminated with an AC system, which soon became the standard throughout the world.

But, Tesla had much more grandiose visions and he pursued them on a grandiose scale. One quixotic project was his attempt to transmit electric power through the air or earth, thereby eliminating the need for wires. In pursuit of this goal, he built a high-altitude laboratory near Colorado Springs, CO in 1899. While he succeeded in producing megavolt arcs over 100 feet long and purportedly burning out a large generator at the local utility, he was not able to transmit any significant amount of power.

Undaunted, he raised more money — an activity for which he had considerable talent — and established a laboratory at Wardencliffe, Long Island. Tesla was aware of the potential application of wireless energy transmission to communication and sometimes identified wireless telegraphy as his goal, openly competing with Marconi. While he succeeded in building an impressive tower at Wardencliffe, his investors started to abandon him and Wardencliffe was closed in 1905. The tower was demolished during World War I, but the laboratory still exists as the home of the Tesla Science Center at Wardencliffe.

As he grew older, Tesla became more eccentric, proposing projects and devices that were more fantasy than science. He designed a vertical takeoff and landing airplane that was not too far off the mark, but also proposed a "death ray," a "thought camera," and the use of radio waves for locating submarines. His unrealistic proposals failed to garner investment.

Nikola Tesla died in New York on January 7, 1943, at the age of 86. He was a genius, claimed by Croatia, where his birthplace is maintained as a memorial center and by Serbia, where his ashes now reside. He made many contributions to electrical engineering, especially in the application of magnetic fields. And that's why we call a tesla a tesla.

FEBRUARY 1 — APRIL 30, 2022

Alumni Giving

New Donor Recognition Clubs

The Donor Recognition Clubs are part of our effort to recognize a donor's total lifetime cumulative giving to Tau Beta Pi. **THANK YOU** to the 2,989 TAU BETA PI ALUMNI and others who made donations to the Association totaling $529,625 between February 1, 2022, and April 30, 2022. Gifts received after April 30 do not appear here but will be published in the Fall 2022 issue. These club names and amounts, updated by the ΤΒΠ Executive Council, are set at the following levels:

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1. Names preceded by SPEC denote gifts from non-members.
2. Names marked with a † symbol are of deceased members in whose memory donations were made either by relatives and friends or through bequests.

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Robert A. Boyd
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I enjoy being a donor, so that those who need it can achieve their full potential and dreams.

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Engineering energizes the world, and I'm proud to support ΤΒΠ and future engineers.

Moore, Forman & Pre-Club Members Listed on website

Due to the number of alumni contributors, the Moore, Forman, and Pre-Club Members will be acknowledged on our website at: *www.tbp.org/?AGP*. All donations are essential to the continued success of the Association, but due to rising print costs of each issue, these donors will be listed with all of the other contributors in a protected PDF document. If you have questions or concerns, please contact *development@tbp.org*. Thank you for your understanding as we produce an enjoyable and cost effective magazine for our readers.

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CA H '98
My wife Debbie and I enjoy giving to ΤΒΠ to help the engineering profession and future engineers.

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J. Matthew Barnett
AZ B '90
Supporting ΤΒΠ enables me to honor the leadership & Engineering Futures skills I learned through the Association.

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Pentecost, Gene Edgar '50
TN Γ Denny, Hugh Wayne '60
TN Δ Knight, Joseph Brent '93
TX A Abad-Fitts, Carmen Beatrie '80
†Clark, Glynn Alden '48
Haley, Dennis Clyde '70
Lyle Jr., Fred F. '62
Peterson, Robert Adrian '80
Reese, Francis Edward '75
Sweet, Paul Alan '70
TX B Boyd, Suzanna Ruth '81
Carey, Martha Derden '80
Eakens, Robert William '72
Gilmer, Tracy F. '80
MacCallum, Gregory James '81
Newkirk, Todd Leland '87
Soules, James Gregory '79
TX Γ Dobbins, James Roy '74
Griswold, Ronald Kent '71
Turvey, Harry Douglas '73
TX Δ Ash Jr., Henry G. '59
Barger, David Carl '71
Latham, Raymond Edgar '56
Muldrow, Grady Montgomery '89
TX Z Storey Jr., Arthur Lipscomb '65
TX H Falk, Nathan Max '75
Hoffman, Heather Brunn '92
TX Θ Alvarado, Ruben Armando '72
TX Λ Alsop, Albert Walter '80
UT A Lyman, George Randall '79
VT A Scribner, Charles Franklin '70
Sheldon-Dean, James P. '79
VA A Donoho, Thomas English '59
Johnson, W. Reed '53
Wadsworth, Robert Manning '82
VA B Creslein III, William Edward '52
Dirling Jr., Raymond B. '64
Hanley, Thomas Richard '67
Marcus, Larry Allen '72
Shearer, Richard Lee '70
VA Γ Abbott, Terence Scott '75
Labelle Jr., William M. '89
WA A Orr, Peter Courtney '71
Williams, Donald Sidney '66
WA B Bowers, Jack W. '80
Ray, Edworth Lillard '48
WI A Klanderman, Kent Arlen '58
Tellier, Ronald Robert '73
Wolff, James F. '59
WI B Dschida, Linda Maria '82
Jaye, Deborah Ann '03
WI Γ Formella, John Patrick '81
Klos, Timothy Allen '88

$1,000+ Downing Club

SPEC Dickson Jr., Bill Buckley
McDaniel, Patricia B.
AL A Colberg, Richard Dale '80
Goodwin, James Joseph '58
Hawkins, Lawrence Allen '81
Singley, John Charles '73
AL B Hopper, Jeffrey Clark '78
AL Γ Haggard, Warren O. '94
AL E Zozulin, Alexander Joseph '91
AK A Keeney, Joseph Harry '78
LaBelle-Hamer, Brendan Tully '83
Usibelli Jr., Joseph Emil '81
AZ A de Shazo Jr., Thomas Edward '62
Liu, Elson Yee-Hsin '01
Lundquist, Thomas George '72
Smith, William G. '78
AZ B Leach, David Robert '76
Wong, Jack O. '81
AR A Gunderman, Stacy Linda '88
Weaver, Mark Edwin '77
Zaleski, Michael Ernest '63
CA A Dietsche, Laura Jean '81
Figueira, Michael Robert '73
Mar, Wing Jong '79
Robson, Clayton William '58
CA B Andelin Jr., John Philip '55
Hill, Roger Calvert '63
CA Γ Barnum, James Robert '65
Frantz, Paul James '78
Holsinger, Kevin Karl '84
Ickes, Robert William '65
McClendon, Scott '60
Muscha, Leslie Catherine '95
Reneau, Leon R. '58
Root, Steven Dale '75
CA Δ Barr, Juliana '80
Fernandez, Ferdinand Francis '58
Griffith, Glen Arthur '72
Haririan, Vida '94
Hedin, Richard Allen '69
Johnson, Wesley Walter '66
Koppany, Charles Robert '63
Moulton, James Ritchie '54

Alumni Giving

Eaves Club
Robert E. Reiner
PA Η '64
Stay connected, support your school, your profession, and your Society.

Downing Club continued

CA Δ Nakatani, David Takeshi '63
Rey, Daniel '66
Roof Sr., Dwight Ellis '57
CA Ε Madni, Asad Mohamed '69
Ohgi, Frank '60
Reichert, Ralph Jeffrey '67
Rifkin, Allyn David '72
CA Ζ Greenley, Dale Robert '86
Masnada, Dan Angelo '75
Overbey, John Kirkwood '77
Perrin, Michael Elton '67
Vlahutin, Paul Andrew '65
Wagner, J. Arthur '61
CA Η Asgari, Ramak '99
Cirigliano, Richard L.J. '81
Rawson, Rollin Fred '61
CA Θ Gerwien, Phillip Harvey '77
Kolderup, Nils Petter '60
Murray, Donald I. '72
Schuck, Charles Michael '65
Skalka, Gregory Dennis '82
Slater, Eric Kent '67
CA Ι Bruce, Jack Edward '62
Dembegiotes, Pantele '84
Haan Sr., George Thomas '69
CA Κ Moncsko, George Edward '68
Takashima, Yuji '78
CA Λ Johnson, Lowell H. '65
Verbrugge, John Allen '77
CA Μ Lee, Steven Yang-Sien '86
CA Ν Armstrong, Lorrie Ann '84
Armstrong, Robert Allan '81
Harenberg, Donald Dean '61
Harmeyer, Michael Allen '90
Howard, Robert Stanley '80
Johnson, Michael Robert '86
Vandegriff, Don G. '67
Veit, Brian Richard '98
CA Ξ Baxley, Paul Alma '81
Curry, Monica Gossman '92
Curry, Robert S. '94
Doeing, Brian James '81
Greco, Anna Maria Elvira '81
Patterson, Richard Harold '74
Peterson, John A. '93
St. Clair, Christine Marie '81
CA Ο Alvarez, Desi '75
Caballero, Ross Charles '72
Mulvihill, Michael Edmund '60
CA Π Steinberg, Dennis Philip '72
CA Ρ Alexander, Dean Lee '80
Costello, Vincent J. '08
Koehn, Calden Ray '81
Koehn, Lisa Renee '82
Mandrell, Nathan Keith '92
CA Σ Burke, Robert Wayne '82
CA Τ Breneman, Kenneth Philip '89
Lotocky, Daniel A. '84
CA Υ Dawson, Carole Jeanne '85
CA Ψ Chiu, Corinna Jane '93
CO Α Cochran, Noelle Renee '86
McNeil, Charles Seward '71
Oakley, Jilene Marie '11
CO Β Austin, Stephen Coe '74
Brooks Jr., Lowell Ward '62
Erickson II, Thurston Gunnar '74
Herhold, Mark Kenneth '80
Joselyn, Jo Ann '65
Luppens, John Christian '76
Watry, Michael Owen '86
CO Γ Ton, Scott Marshall '74
CT Α Bennett, Beth Anne '91
Cleland, Alan Stuart '60
King III, C. Judson '56
Kucera, Daniel Jerome '61
Troutman, John Leo '65
CT Β Devin, Maurice Roger '73
Fappiano, Michael D. '87
Hill, Dorian Evan '69
Hudson Jr., Frederick Joseph '58
Kane, Martin Paul '86
Whittlesey, Richard Allen '64
CT Γ Boccia, Chris-Michael '97
Judd, Kyle Peter '91
DE Α Cercy, Michael James '81
Folsom, Steven Allen '77
Packard, Lawrence Bruce '88
DC Β Cizler, Martin Alan '86
Delgado, Antonio J. '93
Lee, Wah H. '73
Orzech, Joseph Miller '71
DC Γ Grassel, Herbert Hans '77
Hill, Howard Thiebaut '62
Mitchell, Reginald Stuart '65
Wilhelm, Eugene Bailey '86
FL Α Bowles Jr., Carl Houston '54
Edmunds, Robert C. '68
Flewellen Jr., William Banks '50
Giolma, J. Paul '69
Glass, John Dorrance '73
Gunter, Alan Dale '79
Higgins, Adam Steven '03
Lorberbaum, Henri Stuart '77
Pitt, Gary Alvis '70
Vande Vusse Jr., Gerald '65
Vande Walle, Robert John '72
Walton, Ray '77
Woodward, Michael Boyd '85
FL Β Alvarez, Vicente '64
FL Γ Brookins, Thomas Michael '81
Chenkin, Joseph Alan '82
Dip, Anthony '86
Stagner, Ralph Scott '82
FL Ι Passarelli, Brian L. '10
GA Α Axon, Michael William '90
Dishongh, Jefferson Lee '66
Dixon, Daniel Benjamin '63
Faulkinberry, David Laws '77
Flegal, William Malcolm '66
Hair, James Graham '59
Kuniansky, Eve Louise '81
Northington, Peyton Alexander '78
Oslick, Rochelle '83
Parker, Jonathan Edward '59
Peatman, John Burling '56
Priest, Anthony James '88
Smith, Micheal Monroe '79
Sudderth, Stella K. '80
Tundermann, John Hayes '63
Tyler, Stephen M. '84
Ware Jr., Clyde Lee '59
Zimmerman, Clarence David '65
ID Α Ahlschlager, Alan Douglas '87
IL Α Bein, Robert Walter '56
Clark, Elliot Andrew '83
Jonas, Steven Geza '66
Kasik, Phillip Mark '68
Lanzerotti, Louis John '60
Le Blond, Peter Carl '75
Rose, Richard C. '79
Smith, Leslie Garrett '48
Sorenson, Gregory Erik '03
Splitt, Frank George '52
Szumski, Daniel Raymond '80
Tatara, Richard Michael '78
Vogel, Frederick M. '80
Waranauskas, Amy Louise '85
Wilkins, Gregory Martiné '92
IL Β McBlaine, Michael Richard '75
Sodoma, Mark Thomas '82
Ziomek, Arkadiusz '10
IL Γ Christopher, James Mosko '84
Gubisch, Roland Werner '64
Henry, Thomas Peter '73
Pineault, Wayne '79
Schwartzbard, David Leigh '91
Wilsak, Richard Allen '78
Witt, Frank A. '55
Zimmerman, Jerald Robert '76
IL Ε Bowie, Marvin Anthony '76
DeVantier, Bruce Allen '77
Garfield, William Michael '83
Williams, Michael Joe '95
IL Ζ Wislek, Michael Anthony '89
IN Α Alexander, John Albert '56
Bower, William Walter '67
Clodfelter, Donald Glen '55
Cripe, Duane Byron '82
Edwards, Deborah Jane '85
Hall, Thomas Wayne '67
Herendeen, Robert Oliver '65
Kettering Jr., Floyd Firman '63
Lee, Robert Edward '67
Lupfer, Thomas Harrison '79
Montgomery, Stephen Tedford '71
Mosier Jr., Andrew C. '78
Paniaguas, John Steven '73
Satterly, Paul Benson '82
Simnick, James John '74
Sommers, Steven Raymond '78
Sosnay, Richard Gordon '66
Tveter, Steven Elliot '74
Ward, John B. '58
Warren, Scot William '83
Wright, Ronald Robert '71
IN Β Friel, Leroy '57
Martin, Jeffrey V. '78
Marum, Steven Edward '73
Rosenbarger, Donald Glenn '78
Schipper, Michael Joseph '82
IN Γ Drnevich, Raymond Francis '70
Farrow, Michelle Dorice '83
Fitzgerald, Edward John '86
Flynn, Michael Joseph '89
Hutchins, Robert Leon '62
Lane, James K. '82
Richvalsky, George Michael '60
Springer, Denis Eugene '67
Yogan, Thomas James '82
IN Δ McAlear, Hugh M. '64
IN Ε Ali, Afzal '78
Liechty, Douglas Lynn '73
Shefer, Ilan Gideon '77
Tyler, Thomas Lee '54
IA Α Carosella, Sandy L. '88
Cortum, John David '77
Hicks, Roger Dale '57
Irvine, Alexander John '79
Keene-Mason, Alice Fay '05
McGinnis, Bryan John '63
Owens, David Andrew '91
Puffett, George E. '83
Rush, David Grant '85
Rustwick, John Douglas '71
Smith, William James '66
IA Β Boldt, Donald Bernard '57

IA B
Gozali, Paul '85
Kruse, Dennis Ray '79
Schaefer, Dean Allen '66
Warner, Diana Hix '73

KS A
†Anschutz, Glenn William '50
Benso, William Eldon '59
Conner, Harold Wayne '54

KS B
Hockett, James Keith '66
Straka, James Lavern '89

KS Γ
Benton, Kirk '78
Erickson, Larry Eugene '60
George, Darin Lynn '86
Lebak, James Michael '89

KY A
Congleton, Stephen Douglas '79
Cook, Robert Henry '74
Craig, Joe Lockett '50
Freeman, Richard Edwin '73
Midkiff Jr., Kenneth Clark '79

KY B
Jodrie, Mary Clare '85
Thornton, Patrick Joseph '82

LA A
Armistead, William T. '71
Champagne, Sidney Alfred '68
Corripio, Armando Benito '63
Domino, Joseph Frank '70
Levert Jr., Freddie Joseph '62
Schexnayder Jr., Isby Louis '63
Smith, Stewart Van '73

LA B
Bourgeois, Brian Steven '82
Bourgeois, Edit Jorgelina '91
Rickman, Philip Mark '83

LA Γ
Jenkins, James S. '80
Owen, Mark Enos '92
Reneau, Daniel Dugan '63
Thomas, Robin Carol '92

LA Δ
Barbay, Norman John '74
Landry, Glen Ray '75

MD A
Capecci, Dennis W. '79
DiGiorgio, Joseph Brun '54
Gormley, Paul Edward '68
Hartlove Jr., Charles L. '76
Lang, John Charles '72
Linaweaver, Pierce '55
Lu, Stanley '95
Monmonier, Mark '64

MD B
Amtmann, Louis Gerard '66
Birkmire, John Christopher '95
Brierley, Harold Milton '65
Brownstein, Barry Jay '68
Deschere, David Stewart '82
Ewing, R. Alan '67
Gaske, Thomas Paul '76
Himes, Doug Lamar '82
Iacangelo, Gerard Felix '80
Poulter, Harry David '88
Roberts, Victor David '64
Roth, W. Clint '78

MA A
Achilles, Heather Dale '83
Ahern, Michael Francis '78
Auclair, Jared Robert '01
Burgarella, John Paul '50
De Andrea, Paul John '75
Downs, Allen Gybbon '75
Haringa, Glenn E. '74
Mangiarelli, Christopher A. '96
Villani, Thomas Michael '82
Wright, Neal Timothy '76

MA B
Balazs, Phillip Terry '69
Ball, Norman Addison '60
Bishop, Peter B. '70
Borrmann Jr., George H. '57
Dodson, John Orville '68
Efimba, Bob E. '63
Fahy, Thomas Edward '76
Marks, Lloyd Alan '71
Nelson, Percy Lyon '47
Slifka, Richard Barry '61
Smith, Kenneth Alan '58
Wrinn, Joseph Francis '75

MA Δ
Babaian, Peter Martin '99
Buffinton, Keith William '79
Day, Anthony Frank '65
Flaherty, Joseph C. '84
Hildebrant, Eric Michael '92
Ingalls, David Peabody '51
Milauskas, Ronald Joseph '62
Russell, Jack Hesseltine '54
Savage, Paul David '77
Smeglin, Anthony Michael '76
Stark, Lucius Dickinson '64
White, Edward A. '47

MA E
Chiodo, Richard Anthony '71
Vesce, Paul James '64

MA Z
Ewell, Kenneth Albert '68
Moles, Peter A.R. '83
Rainville, Robert Francis '68
Tebo, Dave L. '88

MA Θ
Schultz, Steven Alan '82

MI A
Chaffee, Stanley Wendell '74
Regenstreif, Joyce '78
Suszko, Andrew M. '73
Watanabe, Gerry Torao '72
Woelzlein, Wilmar Marvin '51

MI B
Bekins, Randell Lee '80
Bentley, James Herbert '57
Dejonge, Michael Kent '65
Glidden Jr., Harry James '65
Hammar, Richard Harry '65
Lindgren, Douglas LeRoy '69
Maki, Steven Michael '76
Mattson, James Arthur '70
Newman, Frederick Alan '83
Plutchak, Raoul Edward '62
Sauer, Daniel Michael '05
Stehulak, Edward Stephen '86

MI Γ
Blair, David John '57
Bloomer, Craig D. '80
Bloomer, Kristine Marie '81
Boesiger, Edward Alfred '82
Campbell, John Alexander '62
Capelli, Ronald B. '73
Davies, John Richard '50
Davis, Robert Allan '81
Evans, William Joshua '60
Hansen, Peter Ernest '61
Insprucker III, John Louis '78
Leeds, Thomas Murray '85
Margolese, Kate '84
Maugh, Roger Edward '55
Miller, Carol Jean '79
Miller, Stephen Scott '78
Nobunaga, Alan Shizuo '83
Nobunaga, Brian N. '83
Othman, Roger Mohamad '74
Snyder, Robert Joseph '77
Washburn, John Robert '69
Wentzel, Richard Dimert '60
Williamson III, Warren Pyatt '53
Wingard, Joseph '80
Winter, Steven D. '81

MI Δ
Dolan, William John '62
Gallagher, James Anthony '68
Kaunelis, Pranciskus Saulius '69
Rutkowski, Paul John '69

MI E
Benci, John Edward '83
Capraro, Michael A. '70
Doughty, Robert Earl '65
Hill-Stramsak, Colleen Lynn '00
Kellar, James Stephen '60
Klaetke, George H. '55
Mahanes Jr., Harold Patrick '65
Mertz Jr., Harold J. '61

MI Z
Foraker Jr., David Ernest '58
Gomez, Lloyd E. '55
McEwen, Stephen N. '54
Reardon, Robert Warren '74
Roth, Maureen Lynn '91
Sadlo, Thomas George '77
Zywiol, Gary Steven '76

MI H
Stramsak, Steven A. '01

MI Θ
McMahon, Kathleen Simonyi '82
Messer, Bryan James '98

MI I
Flowerday, Andrew John '02

MI K
Seymour Jr., Richard L. '97
Sikkenga, Chad Douglas '98

MN A
Christensen, Thomas Michael '79
Halladay, Henry Earnest '64
Hegna, Harwood Allan '69
Holm, John David '62
Maus, Brian Wayne '81
O'Leary, Stephen Holmes '69

MS A
Backus, Alan Orin '78
Backus, Patricia Michel '78
Bui, Tuan Thanh '90
Clements, Nathan Scott '96
Freeman, L. Michael '71
Hatmaker Jr., John William '79
Hilkert, James Michael '71
Hodge, B. Keith '65
McKay Jr., Frank Fay '60
Seitz, Thomas Bingham '63
Tisdale, Stanley Ray '78
Wachs, John Jay '71
Warren, Jim T. '60

MO A
Brownfield, David Lee '68
Gardner, Roger William '63
Gritzo, Ludwig Adam '58
Hammar, Phillip Carl '65
Hea, James Peter '68
Kehoe, Martin James '72
Potter, Charles Jarrett '71
Zimmerman, Mary Margaret '87

MO B
Bodenhamer, Steven D. '75
Brockhaus, Douglas Adolph '68
Buenemann Jr., Morris C.F. '82
Feurer, John Alphanse '70
Hahn, Gail Louise '82
Hendrickson, Richard Charles '53
Horstmann, Paul William '73
Leitterman, Dennis W. '76
Mahin, Clifford Alan '76
McJimsey, Edward Clair '71
Myers, Kenneth Raymond '72
Scherrer, Paul Keith '71
Schmidt, Thomas Edward '70
Schwent, Dale Gerard '84
Sedovic, Pete Stephen '81
Willoughby, Ronald D. '73

MO Γ
Eddy, Jim Dale '80
Fisher, John William '56
Galambos, Theodore Victor '53
Standridge, Charles Robert '75

MT A
Courville, George Eugene '59
Kolb, Robert C. '61

MT B
Erickson, Elizabeth Jeffery '93

NE A
Claar, Stephen Beryl '73
Martin, John Craig '85
Patterson, Roger Kent '73
Van Skiver, Max Alan '75

NV A
Jones, Keith Alan '85
Van Horn, Michael David '76

NH A
Amazeen, Bruce Edward '65
Greene, Prescott '57
Kieffer, Roger Alan '61
Major, Alfred Napoleon '50

NJ A
Allen, Samuel Miller '70
Seventko, Joseph M. '60
Turgyan, Terrence Joseph '75
Waricka, Peter Thomas '71

NJ B
McCord, William Fred '64
Nixon, Allen Mackenzie '62
Richards, John Reed '76
Shelestak, Larry J. '75

NJ Γ
Andrus, James '02
DeWaal, Johannes '70
DiDomenico, Michael John '65
Dooley, Ronald M. '64

Continues on page 40.

IN THE COLLEGES

Tau Bates having an impact at institutions of higher learning.

Michael D. Amiridis Ph.D.

South Carolina Beta '85

Michael has been named the 30th president of the University of South Carolina (USC). He previously served as chancellor of the University of Illinois at Chicago, since 2015, and spent two decades at USC as a professor, dean of the college of engineering and computing, and the university's executive vice president for academic affairs and provost.

David K. Balkin Ph.D.

Indiana Gamma '81

David was selected as president of Erie Community College (SUNY Erie). He previously served as chancellor of the Ivy Tech Community College (IN) South Bend-Elkhart campus and as an associate director of regional development and managing director of the Center for Nano Science & Technology at the University of Notre Dame, where he earned his eng'g degrees.

Dirk J. Colbry Ph.D.

Michigan Alpha '06

Dirk received the Natural Science Faculty Teaching Prize from Michigan State University. This award is given to those within their departments who demonstrate excellent teaching. He was recognized for his contributions to increase student learning, lead in curriculum development, and assist other faculty within CMSE. He also serves as a MI Alpha Chapter Advisor.

SPOTLIGHT: Collaboration establishes AI Hub — Amazon will provide $1 million in funding for the initial year of a relationship with UCLA to establish the Science Hub for Humanity and Artificial Intelligence, marking the technology company's first alliance with a public university. Based at the UCLA Samueli SOE, the research hub will aim to leverage the cross-pollination of industry and academic research on AI to address society's most pressing challenges and develop solutions to benefit humanity. The collaboration will support doctoral fellowships, research projects, and community outreach programs. To celebrate the hub launch, UCLA held "Amazon Science Day at UCLA," an event that coincided with the 52nd anniversary of the birth of the Internet.

Alumnus Gift Supports New Programs at UK — The University of Kentucky (UK) announced a $3 million gift from **James F. Hardymon,** *KY A '56*. The gift will support new undergraduate programs in the college of engineering and fund laboratories and classroom space for the new department of engineering technology. The college has launched four new undergraduate majors in the past two years: biomedical engineering, lean systems engineering technology, computer engineering technology, and aerospace engineering. Hardymon served in various executive positions at Emerson Electric, became CEO of Textron Inc., retired in 1999, and has B.S. and M.S. degrees in civil engineering from UK.

Katy Luchini Colbry Ph.D.

Michigan Alpha '99

Katy was recognized as a top faculty member in the COE at Michigan State University with the Withrow Student Service Award presented for outstanding service to students. She is Assistant Dean for Engineering Graduate Student Services, a nationally recognized expert in eng'g education and graduate student success, and serves as TBΠ Director of Engineering Futures.

David M. Ford Ph.D.

New York Nu '91

David serves as dean of the Central Michigan University College of Science and Engineering. He was appointed late in 2020 and began his new role in June 2021. Previously, David was a professor and department chair of chemical engineering at the University of Arkansas. His main research areas are statistical thermodynamics, and simulations of molecular and colloidal systems.

Laurence J. Jacobs Ph.D.

Georgia Alpha '79

Larry was selected as Georgia Tech's senior vice provost for education and learning in the newly established office and will serve on the President's Cabinet. Most recently, he was professor and associate dean of academic affairs in the COE at Tech. His work involves the development of methodologies for nondestructive evaluation & prediction of structural materials.

Kimberly L. Jones Ph.D.

District of Columbia Alpha '90

Kimberly was appointed associate provost for faculty affairs at Howard University (HU). She also serves as a professor of environmental engineering, a DC Alpha Chapter Advisor, and as chair of the department of civil and environmental engineering at HU. Her research interests include developing membrane processes for environmental applications.

Amy L. Kaleita Ph.D., P.E.

Pennsylvania Beta '97

Amy was named chair of the department of agricultural and biosystems engineering at Iowa State University. As a professor, she has taught courses on soil and water conservation management and eng'g and is also a prominent researcher focusing on information technology for precision conservation including remote sensing. She was named the 2020 ΤΒΠ Outstanding Advisor.

Teik C. Lim Ph.D., P.E.

Alabama Beta '85

Teik was appointed as the ninth president of the New Jersey Institute of Technology and will begin his tenure in July. He presently serves as interim president of the University of Texas at Arlington, where he is also an MAE professor. Teik previously spent 15 years at the University of Cincinnati, where he was dean of the COE and founded the UC Simulation Center.

FACILITIES: Villanova Transforms STEM Space — Villanova University announced plans for a 150,000 square-foot addition to the college of engineering's primary academic building, the Center for Engineering Education and Research. The addition will more than double the existing 90,000 square-foot building, resulting in a 63 percent increase in overall teaching and research lab space — allowing all the college's departments to be in one location. The university is breaking ground on the $125 million project this spring, to be completed by fall 2024. The project will add new state-of-the-art instruction spaces for team-based 'learning by doing' and will expand research facilities in ways that will foster collaboration among disciplines.

Gift Leads to Largest Building at Va Tech — Virginia Tech announced a gift from aerospace engineering alumnus **Norris E. Mitchell,** *VA B '58,* in support of a new building project known as Wendy and Norris E. Mitchell '58 Hall. It will become the largest building on the university's campus with 284,000 square feet containing classrooms, instructional labs, space for student team projects, research labs, and office spaces for faculty, staff, and students. Construction could begin as soon as the summer of 2023. Mitchell co-founded Virginia Commerce Bank and earned his B.S. degree in aerospace engineering from Virginia Tech.

Mohsen Mosleh Ph.D.

District of Columbia Alpha '94

Mohsen is a recipient of the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, which was announced in February by The White House. This is the highest U.S. award for science and mathematics teachers and mentors. He is a professor of mechanical engineering at Howard University and joined ΤΒΠ as an eminent engineer in 2016.

Christopher B. Roberts Ph.D.

Missouri Alpha '90

Chris began his tenure in May as president of Auburn University, where he served as dean of the college of engineering, since 2015. With chemical engineering degrees from the University of Missouri-Columbia and the University of Notre Dame, he has published more than 135 peer-reviewed journal articles and book chapters in leading chemistry journals.

Doug Tougaw Ph.D., P.E.

Indiana Beta '91

Doug was appointed dean of the Valparaiso University College of Engineering, where he has served in an interim capacity since February 2021. He joined the Valpo faculty in 1996, was chair of the electrical and computer eng'g department twice, and received the Alumni Association Distinguished Teaching Award (2006) and the Valpo Excellence in Teaching Award (2015).

District Doings ★

We are excited to report that 2022 District Conferences were held by all 16 ΤΒΠ Districts this spring. Some of the meetings were virtual, but many were held in-person. Images and summaries from a few of the Conferences are included.

MARCH 26-27, 2022:

District 2

The New York Tau Chapter at Binghamton University hosted 35 students, 5 TBP Association Officials, and 1 alumnus. The student leaders from 14 chapters in New Jersey and New York took part in activities including a chapter operations workshop and social/networking opportunities.

APRIL 2-3, 2022:

District 5

In Orlando, a total of 65+ attendees from 12 chapters were at the Conference. Day 1, ΤΒΠ president Menna Youssef, and District Directors gave presentations and blackout Bingo was played as a networking ice breaker. An alumni panel was hosted by members of the Central Florida and Tampa Bay Alumni Chapters. Day 2, held at Lake Claire outdoor recreational area on the UCF campus, included: District Interactive Chapter Exchange, discussions on how to improve member turnout and retention, and an additional alumni panel on the topic of non-traditional engineering fields. The Conference wrapped up with a hamburger/hotdog grill out.

MARCH 4-5, 2022:

District 6

Mississippi State University (MS Alpha Chapter) hosted the Conference with 30+ students from ΤΒΠ Chapters in Alabama, Kentucky, Mississippi, and Tennessee. The student leaders participated in activities that included a design challenge.

APRIL 8-9, 2022:

District 13

In Tucson, the AZ Alpha Chapter hosted 17 delegates from 9 chapters across Arizona, New Mecixo, and West Texas. The Conference kicked off with an AU baseball game and business started the next day. Five members of the local Tucson Alumni Chapter joined for an alumni panel moderated by D13 Director Chris Stemple. The Conference concluded with an Interactive Chapter Exchange, Chapter Improvement Plans, and dinner at Gentle Ben's Brewing Company.

APRIL 3-4, 2022:

District 15

The Conference took place on the beach in Carmel-by-the-Sea, California. Activities included a beach ball ice breaker, grad school and career alumni panel, Interactive Chapter Exchange, and simulation of the candidate initiation process. Making ΤΒΠ Chapters more diverse and inclusive was a prevalent topic of discussion. The novel outdoor venue was wonderfully successful and seemed to increase overall engagement.

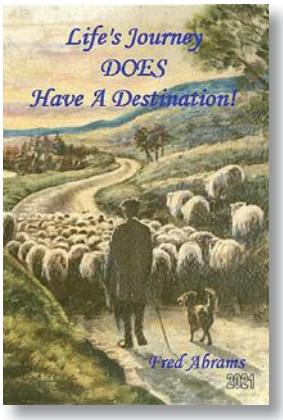
APRIL 23, 2022:

District 16

District 16 held their Conference at the beautiful University of California, Riverside, campus hosted by the California Alpha Beta Chapter. The day was spent helping prepare chapters as they wrapped up end-of-year responsibilities and new officers learned about what goes on behind the scenes. Overall, it was a successful day filled with insightful learning, fun memories, and new friendships.

Authors

Recently published a book? If so, we would like to recognize you! Send details and a cover image to dylan@tbp.org.
Note: This section has become extremely popular and submissions are first come, first served as room allows. Thanks!



Fred L. Abrams, USAF (ret.)
Ohio Eta '74

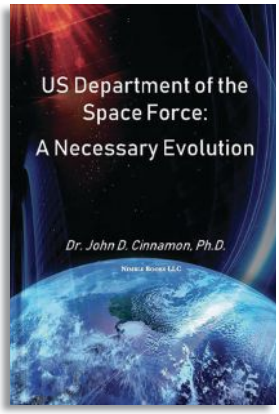
Life's Journey Does Have a Destination

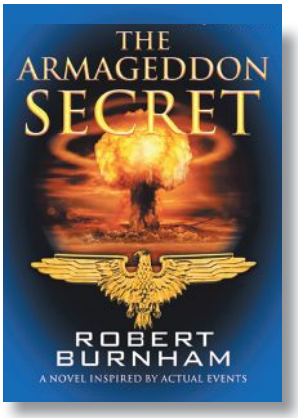
Fred has authored multiple books; his latest addresses becoming content in one's relationship with God, the life one has lived, and is now living. He is a retired combat fighter pilot and program manager, who earned his M.S. degree in systems management, and was named an AFIT 2019 Distinguished Alumnus.

John D. Cinnamon, Ph.D., P.E.
Ohio Eta '06

U.S. Department of the Space Force: A Necessary Evolution

John has written this work to argue for a separate service (not under the Department of the Air Force) to meet strategic military objectives. He is currently serving as a senior technical leader for a federally-funded research & development center and has graduate degrees in aerospace engineering.





Robert E. Burnham, P.E.
Michigan Gamma '71

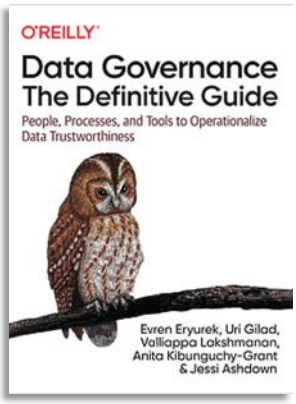
The Armageddon Secret: A Novel Inspired by Actual Events

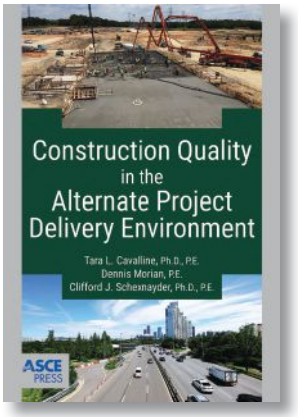
Robert is an engineer/author of this historical fiction, published in 2021, which declares, "At the dawn of WWII, Hitler's scientists were years ahead in the race for the atom bomb. Someone had to stop them, or civilization dies." He is a board certified forensic engineer with B.S. and M.S. degrees in ME from the Univ. of Michigan.

Evren Eryurek, Ph.D.
Tennessee Alpha '96

Data Governance: The Definitive Guide

Published in 2021, Evren coauthored this practical guide showing how to effectively implement and scale data governance throughout an organization. He is director of product management at Google Cloud, has two graduate eng'g degrees, and serves as a board member of the EDM Council.





Tara L. Cavalline, Ph.D., P.E.
Pennsylvania Beta '98

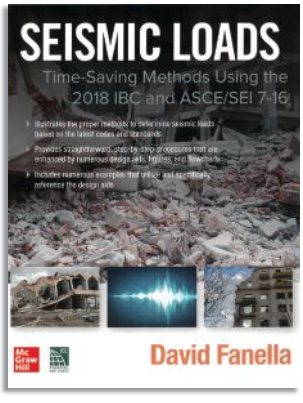
Construction Quality Assurance in the Alternate Project Delivery Environment

Tara is an associate professor at UNC Charlotte and coauthored this book with two colleagues. Published by ASCE Press, the book provides detailed guidance on all aspects of construction quality in the heavy/highway, building, and industrial fields. Her B.S. and M.S. degrees are in civil engineering.

David A. Fanella, Ph.D., P.E.
Illinois Zeta '82

Seismic Loads: Time-Saving Methods Using the 2018 IBC and ASCE/SEI 7-16

David's book, published by McGraw Hill and the Intl. Code Council, is one in a series of four books on how to determine structural loads based on the latest codes and standards. He is senior director of engineering at the Concrete Reinforcing Steel Institute and has three eng'g degrees from Univ. of Illinois at Chicago.



from page 19.

Summer Problems *Continued*

In this variation, there are seven ladders, each of which jumps at least one row. In fact, they each jump a different number of rows. Each ladder starts in a square whose number is a perfect square greater than 1, and ends in a square whose number is a prime. Give the numbers of the starting and ending squares of the seven ladders, in increasing order of the starting squares.

—An Enigma by Susan Denham
in *New Scientist*

BONUS: A traditionally constructed soccer ball consists of 32 pieces of leather sewn together to form a polyhedron. There are 12 black pieces in the form of regular pentagons and 20 white pieces in the form of regular hexagons. When inflated, assume the polyhedron expands to a perfect sphere. If the curved edges of the pentagons and hexagons are exactly 2 inches in length, what is the diameter of the circumscribing sphere? Express your answer to at least three significant digits.

—*Puzzle Corner*
by Allan Gottlieb
in Technology Review

DOUBLE BONUS:

A new game show lines up 100 contestants so that each person in line can see everyone in front of him but no one behind him. The emcee explains that he will put a red or a blue hat on each contestant without the contestant knowing the color. Then, starting at the back of the line, each person will be asked in turn what color hat they are wearing. Each contestant that answers correctly wins $1,000. Each person can only answer red or blue in a normal, uninflected voice. The others in line can hear the answer but not whether it is right or wrong. Before going on the air, the emcee leaves the group alone for a few minutes. A Tau Bate in the group proposes that they split any winnings equally among all. The Tau Bate then proposes a strategy that will maximize total winnings. What is the average expected winnings for the group, and what strategy do they use?

—*How to Ace the Brain Teaser Interview*
by John Kador

Email your answers (plain text only) to any or all of the Summer Brain Ticklers to *BrainTicklers@tbp.org* or by postal mail to **Dylan Lane, Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697**. The method of solution is not necessary and the Double Bonus is not graded. Where possible, exact answers are preferable to approximations. The cutoff date for entries to the Summer column is the appearance of the Fall *Bent* which typically arrives in mid-September (the digital distribution is several days earlier). We welcome any interesting problems that might be suitable for the column. Dylan will forward your entries to the judges who are **F.J. Tydeman,** *CA Δ '73;* **J.R. Stribling,** *CA A '92;* **G.M. Gerken,** *CA H '11;* and the columnist for this issue,

— **J.C. Rasbold,** *OH A '83*

CHAPTER ETERNAL

Our fellow Tau Bates who are gone, but never forgotten.

NY L

New York Lambda '75
Roger E. Hawks
February 28, 2022
Served as ΤΒΠ Assistant Secretary-Treasurer from 1986-2016, Director of Chapter Programs from 2016-18, and helped lead many ΤΒΠ Conventions.

The condensed style of these notices is made necessary by the Association's large membership and space limitations in *The Bent*. You may contact the Editor for additional facts (if available) concerning the following deceased members. The assistance of all is earnestly sought in reporting the deaths of Tau Bates, including full name and date of death. You may report the death of a member by sending an email to ***chapter.eternal@tbp.org.*** Members that were 100+ years when passing are identified with "***Cent.***"

ALABAMA

ALPHA AL Α
Owens, Lester Jamison, *'47*, May 18, 2021.
Crane, John D., *'68*, July 15, 2002.

BETA AL Β
Summerville Jr., James E., *'48*, May 12, 2020.
Stough, Foster Earl, *'49*, no details.
Buchanon, James F., *'58*, Dec. 20, 2021.
Ingram, Edwin Hugh, *'62*, January 6, 2007.

ARIZONA

ALPHA AZ Α
Nelson, Edmond Hyrum, *'67*, Feb. 21, 2005.
Knepper, Raymond Lewis, *'75*, no details.

BETA AZ Β
Vanderplaats, Garret Niel, *'67*, Nov. 17, 2021.

ARKANSAS

ALPHA AR Α
Black, Jerry Dale, *'60*, May 12, 2005.
Dees Jr., Walter Dewey, *'70*, May 23, 2004.

CALIFORNIA

ALPHA CA Α
Jury, Eliahu I., *'47*, September 20, 2020.
Curry, Charles Daniel B., *'51*, Dec. 6, 2011.
Dere, Daniel J., *'56*, October 1, 2010.
Leighton, Alan Johnstone, *'56*, April 9, 2018.
Sharpe, Maurice James, *'58*, no details.
Gilbert, Paul Hammond, *'59*, Feb. 6, 2021.
Lefebvre, Clarence Andre, *'59*, May 22, 2013.
Heckenlaible, Richard, *'60*, January 30, 2022.
Weaver, Robert Ernest, *'60*, June 1, 2011.
Fung, Shun Chong, *'65*, July 21, 2021.
Wade, Charles Ernest, *'70*, August 31, 2021.

GAMMA CA Γ
Field, Ralph Dickenson, *'48*, June 22, 2021.
DeNevers, Noel, *'54*, January 4, 2019.
Lindholm, Fred Arthur, *'58*, June 27, 2013.

DELTA CA Δ
Saguchi, Donald Yoshio, *'62*, Jan. 26, 2022.

ETA CA Η
Pereira, Lawrence William, *'66*, May 4, 2007.

THETA CA Θ
Holcomb, Norman Roy, *'67*, August 9, 2003.

IOTA CA Ι
Martin, Melvin Duane, *'62*, no details.
Hirotsu, Hiroyoshi, *'75*, October 24, 2001.

KAPPA CA Κ
Owen, Felix Grundy, *'74*, February 16, 2005.

NU CA Ν
Gose, John Everette, *'75*, no details.
Wilson, Kristina Elizabeth, *'89*, Dec. 8, 2021.

OMICRON CA Ο
Curran, Jarlath M., *'61*, August 8, 2003.

UPSILON CA Υ
Tsien, Arthur Chung, *'85*, no details.

ALPHA ALPHA CA ΑΑ
Richardson, Albert O., *'71*, Nov. 25, 2021.

ALPHA DELTA CA ΑΔ
Eaves, Tyler John, *'18*, November 9, 2021.

COLORADO

BETA CO Β
Harrison, Hal McDougall, *'41*, Aug. 17, 2007.
Rogers, Robert Barton, *'45*, Oct. 14, 2005.
Gleghorn, George Joy, *'47*, August 27, 2021.
Bauknecht, Lyle Ambrose, *'49*, no details.
Carrick, David Stanley, *'49*, no details.
Beyeler, John A., *'52*, May 23, 2009.
Norman, James Raymond, *'54*, Oct. 23, 2021.
Cropp, Louis, *'61*, no details.

GAMMA CO Γ
Girolmo, George Frederick, *'54*, Oct. 17, 2000.
Beer, Robert Lorance, *'57*, June 20, 1989.
Krotchko, Daniel John, *'61*, no details.
Wilkins, Kenneth Paul, *'61*, Feb. 24, 2005.

EPSILON CO Ε
Shute, Stephen Harley, *'96*, October 22, 2020.

CONNECTICUT

ALPHA CT Α
Warner, William Smith, *'49*, Feb. 27, 2001.
Watson Jr., Seth William, *'49*, May 24, 2001.
Soderberg, Richard W., *'50*, Dec. 12, 2021.
Treffeisen, Donal Ray, *'51*, October 5, 2009.
Adams Jr., Aubrey S., *'52*, Aug. 21, 2016.
Paulus, William Kerry, *'57*, March 18, 2007.
Underhill, Dwight W., *'58*, February 23, 2022.
Briller, Robert Alan, *'76*, no details.

BETA CT Β
Stryker, Robert Bruce, *'50*, October 31, 2015.
Ching, Albert C., *'51*, February 9, 2022.
Holland, John Mason, *'57*, January 18, 2022.

DELAWARE

ALPHA DE Α
Meier, Richard N., *'58*, December 11, 2021.
Burtness, Richard D., *'64*, October 25, 2021.

DISTRICT OF COLUMBIA

ALPHA DC Α
Randolph Jr., Frederick D., *'69*, no details.

BETA DC Β
Watson, John D., *'60*, June 4, 2003.
Richlan Jr., Frank, *'64*, September 10, 2003.
Mello, Daniel Lawrence, *'66*, Feb. 3, 2004.

FLORIDA

ALPHA FL Α
Tlusty, Jiri, *'47*, October 20, 2002.
Lee, Roland Marion, *'48*, Sept. 12, 2019.
Thompson Jr., Thomas F., *'48*, Dec. 13, 2021.
Erickson, Ernest Eugene, *'49*, Jan. 21, 2006.
Nevill Jr., Gale Erwin, *'55*, February 17, 2003.
Shih, Sun-Fu, *'59*, no details.
Capehart, Barney Lee, *'61*, January 19, 2019.
Hof, Paul Xavier, *'61*, no details.
Linde, Nathan, *'62*, September 5, 2021.
Whitney, Charles Francis, *'62*, no details.
Cheves, Dennis R.X., *'73*, Aug. 14, 2018.
Baker, Robert Scott, *'85*, August 12, 2007.

BETA FL Β
Recio, Agustin A., *'48*, December 10, 2020.
Munier, Ronald Alan, *'59*, February 23, 2022.

GAMMA FL Γ
Radford, William Jennings, *'73*, Jan. 21, 2022.
Siegel, Robert W., *'75*, April 20, 2015.
Mowrey, Richard G., *'94*, March 7, 2007.

DELTA FL Δ
Carroll, Robert Burl, *'78*, January 22, 2006.

EPSILON FL Ε
Tuthill, Michael, *'04*, February 15, 2006.

GEORGIA

ALPHA GA Α
Zeigler Jr., George E., *'41*, Dec. 29, 2018. ***Cent.***
Montague, Harold Aycock, *'43*, May 29, 2003.
Skinner, Arthur Chester, *'43*, August 7, 2020.
Wellborn, Carlton Juan, *'43*, no details.
Anderson Jr., Boyd Hicks, *'46*, Nov. 1, 2015.
Davis, Julian Monroe, *'47*, January 15, 2017.
Singley Jr., John E., *'49*, June 7, 2015.
Simmons III, John Wesley, *'51*, no details.
Cooke, Harry James, *'52*, Nov. 20, 2001.
Hogan, Robert Lee, *'52*, no details.
Moore, George B., *'53*, no details.
Gillis Jr., Alva Knox, *'59*, December 10, 2008.
Acuff, Robert L., *'60*, no details.
Locke Jr., Warren J., *'61*, January 6, 2022.
Maddox, James Hugh, *'62*, April 16, 2007.
Sissom, Leighton Esten, *'65*, Aug. 19, 2020.
O'Hara, Larry Stanley, *'66*, Nov. 13, 2011.
Hargis, Robert Lee, *'67*, February 28, 2022.
Crow, Richard Glen, *'77*, no details.
Biles III, Don Leon, *'80*, January 4, 2011.

ILLINOIS

ALPHA IL Α
Hebenstreit, Richard Henry, *'45*, Jan. 4, 2022.
Fleming, Arthur Nichols, *'47*, Dec. 3, 2003.
Hays, Walter Dean, *'48*, no details.
Scott, Robert Paul, *'50*, March 9, 2013.
Enrietto, Joseph, *'56*, February 7, 2012.
Heid, Kermit K.W., *'59*, December 13, 2021.
Levinson, David Seymour, *'61*, June 12, 2000.
Robertson, John Allen, *'65*, Dec. 2, 2021.
Christiansen, Jeffrey Edward, *'78*, no details.
Miller, William Raymond, *'85*, no details.

BETA IL Β
Gross, Maurice Nick, *'48*, no details.
Hartley, Boyd A., *'48*, June 27, 2007.
Halwax, Frank Karl, *'51*, no details.
Happ, Harvey, *'54*, December 12, 2021.
Jonas, Harry H., *'58*, no details.
Kyriaz, Constantine James, *'90*, May 24, 2007.

GAMMA IL Γ

Cunningham, Richard G., *'43*, Aug. 29, 2021.
Lowey Jr., Roy Eugene, *'43*, no details.
Stevens III, William Foster, *'44*, Dec. 5, 2015.
Pritzlaff Jr., August Henry, *'45*, Oct. 24, 2010.
Malmgren, Robert T., *'61*, June 16, 2004.
Bianco, Joseph Michael, *'81*, no details.

EPSILON IL Ε

Missavage, Roger Joseph, *'78*, Nov. 20, 2021.

ZETA IL Ζ

Efergan, David, *'95*, December 18, 2008.

INDIANA

ALPHA IN Α

Carbon, Max W., *'43*, June 23, 2021.
Smith, Kermit Vale, *'43*, no details.
Peer, George Joseph, *'45*, February 1, 2011.
Prentiss, Kenneth Richard, *'47*, no details.
Sexauer, Paul Springer, *'47*, no details.
Crocker, John M., *'48*, November 30, 2003.
List, Douglass Steele, *'48*, March 22, 2004.
Monical, Robert Duane, *'48*, Oct. 19, 2021.
Eikenberry, Harry William, *'49*, Oct. 26, 2006.
Herron, Robert M., *'49*, October 7, 2004.
Morrison, Donald A.R., *'49*, August 2, 2006.
Strodel, Donald Herbert, *'49*, Jan. 12, 2003.
Leve, Howard Leon, *'50*, no details.
Spangler, Delbert Ralph, *'50*, Feb. 16, 2022.
Bevington, John Richard, *'51*, June 1, 2001.
Cencel, Joseph Arthur, *'51*, Dec. 28, 2021.
Harmon, Robert Wayne, *'51*, April 18, 2021.
Morris Jr., Thomas Arthur, *'51*, Feb. 3, 2022.
Scheele, Paul Wermuth, *'51*, Dec. 5, 2020.
Martin, John Thomas, *'52*, June 11, 2006.
Kestenbaum, Milton R., *'55*, Dec. 22, 2009.
Clingan, Bruce Edwin, *'56*, July 16, 2004.
Kaster, Floyd Earle, *'58*, no details.
Paris Jr., Franklin Lane, *'58*, Jan. 7, 2009.
Niemeier, Byron Matthew, *'60*, Nov. 6, 2001.
Lamb, Donald Roy, *'62*, June 25, 2012.
Leonard, James Richard, *'63*, no details.
Rempert, Lawrence Arnold, *'64*, no details.
Bush, Thomas Charles, *'65*, Dec. 21, 2021.
Higdon, Richard Dale, *'65*, July 31, 2001.
Paolantonio, James R., *'70*, Aug. 29, 2007.
Foerster, Charles John, *'74*, Dec. 24, 2019.
Stefucza, John Martin, *'76*, October 4, 2010.
Muhunthan, Balasingam, *'87*, June 17, 2021.

BETA IN Β

Bailey, Herbert Reeder, *'45*, Jan. 29, 2022.
Badger, David Harry, *'53*, January 4, 2021.

GAMMA IN Γ

McMahon, Patrick J., *'62*, June 1, 2021.

IOWA

ALPHA IA Α

Ellingrod, William Wayne, *'54*, Oct. 18, 2021.
Stratmeyer, Hubert, *'56*, no details.
Ives, Brian Frederic, *'63*, no details.
Tener, Robert Kinley, *'63*, February 15, 2022.
Kopp, Robert Henry, *'64*, no details.
Petre, Craig Lavern, *'69*, February 11, 2016.
Miller, Mathias William, *'70*, March 21, 2011.
Alseiari, Maktoom Hamad, *'19*, no details.

BETA IA Β

Dalasta, Derio B., *'41*, May 12, 2015.
Mortimore, Thomas N., *'47*, July 23, 2006.
Long, Francis M., *'53*, January 16, 2007.
Young, James Philip, *'59*, no details.

KANSAS

ALPHA KS Α

Taylor Jr., Harold Ivor, *'38*, no details.
Nash, Samuel Knowlton, *'42*, May 30, 2021.
McKinney, Ross Erwin, *'48*, Sept. 18, 2021.
Startz, Ambrose John, *'48*, April 2, 2010.
Payne, Donald Foster, *'50*, May 27, 2000.
Spradlin, Richard Elwyn, *'51*, Oct. 18, 2021.
Wellborn, Robert Edward, *'52*, Jan. 19, 2018.
Larkin, Bert Kenneth, *'53*, no details.
Martindell, John Richard, *'55*, April 11, 2007.
Hall, Norris Richard, *'59*, no details.

BETA KS Β

Blakely, John Norris, *'67*, Nov. 15, 1994.

KENTUCKY

ALPHA KY Α

McHargue, Carl J., *'49*, February 27, 2022.
Harris Jr., Freeland, *'58*, November 13, 2016.
Hendrick, Neal Thomas, *'62*, Feb. 20, 2022.
Ticknor, William, *'73*, May 25, 1999.

LOUISIANA

ALPHA LA Α

McMillan, Robert Edward, *'42*, Dec. 9, 2005.
Conradi, Leroy Edgar, *'44*, October 22, 2000.
Gatzke, Lavigne Karl, *'49*, October 14, 2007.
Zachary, Richard Ellis, *'69*, March 13, 2005.
Mestayer, Patrick James, *'80*, no details.

BETA LA Β

Levine, David Jerrold, *'51*, October 1, 1983.
Hassinger, Robert Conery, *'63*, Jan. 11, 2022.
Romans Jr., Charles A., *'77*, Dec. 23, 2002.

GAMMA LA Γ

Delk, Thomas David, *'51*, no details.
Stevens, Marion Edwin, *'52*, no details.
Kullerd, Ben Emile, *'53*, July 28, 2018.
MacHen, Billy Ray, *'55*, May 20, 2006.
Beam, Ronald Lee, *'64*, no details.
Taylor, Charles Winston, *'64*, Nov. 5, 2021.
Applegarth III, Raymond T., *'67*, April 6, 2007.

MAINE

ALPHA ME Α

Coleman, Milton Harris, *'50*, Jan. 5, 2022.
Ameer, George Albert, *'53*, Sept. 13, 2001.
Farrar, Edward Libbey, *'58*, March 1, 2012.
McLean, Dale Irving, *'58*, December 3, 2021.

MARYLAND

ALPHA MD Α

Morrison, Richard Lewis, *'59*, no details.
Ragonese, Edward Bernard, *'70*, Dec. 7, 2010.

BETA MD Β

Chance, Maynard Reynaud, *'50*, no details.
Heffner, Paul, *'60*, no details.
Palmer, Maynard Ely, *'69*, Dec. 23, 2021.

MASSACHUSETTS

ALPHA MA Α

Henning, Philip Adolph, *'44*, no details.
Chase, Rodney Southwich, *'45*, June 12, 2017.

BETA MA Β

Kratz, Robert Fritzinger, *'44*, July 8, 2010.
Swensson, Gerald C., *'44*, no details.
Ross, Harold T., *'45*, February 2, 2009.
Umberger, Grant, *'45*, no details.
Foust Jr., Russell Atwood, *'46*, Aug. 28, 2004.
Howitt Jr., Thomas, *'50*, September 9, 2004.
Washauer, Louis Howard, *'50*, Sept. 27, 2006.
Semple, Richard Davis, *'52*, Sept. 22, 2007.
Carroll, Donald Cary, *'58*, no details.
Jones, Robert Donald, *'58*, Dec. 5, 2021.
MacKinnon III, Malcolm, *'60*, June 24, 2019.
Goldhirsh, Bernard Allan, *'61*, June 29, 2003.
Miller, Stephen W., *'63*, November 13, 2021.
Wert, Edward Cowden, *'66*, no details.
Parnassa, Eugenia Marie, *'78*, no details.

DELTA MA Δ

Morganson, Peter Horace, *'42*, Feb. 17, 2006.
Archibald, Ralph Strong, *'45*, Jan. 27, 2022.
Byrne, John Thomas, *'48*, January 17, 2022.
Defelice, Vincent Nichols, *'49*, no details.
Gordon, Philip Hayes, *'10*, Sept. 27, 2021.

EPSILON MA Ε

Bolton III, Lewellyn S., *'59*, Dec. 17, 2021.
Van Der Veer, Bruce Bert, *'70*, April 9, 2001.
Fisher, Douglas Allyn, *'74*, Feb. 19, 2010.

ZETA MA Ζ

Tanguay, Armand Rene, *'50*, August 30, 2015.
MacBrien, Douglas Victor, *'76*, Dec. 11, 2007.
Stasio, Dominic, *'79*, February 6, 2022.

THETA MA Θ

Kisiel, Jeffrey Joseph, *'92*, August 28, 2018.

MICHIGAN

ALPHA MI Α

Kamradt, William E., *'53*, January 8, 2022.
Stoll, Charles Andrew, *'63*, Dec. 10, 2021.

BETA MI Β

Radlet, Thomas John, *'47*, no details.
Verrette, Joseph Angelo, *'48*, Nov. 13, 2000.
Erm, Frank Anton, *'50*, no details.
Karr, Francis Robert, *'51*, June 23, 2003.
Lockwood, Lloyd Frank, *'54*, May 12, 2019.
Haataja, David Wilhardt, *'58*, no details.
Rankin, Peter Michael, *'59*, Nov. 14, 2021.
Des Rosier, Charles D., *'60*, Aug. 8, 2009.
Arola, Rodger A., *'64*, December 19, 2021.
Herrygers, David Walter, *'70*, Dec. 6, 2005.

GAMMA MI Γ

Moore, Robert Sutton, *'38*, no details.
Anderson, Lee Lawrence, *'41*, no details.
Eastman, James Middleton, *'41*, no details.
Smith, Lewis Frank, *'41*, February 10, 2015.
Weesner, George Wood, *'41*, May 24, 2007.
Rubin, Lester Richard, *'42*, March 20, 2004.
Skutt, Cornelius Ronald, *'42*, Oct. 24, 2011.
Tate, Raymond Eugene, *'44*, no details.
Graef, Charles Gordon, *'46*, no details.
Wedge, Thomas Eugene, *'46*, no details.
Hockenbury, Robert Warren, *'48*, no details.
Inglis, David, *'48*, April 25, 2016.
Bates, Lawrence Jean, *'49*, Feb. 11, 2003.
Doherty, Charles Henry, *'49*, no details.
Wolber Sr., William G., *'49*, May 30, 2008.
Peterson, Leslie Francis, *'50*, Sept. 20, 2003.
Schooley, Nichols Bailey, *'50*, July 19, 2007.
Farran, Richard Arnold, *'51*, no details.
Frese, Robert Emil, *'51*, January 3, 2007.
Lashmet, Peter Kerns, *'51*, August 11, 2021.
Brannick, Boris, *'52*, September 29, 2018.
Stuart, John Kilgour, *'54*, January 17, 2022.
Blott Jr., Edward James, *'57*, Nov. 25, 2007.
Battjes, Carl Robert, *'58*, April 28, 2007.
Channon, Fred Robert, *'59*, Nov. 7, 2008.
Hozak, Norman Lee, *'59*, Dec. 30, 2021.
Carbeck, Thomas Davis, *'63*, no details.
Albrecht, Terry Erwin, *'67*, October 3, 2021.

DELTA MI Δ

Woodbridge, Frank S., *'64*, June 20, 2020.
Pietrzak, Lawrence Michael, *'65*, no details.
Young, Michael Raymond, *'68*, Jan. 27, 2022.

EPSILON MI Ε

Jackson, Kenneth Robert, *'41*, Nov. 12, 2007.
Creswick, Frederick A., *'52*, Feb. 25, 2022.
Fosth, Douglas Carl, *'57*, Sept. 18, 2003.
Gibson, Ronald Franklin, *'65*, Dec. 25, 2021.
Tillinger, Steven Jay, *'68*, January 4, 2022.
Walton, Gregory Francis, *'71*, Dec. 10, 2021.

ZETA MI Ζ

Best, Louis Franklin, *'41*, no details.

ETA MI Η

Kesling, Keith Kenton, *'72*, May 16, 2005.

OH G

Ohio Gamma '58

Ralph A. Rockow

January 18, 2022

Part of team that designed the Lunar Excursion Module, past president at Exodyne, and a renowned philanthropist in support of Ohio State University and ΤΒΠ.

OH D

Ohio Delta '55

T. Richard Robe, Ph.D., P.E.

January 7, 2022

Dean Emeritus at Ohio University, he was an expert in engineering education, former supersonic jet fighter pilot, and a NASA-ASEE Fellow at Langley Research Center.

MINNESOTA

ALPHA MN Α

Benkusky Jr., Anthony W., *'50*, July 7, 2018.
Johnson, Lloyd Harold, *'50*, Dec. 12, 2021.
Carlson, Carl Herbert, *'51*, March 23, 2006.
Hill, James Edwin, *'56*, no details.
Stuetzer, Max, *'62*, no details.
Kaner, Robert Louis, *'66*, August 19, 2011.
Laska, Timothy Eaton, *'86*, Nov. 29, 2021.

MISSISSIPPI

ALPHA MS Α

Wilson, Harry Maury, *'49*, August 19, 2010.
Dunning, Thomas E., *'55*, March 10, 2009.
Seale, William Buford, *'59*, Nov. 11, 2012.

MISSOURI

ALPHA MO Α

Geers, Arthur Edward, *'48*, March 12, 2021.
Brown, Lloyd Robert, *'49*, May 25, 2019.
Meier, James Carlisle, *'53*, June 7, 2015.

BETA MO Β

Eck, Robert Anthony, *'43*, April 15, 2011.
Stocker, Daniel James, *'44*, January 5, 2019.
Scofield, Gordon L., *'46*, September 15, 2021.
Heitzeberg, Charles H.A., *'49*, July 4, 2012.
Schowalter, Ralph Emerson, *'49*, July 4, 2001.
Vaughn Jr., George Edward, *'49*, no details.
Crocker, Hilbert Walter, *'50*, no details.
Niederstadt, Roland Jean, *'50*, May 9, 2020.
Roschke, Elfred John, *'51*, August 11, 2007.
Hollocher, Ralph Leslie, *'54*, Nov. 11, 2015.
Beckemeyer, Edward J., *'57*, April 19, 2002.
Stevens Jr., Glendon Taylor, *'64*, no details.
Baker, Richard Forest, *'65*, August 19, 2010.
Hackbarth, Robert William, *'66*, July 31, 2004.
Miller, Ann Kathryn, *'68*, December 10, 2010.

GAMMA MO Γ

Schneider, Harold Lee, *'43*, Dec. 22, 2021.
Dick, William Kenneth, *'49*, Nov. 11, 2021.
Shapiro, Stanley, *'50*, June 3, 2014.
Beil, Ralph Edwin, *'51*, December 20, 2021.
Dieckmann, Richard R., *'52*, Feb. 12, 2021.

MONTANA

ALPHA MT Α

Werner, Vincent Sterling, *'48*, April 11, 2020.
Bair, Theodore Eugene, *'50*, August 15, 2007.
Condotta, Denny Louis, *'50*, May 13, 2004.
Hosfeld, Robert James, *'50*, April 28, 2005.
Kraft, Albert Norman, *'50*, March 3, 2016.
Milodragovich, Eli, *'50*, December 12, 2001.

NEW HAMPSHIRE

ALPHA NH Α

Wing, Harold Chester, *'61*, January 1, 2004.

NEW JERSEY

ALPHA NJ Α

Mills Jr., Lester David, *'41*, January 31, 2006.
Schimpf, Arthur James, *'43*, May 20, 2009.
Goller, Karl Richard, *'52*, June 5, 2021.
Wilcox, Robert H., *'52*, January 18, 2022.
Travieso, Raul, *'54*, April 14, 2014.
Goellner, Donald Allen, *'58*, Sept. 23, 2005.

BETA NJ Β

Karol, Reuben Hirsh, *'44*, February 13, 2020.
Weissmann, Sigmund, *'44*, no details.
White, Wallace Franklyn, *'49*, July 14, 2004.
La Maire, Orville Richard, *'57*, Dec. 17, 2004.
Ikeda, George Kazuo, *'58*, Nov. 30, 2021.
Guerin, James Howard, *'59*, Feb. 10, 2022.
Badgley Jr., Robert Henry, *'60*, Jan. 11, 2022.
Petermann, Thomas L., *'80*, Sept. 17, 2001.

GAMMA NJ Γ

Fimmel III, Gustav Adolf, *'43*, Sept. 14, 2004.
Singer Jr., Frederick, *'50*, January 2, 2022.
Stephan, Robert Walter, *'50*, Oct. 17, 2007.
Szalapski, Eugene John, *'50*, no details.
Mershon Jr., Roy Miller, *'57*, Dec. 28, 2003.
Specht, James Russell, *'59*, no details.
Lamberski, Stanley E., *'61*, Nov. 10, 2010.
Morgan, Howard Luther, *'66*, Oct. 5, 2002.
Berry, Robert Melvin, *'67*, no details.

NEW YORK

BETA NY Β

Skrzec, Adam Edward, *'41*, August 23, 2007.
Turner, James William, *'50*, no details.
Woncik, Michael, *'50*, July 26, 2001.
Codier, Ernest Oscar, *'52*, December 5, 2001.
Hughes, William Lee, *'54*, October 31, 2002.

GAMMA NY Γ

Lee, Charles Alexander, *'43*, June 11, 2001.
Stebbins, Gordon Keist, *'43*, August 14, 2013.
Fisk, Ralph Daniel, *'49*, January 1, 2018.
Tiedeman Jr., Irvin Bruce, *'49*, Feb. 8, 2006.
Bishop, Harold Edward, *'50*, May 6, 2011.
Hurley, Joseph Michael, *'50*, Oct. 23, 2006.
Leamy Jr., Robert Henry, *'50*, Aug. 26, 2007.
Lockett, Albert, *'50*, January 30, 2009.
Opdahl, Everett W., *'51*, February 28, 2022.
Titterington, Gerard V., *'51*, Nov. 29, 2009.
Hogan, William John, *'52*, no details.
Heinsohn, Robert J., *'54*, February 14, 2022.
Marsh, William D., *'57*, November 27, 2007.
Tarbox, Grover Buckley, *'59*, June 4, 2007.
Frawley, James Joseph, *'62*, Oct. 30, 2004.
Rosalia, Franklin Richard, *'62*, Jan. 2, 2022.

DELTA NY Δ

Armstrong, Donald Guy, *'59*, Nov. 8, 2021.
Oren, Matthew E., *'63*, November 2, 2011.

EPSILON NY Ε

Muench, Walter Karl, *'48*, no details.
Probstein, Ronald F., *'48*, Sept. 19, 2021.
Miller, James Allen, *'51*, April 5, 2005.
Loumeau, Richard F., *'55*, Dec. 17, 2011.
Arculeo, Robert John, *'71*, no details.

ZETA NY Ζ

Ashkin, Martin, *'52*, November 13, 2002.
Traynor, Desmond, *'62*, April 8, 2012.

ETA NY Η

Dagavarian, Harry Oscar, *'44*, Jan. 1, 2015.
Weik Jr., Martin H., *'49*, January 25, 2007.

THETA NY Θ

Whalen, Richard John, *'44*, April 25, 2002.
Vanderslice, Thomas A., *'53*, Oct. 9, 2020.
Tibbits Jr., Clifford Edward, *'61*, Oct. 23, 2004.
Killingbeck, Lynn Carl, *'62*, January 25, 2006.

IOTA NY Ι

Klint, Robert Victor, *'44*, April 2, 2001.
McGuire, Edward Brendan, *'61*, Dec. 21, 2003.

KAPPA NY Κ

Cason, Roger L., *'51*, February 28, 2022.

LAMBDA NY Λ

Hawks, Roger E., *'75*, February 28, 2022.

OMICRON NY Ο

Simmons, Mitchell Henry, *'76*, July 24, 1997.
Andros, Peter, *'78*, no details.

PI NY Π

Breitung II, Edward Joseph, *'71*, Dec. 22, 2006.
Rudolph, David Charles, *'79*, Aug. 21, 2006.

NORTH CAROLINA

ALPHA NC Α

Kiger Jr., Herman Monroe, *'60*, Nov. 7, 2021.
Smith, James Andrew, *'64*, no details.
Angley Jr., William Maynard, *'65*, no details.
Haase, Reuben Albert, *'65*, April 14, 2000.
Hammack Jr., Joseph L., *'66*, Sept. 10, 2004.
Holjes Jr., Meldon Aitken, *'66*, Dec. 26, 2021.
Valentine Jr., John L., *'70*, October 20, 1998.
Kornegay, Edward Louis, *'71*, Dec. 26, 2017.
Lovick, Brentley Mark, *'88*, February 8, 2001.

GAMMA NC Γ

Felton, Joseph Patton, *'47*, January 13, 2017.
Hardee Jr., Walter Person, *'49*, Aug. 1, 2020.
Collins, Daniel Thomas, *'54*, Nov. 30, 2006.
Thomas Jr., Clarence Earl, *'71*, Nov. 22, 2021.

NORTH DAKOTA

ALPHA ND Α

Brauer, Thomas D., *'61*, April 7, 2017.
Baune, Steven Eugene, *'71*, August 14, 2014.

OHIO

ALPHA OH Α

Springer, George B., *'45*, February 18, 2019.
Havens, George Noble, *'49*, October 7, 2019.
Munley, William Joseph, *'56*, Oct. 22, 2009.
Hartman, David Alexander, *'58*, Nov. 24, 2015.
Danvic, Joseph Allen, *'60*, August 15, 2001.
Thompson Jr., Donald R., *'64*, Dec. 1, 2011.

BETA OH Β

MacLean, Donald Lewis, *'66*, Jan. 31, 2008.

GAMMA OH Γ

Graft, William Henry, *'43*, February 25, 2007.
Sing, Edward Yuke, *'43*, June 28, 2021.
Chappell, Robert Edgar, *'48*, no details.
Fulmer, Mary Rydberg, *'48*, Sept. 22, 2021.
Rupert, Willard Lee, *'48*, March 8, 2020.
Pelteson, Frank Martin, *'49*, Sept. 4, 2021.
Salter, Richard Godfrey, *'49*, no details.
Greenlee, Charles Alvin, *'50*, no details.
Harrison, Timothy Arnett, *'54*, April 23, 2004.
Rockow, Ralph Arthur, *'58*, January 18, 2022.
Roswurm, Richard Carl, *'60*, no details.

DELTA OH Δ

Quisenberry, Roger C., *'42*, June 17, 2021. ***Cent.***
Kendall, Harold Benne, *'48*, April 18, 2015.
Robe, Thurlow Richard, *'55*, January 7, 2022.
Munson, Theodore Alfred, *'59*, Feb. 10, 2005.

EPSILON OH Ε

Schaefer, Walter Stanley, *'42*, no details.
Reitz, Eugene Andrew, *'51*, Nov. 21, 2016.
Fowler, Blair Lawrence, *'63*, no details.

Frater, James Thomas, *'69*, Feb. 25, 2005.
Grady, David Daniel, *'73*, no details.
Purcell, Patrick John, *'81*, March 31, 1998.

ETA OH Η

Piske Jr., Andreus A., *'61*, June 14, 2021.

THETA OH Θ

Wright, Harold Eugene, *'49*, Sept. 30, 2005.
Smith, Leonard Alan, *'62*, June 30, 2021.

IOTA OH Ι

Kelly Jr., Francis Joseph, *'49*, March 11, 2006.

LAMBDA OH Λ

Juvrud, Ingvald Oliver, *'84*, February 27, 2003.

MU OH Μ

Fisher, Gordon Carey, *'86*, Dec.16, 2005.

OKLAHOMA

ALPHA OK Α

Hill, Robert E., *'55*, January 15, 2022.
Higbee, Charles Edward, *'57*, no details.
Jackson, Raymond Joe, *'80*, no details.

GAMMA OK Γ

Harwell, Kurt Summers, *'78*, no details.

OREGON

ALPHA OR Α

Coe, Lee, *'41*, no details.
Graff, Russell Milon, *'41*, June 4, 2003.
Bollen, Walter Michael, *'47*, Nov. 15, 2020.
McCloskey, LeRoy, *'52*, September 29, 2004.
Hall, Donald Eugene, *'69*, May 15, 2002.

PENNSYLVANIA

ALPHA PA Α

Marsh Jr., Frank Hower, *'47*, March 14, 2004.
Hower, Meade Martin, *'49*, March 24, 2004.
Goldenberg, Arthur Paul, *'53*, April 3, 2006.
Granville Jr., Richard W., *'55*, Nov. 10, 2021.
Fetkovich, John Edward, *'84*, Jan. 30, 2007.

BETA PA Β

Sredenschek, Alan R., *'54*, May 30, 2010.
Blatt Jr., Earl Lester, *'56*, no details.
Ezard, Lawrence A., *'60*, no details.
Satrom, Steven Bruce, *'69*, May 19, 2018.
Perry, Ann Christina, *'74*, no details.
Ravindra, Krishnaswamy, *'79*, Dec. 2, 2021.

DELTA PA Δ

Kornfield, Nathaniel R., *'51*, April 7, 2004.
Lobel, David Joseph, *'52*, Dec. 18, 2000.

EPSILON PA Ε

Baldoni Jr., Eugene, *'49*, December 2, 2004.
Panner, Edward John, *'62*, Dec. 17, 2010.
Jones, Douglas L., *'71*, no details.

ZETA PA Ζ

Feldstein, Harold Fabyan, *'46*, March 21, 2006.
Archer, Orlo James, *'48*, no details.
Malkin, Theodore Arron, *'48*, no details.
Stander, Leonard, *'56*, January 18, 2011.
Segletes, John August, *'57*, Nov. 26, 2012.
Frenkiel, Boris, *'63*, February 25, 2014.
Hamilton, George Joseph, *'71*, Aug. 12, 2011.

ETA PA Η

Knepp Jr., Willis Henry, *'49*, February 4, 2001.
Smith, Paul Edward, *'50*, May 21, 2002.
Villforth, Richard, *'50*, November 17, 2021.

THETA PA Θ

Roth Jr., Charles Joseph, *'51*, Feb. 21, 2021.
Greenhalgh, Henry Alfred, *'56*, June 5, 2008.

RHODE ISLAND

ALPHA RI Α

Toher, John Thomas, *'43*, no details.
Silvia, Everett Ronald, *'54*, May 22, 2006.

BETA RI Β

Gray, Edward Irwin, *'52*, August 10, 2009.
Pichette, Charles Joseph, *'67*, July 14, 2010.
Marks, William Michael, *'70*, August 7, 2003.

SOUTH CAROLINA

GAMMA SC Γ

Anessi, Thomas Joseph, *'56*, July 24, 2020.

SOUTH DAKOTA

ALPHA SD Α

Grow, David H., *'59*, August 23, 2020.
Mosier, Donald Earl, *'78*, January 28, 2022.

TENNESSEE

ALPHA TN Α

White Jr., James Henry, *'52*, August 14, 2020.

BETA TN Β

Kennedy, John Leonidas, *'49*, Dec. 26, 2006.
Sutherland, Charles William, *'63*, no details.

GAMMA TN Γ

Cooper, Wayne David, *'66*, no details.

TEXAS

ALPHA TX Α

Penley, Percy Alston, *'48*, March 11, 2021.
Dye, Thomas Montgomery, *'49*, no details.
Frost, Jack William, *'50*, no details.
Railey, Malcolm Richard, *'50*, no details.
Eppes, Bill Gorton, *'52*, June 11, 2007.
Gregory, Robert Kirk, *'52*, February 25, 2022.
Rennert, Carl, *'63*, April 7, 1994.
Short, Charles Gregory, *'71*, Feb. 1, 2022.
Harding, Andrew Tod, *'84*, February 20, 2000.

BETA TX Β

Mayes Jr., Wendell Wise, *'49*, Sept. 12, 2021.
Bradley, Rhea Eldon, *'50*, no details.
Anderson, Lonnie Lee, *'57*, August 29, 2021.
Dvoracek, Marvin J., *'59*, October 13, 2021.
McKimmey, Charles William, *'61*, no details.
Honeycutt, Gerald Paul, *'74*, no details.

DELTA TX Δ

Mathis, James Forrest, *'46*, April 11, 2021.
Davenport, Marc Glover, *'49*, no details.
Strait, William Lewis, *'49*, November 6, 2021.
Teague, Alton Walter, *'49*, August 31, 2012.
Pearson Jr., Vohnnie Lee, *'51*, July 21, 2019.
Vardaman, David, *'51*, August 8, 2016.
Zak Jr., Albin Joseph, *'55*, August 26, 2010.
Lavergne, Louis Hurley, *'57*, April 11, 2005.
Dunlap, Donald Dean, *'58*, no details.
Brady, James Austin, *'59*, January 10, 2006.
Givens, James Wilson, *'60*, Dec. 23, 2016.
MacHemehl, Jerry Lee, *'62*, no details.
Wolny, Ronald Joseph, *'62*, March 3, 2022.
Heme, Walter Lewis, *'85*, October 13, 1995.
Snaufer, Mark Jeffrey, *'87*, October 21, 2019.

EPSILON TX Ε

Hillegeist, Reynold Ben, *'63*, Dec. 1, 2021.
Copley Jr., Clarence E., *'73*, Sept. 25, 2003.

ZETA TX Ζ

Thomas Jr., Frank A., *'47*, August 6, 2020.
Airhart, Edmond Allen, *'82*, October 1, 2011.

THETA TX Θ

Warner, Charles Pomeroy, *'81*, Jan. 15, 2013.

UTAH

ALPHA UT Α

Watkins, Reynold King, *'44*, Aug. 30, 2021. ***Cent.***
Scott, Arden Lowell, *'45*, January 19, 2011.
Baker, Don Alton, *'52*, February 12, 2010.
Cannon, John Nelson, *'52*, July 12, 2021.
Pound, Earl Franklin, *'52*, Nov. 18, 2018.
Folsom, Jerry Binns, *'55*, January 16, 2019.
Hills Jr., Lamar Stewart, *'55*, June 10, 2010.
Wright, Darrel Kent, *'55*, March 15, 2021.
Baker, Kay Dayne, *'56*, October 18, 2021.
Green, Dale James, *'56*, June 28, 2017.
Robbins, Gilbert Leroy, *'56*, August 9, 2018.

GAMMA UT Γ

Walker, Wynn R., *'68*, June 29, 2019.

VERMONT

ALPHA VT Α

Thoma, Endre Philip, *'70*, Nov. 14, 2002.

BETA VT Β

Pyper, Gordon Richardson, *'48*, Dec. 23, 2019.

VIRGINIA

ALPHA VA Α

Whitesel, Robert Needy, *'61*, Feb. 8, 2017.

BETA VA Β

Helm, Frederick Oscar, *'49*, Oct. 29, 2005.
Stafford, Robert Brown, *'50*, May 10, 2010.
Stebar, Russell Ford, *'53*, July 17, 2018.
Leaghty, Clark Dennis, *'56*, May 28, 2010.
Pope Jr., Samuel Eliba, *'63*, Nov. 7, 2009.
Jamison, Jerry Eugene, *'68*, June 27, 2007.
Flanik, George S., *'69*, no details.
Robertson, Thomas E., *'71*, Sept. 8, 2015.
Luffman, Jared Michael, *'02*, Nov. 28, 2021.

WASHINGTON

ALPHA WA Α

Hall, George Donovan, *'46*, October 24, 2003.
Evans, Keith Allen, *'50*, January 8, 2002.
Qualheim, Bastian John, *'50*, no details.
Lybyer, Dean E., *'54*, March 7, 2003.
Westman Jr., Walter W., *'54*, May 2, 2005.
Bradley, Edward L., *'60*, July 19, 2021.
Lamb Jr., George Alfred, *'60*, no details.
Buck Jr., Arthur Edwin, *'63*, April 29, 2021.
Simon, Barry James, *'67*, no details.
Jackson, Dennis Ralph, *'70*, Nov. 13, 2021.
Booth, Larry Uwe, *'78*, July 8, 2002.
Malm, Richard Frank, *'83*, February 27, 2013.

BETA WA Β

Arntson, James Eric, *'42*, January 27, 2006.
Stein, Donald Eugene, *'42*, no details.
Higgins, Robert Wesley, *'47*, July 22, 2005.
Greene, Bruce Edward, *'50*, Sept. 29, 2001.
Endrice, Barney, *'51*, no details.
Wilcox, Ben Abbott, *'56*, March 11, 2015.
Abdul-Rehim, Samir Aziz, *'57*, no details.
Cannon, Bruce Everett, *'58*, Oct. 17, 2003.

WEST VIRGINIA

ALPHA WV Α

Miller, Betty L., *'47*, February 16, 2022.
Collins, Mike Gourley, *'50*, Dec. 7, 2021.
Britt, William Samuel, *'54*, April 22, 2017.

WISCONSIN

ALPHA WI Α

Buffa, Elwood S., *'46*, July 19, 2005.
Adler, Herbert Charles, *'47*, March 8, 2021.
Beutler, Arthur Julius, *'48*, October 30, 2021.
Andrea, John Jacob, *'49*, September 6, 2014.
Schuning Jr., George F., *'50*, March 6, 2006.
Schaefer, Kenneth Edwin, *'58*, Jan. 20, 2018.
Scorgie, Robert Mackenzie, *'60*, May 9, 2015.
Supranata, Denny, *'99*, June 5, 2006.

BETA WI Β

Fleissner, Robert Frederick, *'49*, no details.
Schneider, Gordon George, *'50*, Feb. 22, 2011.
Starich, Donald, *'53*, no details.
Wolf, David Francis, *'63*, September 22, 2008.

GAMMA WI Γ

Smith, Dallas Gary, *'77*, December 10, 2009.

WYOMING

ALPHA WY Α

Wheasler, Robert Arthur, *'53*, Jan. 27, 2018.
Sands, Daniel Granvil, *'72*, April 15, 2008.

ASSOCIATION BRIEFS

TAU BETA PI DAY 2022 RECAP

The Association would like to thank our membership for making the ninth annual celebration of Tau Beta *Pi Day* a success!

More than 30 planned alumni and collegiate chapter events were held throughout the month of March.

Four videos have been compiled with dozens of Tau Bates in their ΤΒΠ swag. Check out additional images, those videos, and summaries at *www.tbp.org/?PiDay*.

Above Left: Sporting a ΤΒΠ hoodie with a drone, **Donna M. Auguste,** *CO Β '80*, submitted this image.

Above Right: **Paul L. Eckley, P.E.,** *NV Α '75*, showing off his membership certificate and his wife's cherry pie.

The Ohio North Coast Alumni Chapter hosted a joint celebration at Top Golf with seven students from Youngstown State and Case Western Reserve University. The event was a smash hit stated ONCAC president **Shelton D. Caruthers, Ph.D.,** *LA Γ '89*.

CHAPTER STEM ACTIVITY

K-12 MINDSET PROGRAM

Special thanks to Lauren Harpold (left) for submitting the images, write-up, and for assisting students in their catapult build.

After a long hiatus, Rutgers University celebrated the K-12 MindSET Program's return to campus. On March 23, the NJ Beta Chapter hosted students from Woodbridge Township's Gifted and Talented Program. They enjoyed a tour of the engineering buildings on Rutgers' Busch Campus, a drone demonstration, and following lunch, settled in for a lesson on energy and conservation.

During the hands-on portion of the session, students designed, built, and tested rubber band catapults. Volunteers included **Lauren Harpold,** *NJ Β '23*, community service chair; **George Wenson,** *NJ Β '23*, president; **Isaac Schiftic,** *NJ Β '23*, vice president; and **Kathleen Stavole,** *NJ Β '22*, former president.

TBP HEADQUARTERS VISITORS

Ellen & Robert Styles, *AL Δ '85/'76*
Huntsville, AL; September 7, 2020

Andrew & Noy Vultaggio, *MI Ε '98/'99*
Livonia, MI; April 15, 2021

Natalie J. Griffith, *MI Ε '00*
Plymouth, MI; April 15, 2021

Nino D'Ariggo, Guest
Plymouth, MI; April 15, 2021

Lauren J. Swett, P.E., *ME Α '04*
Old Orchard Bch, ME; April 17, 2021

Crystal D. Laws, *AL Δ '08*
Huntsville, AL; April 17, 2021

Willy V. Albanes, *FL Α '71*
Huntsville, AL; April 17, 2021

Daniel T. Kruusmagi, *CA Η '13*
San Jose, CA; April 17, 2021

Vanessa Sanchez, Guest
San Jose, CA; April 17, 2021

Colleen & Steve Stramsak, *MI Ε '00/ MI Η '01*, Berkley, MI; April 18, 2021

Andrey P. Karnauch, *TN Α '18*
Dayton, OH; August 1, 2021

Rev. Richard R. Andre, *NY Κ '96*
Austin, TX; October 20, 2021

Stacey & Kenneth Martin, *NM Α '83*
Anchorage, AK; October 22, 2021

Barbara Gary, Guest
Albuquerque, NM; October 22, 2021

Joan M. Sciacca, *CA Μ '87*
Terrebonne, OR; December 10, 2021

George J. Morales, Ph.D., *FL Ε '06*
Gilbert, AZ; December 10, 2021

Mennatoallah Youssef, Ph.D., *VA Γ '04*, Burke, VA; December 10, 2021

Russ W. Pierce, *WA Α '70*
Puyallup, WA; December 10, 2021

J.P. Blackford, *DC Γ '95*
Washington, DC; February 2, 2022

WELCOME BACK AS A DISTRICT 4 DIRECTOR

Lisa C. Lombino, *NY Ν '97*, was appointed by the Executive Council as a District 4 Director to a term beginning March 8, 2022, and ending June 30, 2024. She previously served as a District 2 Director (1997-2001) and she has a B.S. degree in civil/environmental engineering from the University at Buffalo. Lisa currently works as VP of Sales Operations at American Tower in Cary, North Carolina. See a full list of ΤΒΠ District Directors at *www.tbp.org/?DDs*

STAY CONNECTED

Follow us on social media and tag us, so we can see your ΤΒΠ images using **#taubetapi**.

INSTAGRAM: instagram.com/taubetapiofficial/
FACEBOOK: facebook.com/TauBetaPiHQ/
WORDPRESS BLOG: taubetapiathq.wordpress.com/
TWITTER: twitter.com/TauBetaPi
YOUTUBE: youtube.com/c/TheTauBetaPiAssociationInc

WE NEED YOU!

AS A DISTRICT DIRECTOR

DISTRICT 1
In Boston

Join
Lauren Swett
ME A '04

DISTRICT 8
In Chicago

Join
Teresa Hutton
WI B '91

DISTRICT 13
In New Mexico or West Texas

Join
Chris Stemple
AZ A '10

DISTRICT 15
In Northern California

Join
Chris Potts
CA U '16

Read the District Director job description here: *www.tbp.org/?DDjob*

If you are interested, contact Stacey Forkner, Director of the District Program at: *sforkner@tbp.org*

Alumni Giving

Downing Club continued from page 27

NJ Γ Furtado, Victor Cunha '58
Husson III, Matthew Alexander '66
McWilliams, John Paul '65
Otterbein, Richard Charles '71
Pinto, Dick Cunha '56
Puhan, Robert '75
Reitsma, David '65
Spinnler, Gerard Francis '75
Tubello, Jeffrey '76
Tucker, John Harold '67
Vandemeulebroeke, Leon C. '89
Zierau, Siegfried Max '61
Zozzaro, John Lawrence '64
Zygo, John Peter '70

NJ Δ Brown, Geoffrey Scott '83
Coco, Elizabeth Halliday '87
Rafieyan, Kamran Lee '89
Whitesides Jr., Lawson Ewing '68

NM A Aragon, Frank Garcia '77
Bradt, David Jay '81

NM B Andrews, Mark Jay '91
Salas, Thomas M. '85
Zich, Jonathan H. '80

NM Γ Bakkom, Erik Iver '97
Rocco, Jim Robert '85

NY A Blomberg, Richard David '67
Epling Jr., William Young '83
Kundakci, Vace '73

NY B Ragonese, Louis John '56
Roberts, S. William '58
Tobin, Michael R. '87

NY Γ Bergenthal, Jon Francis '75
Bond, Paul William '72
Buck, Frederick Alan '76
Diefenbacher, Robert Henry '59
Dupier, Dennis George '61
Eckstut, Michael K. '73
Huie, Joseph Albert '52
Jennings, Robert Edgar '63
Kaufman, Arthur Leon '50
Lewandowski, Michael '96
McCormick, Peter Elliott '80
Mucher, Craig Allen '82
Natale, Michael Robert '02
Schrier, Steven Brett '82
Svendsen, Harold Oliver '58
Veldman, John Peter '70
Wadsworth Jr., Winthrop '76
Weader II, Richard Jerome '64
Zmroczek, Leon Anthony '78

NY Δ Frantz Jr., Rolf A. '66
Goldstein, Steven Mark '81
Humphrey, John Morgan '67
Johnson, William Clifford '54
Kovacs, Sandor Janos '69
Kuehne, Don L. '73
Livingston, Laura Jane '73
Logan, Joseph Skinner '56
Reth, Thomas Bernard '64
Reynolds, David Allen '71
Roseman, Ann Lynn '81
Schwenker, David William '67

NY E Brodsky, Wesley G. '71
Dobbins, Bob Mark '73
Febesh, Melvin '47
Grace, John Thomas '55
Hendrickson, John Laurence '71
McConnell, Donald Patrick '71
Ueber, Russell Charles '61

NY Z Gersten, Marvin Charles '60
Grail, Thomas Joseph '62
Kaczmarek, Richard '73

NY H Boland, Peter Lewis '69
Kaplan, Howard Ronald '55
Kern, Frank John '70
Welk, William '79

NY Θ Baldwin, Alan Richard '70
Campana, Michael Albert '94
Dec, Eugene Bernard '72
Grubb, Mike Alan '78
Newman, Mitchell James '81
Thomas, John Anthony '86
Ziki, Ann Louise '86

NY I De Fazio, Michael Joseph '67
Grant, Richard Joseph '88
Kalian, Arianna '88
Levy, Rami C. '92
Teitelbaum, Howard Allan '79
Trentacosta, Joseph Daniel '69

NY M Bunk, Donald Samuel '55
Montgomery, Michael Earl '75
Rest, George B. '75

NY N Barnes, Robert Edward '84
Feldman, Scott '75
Humphrey, David Kenneth '67
Kocher, Lawrence Harold '67
Kuberka, Gregory '80
Kuroski, Anthony '77
MacNeil, Randall Lewis '69
Mann, Michael '77
Notaro, Frank '57
Riebling, Robert William '60
Zarchy, Andrew Stephen '73

NY Ξ Defelice, Nicholas James '77
Mohan, Marguerite Anne '04

NY O Doynow, Donald '75
Hofmann, Linda '79
Jankowski, Cecelia '81
Kadysiewski, Stephen Joseph '76
Lumish, Stan '78
Putnims, Zigmunds Andis '78
Ribuffo, Peter Vincent '79
Venezia, Frank Bennett '90

NY Π Barber, R. Todd '87
Turner, Clayton Phillip '90

NY P Abreo, Leslie Anthony '97
Cortina, Thomas J. '87
Lubrano, Michael '80
Wong, Wai Kin '85

NC A Alexander, Ralph Bell '76
Allen, William Dowell '88
Blair, John Ramsey '77
Capps, Dickson Michael '75
Doggett, William Ray '86
Frierson III, J. Lawrence '66
Morton, Rodney Eugene '84
Teague, Lisa Jones '81
Weirs, Gregory '91
Wynegar, Kathleen M. '86
Younts III, William Ernest '79

NC Γ Fischell, Bob E. '51
Powell, Bayard Lowery '76
Prevatt III, Richard M. '77
Wine, Charles Joseph '59

ND A Dahlin, Earl Charles '58
Fay, James Maurice '82
Nyhus, Orville Kenneth '63

ND B Dehen Jr., James John '80
Jesh, Mark Steven '86

OH A Bacevice Jr., Anthony Edward '70
Beach, Robert Chester '56
Drier, Delmar Waldemar '52
Hoh, Ka-Pi '84
Holcomb, J. Eric '82
Koch, Carl Conrad '59
Kownacki, Edward Joseph '67
Oblak, John Michael '62

OH B Allspach, Eugene Robert '70
Burger III, George Dean '68
Dobashi, Harry Hideo '68
McCune, Larry Clinton '63
Oliver, Fred William '65
Olt, Richard A. '80

OH Γ Del Tosto Jr., Joseph J. '87
Del Tosto, Judith Mary '87
Edwards, Dale C. '61
Heath, J. Allen '78
Johnston Jr., Robert Paul '67
Kerstetter Jr., John Howard '49
March, Michael Ross '85
Price, Ted Walter '59
Riedel, Nelson Andrew '67
Schroeder, Michael Alex '95
Steiner, William Samuel '63
Stumbaugh, Gary Allen '66

OH Δ Davidson, Lee A. '65
Kurzen, Mark R. '71

OH E Evans, John Arthur '59
Kubinec, William Richard '67

OH Z Babula, Maria '89
Busbey, Bruce C. '84
Dembrow, David Alan '82
Herman, Madison Rachelle '13
Novak, Eugene Clark '59
Rober, Kenneth Jerome '68

OH H Bloom, Richard Larry '74
Breuder, Andrew Joseph '70
Clarke III, DeFrance '81
Freyer, Gustav John '60
Gilbert, John Ellis '70
Jumper Jr., George Yount '66
Kelso, Tom Sean '88
Palazotto, Anthony Nicholas '55
Schmoll, Joseph Herman '81
Wolfe, Stephen A. '85

OH Θ Decker, John William '65
Evanzia, Gregorio Patrick '64
Kamowski, Dennis Daniel '73
McEldowney, Ralph A. '87
Usleman, Robert T. '71

OH I Schilling Jr., Walter William '97

OH K Brattoli, Mark A. '79
Carver, Robert Michael '87

OH Λ Chegar, John Thomas '90
Gwin, Russel Willis '85
Hallochak, Andrew John '77
Suhar, Richard Allen '83

OH M Montgomery Jr., William Lee '86

OK A Brown, Leslie Wray '70
Dotson, Neil A. '84
Duke, Chris '83
Hysinger, T. '63
Leaman Jr., Gordon J. '73
Norris, Thomas Gilbert '56
Wolf, Jerald Michael '88

OK B Perrault Jr., John Edward '75
Schmude, Donald Jude '86
Sherrill, Shirley Whitmore '82

OK Γ Diggs, Robert Allen '74
Hanes, Larry Lewis '76
Sneed Jr., Elbert Lee '79

OR A Loughmiller, Bert Edward '64
Sias, James Frederick '57

PA A Kankelborg, Carol C. '86
Knox, Robert Seiple '53
Lentz, Robert Raines '65

Eaves Club
Darren C. Rice
NJ B '91
Always happy to support ΤΒΠ, who provided leadership opportunities to me and others at Rutgers University.

Eaves Club
Jerry M.L. Mendel, Ph.D.
NY Z '59
Tau Beta Pi gave me a great head start. It's time to give back.

PA Α
Melvin, William Larkin '89
O'Hara, John James '73
Ortlieb, John Richard '53
Pondo, Fredric '75
Ruth, Richard Lloyd '68
Vosseller, Kenneth Franklyn '62

PA Β
Andrichak, Stephen Michael '58
Bradt, Andrea '76
Carretti, Katherine Grace '84
Gibson, John Parke '64
Huber, Ronald Karl '70
Kardos, John Louis '61
Kutz, Scott Allen '71
Matthias, Tracey Dawn '89
Pasko, Thomas Joseph '59
Sonsteby, Jon Michael '95
Weston, Matthew Wayne '93
Wilt, Kenneth Douglas '84

PA Γ
Riedel, Frederick William '68
Rudolph, Anna Jane '79
Sack, John Stuart '75
Wierzbicki, Jeannette Marie '80

PA Δ
Baxley, John Hirst '88
Black, David L. '83

PA Ε
Amman, Richard Walter '64
Guest, Frederick Charles '59
Krein, Philip T. '78
Kulicki, John Milton '65
Matsumoto, Tadashi Campbell '60
Nolan, Christopher William '86
Schroeder, Karl Richard '49

PA Ζ
Aepli, Theodore Carl '62
Chatman, William Charles '52
Mergel, Joseph John '72
Shaffer, David Eugene '78
Silvasi, John J. '70

PA Θ
Coyle, Todd Frederick '77
Dever, Patrick Brian '94
Fozo, Geza '63
Girondo, Dominic Peter '70
Hilditch, John Michael '83
Lacz, Walter '69
Norris, Clinton Joseph '61
Ryan III, Arthur Peter '65
Threston, Joseph Thomas '57
Volkay-Hilditch, Christine M. '83
Woods Jr., Howard James '77

PA Ι
Dehoff, Gregg Alan '86
Lorenz, Bryen E. '76

PA Λ
Anselm, Gregory Alan '81
Francisco, Amy Denise '99
Hovanec, Andrew Stephen '58
Kvitkovich, James Francis '81
Mozelewski, Stephen Francis '86
Musselman, Thomas Andrew '73
Taylor, Thomas Ray '73

PR Α
Irizarry, Arcelio '86
Perez, Juan A. '78

RI Α
Foster, Nigel John '81
Pezzutti, David August '69

RI Β
Fletcher, Gilbert Alan '68
Hurdis, David Albert '62
Knickle, Harold Norman '62
Lamoureux, Suzanne May '82
Silva, Ronald Ernest '74

SC Α
Barnwell Jr., Thomas Osborn '69
Gray Jr., Blaine Edward '72
Hunter, James Richard '85
Johnson III, Wilson U. '82
Mims Jr., Paul Wilson '71
Moose, Thomas Caswell '72
Pitts, Thomas Eugene '78
Prothro, Joseph E. '63
Rast Jr., Heber Edward '63

SC Β
Haggerty, N. Kent '72
Hidlay, Charlene Marie '96
Lang, Christine Marie '80
Walden, Gary R. '81
Wilson Jr., Robert Lewis '69

SC Γ
Adkins Jr., Henry Grady '66
Cochrane, Jerry Wilson '55
Gooley, Thomas Joseph '55
Gustafson, Richard Alexander '63
Kelly, Robert Thomas '86
Kennedy Jr., Thomas William '64
Marbois, Matthew Clark '81
Pastrick, Harold Lee '58

SD Α
Byg, Jerald Norman '72
Kroetch, Christopher Allen '06

TN Α
Armentrout, Daryl Ralph '65
Cashion, Gregory Lee '79
Evans, Colby Russell '94
Hunt, Roy Joe '67
Jackson, Karen Elizabeth '81
Jenkins, Alvin Leigh '61
Lowe, Robert Alexander '70
Meriwether, George H. '74
Moore, Terry M. '67
Peugeot, Richard Scott '60
Tomlinson, Edward Thomas '72

TN Β
Gray, William Harvey '70
Morton, Wayne King '63
Zabriskie, Kenneth Andrew '80

TN Γ
Buell, Phillip Ray '95
Dooley, Joseph Brooks '70
McCormick, Jack Randall '64
McDonald, Gary Haywood '77
Moyers, Robert Lewis '05
Thompson Jr., W. William '68

TN Δ
Luttmann, Lisa M. '82
Luttmann, Mark Joseph '82

TN Ε
Nolte, Jennifer Jan '77
Nolte, Paul Allen '77

TN Ζ
Rethwilm, Craig Richard '92

TX Α
Crippen, Robert L. '60
Garrett, Darrel Wayne '70
Kopecky, Johnny Anthony '65
Marshall, James L. '72
Meers, Steven Wayne '72
Nix Jr., Cecil Anson '57
Setliff, Sanford Ray '69
Whitesides Jr., John Lindsey '65

TX Β
Baker Jr., Marvin Elroy '86
Easterday, Mark Louis '84
Hoiberg, John Arnold '64
Jain, Ravinder K. '71
Marasco, David Foster '87
Moss, Michael William '83
Smith, David Lewis '71

TX Γ
Fisher, John David '70
Hagler, Marion Otho '63
Horn, Kenneth Porter '61
Mohr, David Norman '72
Smith, Fred Lewis '62

TX Δ
Boedecker, Tom Jay '64
Boortz, Marielle Jean '77
Brittan, Charles Laury '65
Coman, Paul Daniel '03
Eng, Ronald Wey '71
Hall, Robert Arlin '63
Herring, Robert Lee '65
Hillin, Thomas A. '69
Johnson, Vance Clay '78
Kasch, Vernon Ray '73
Kramm, Robert C. '81
Linn, William Ray '81
Mason Jr., John Michael '81
Massett, Donald Allen '70
McClellan III, W. Roy '74
Nolen, Kenneth Bernard '57
Simpson, Stancy Jean '79
Vittetoe, James Edward '67
Woram, Brian James Anthony '81

TX Ε
Herrmann, Edwin Peter '67

TX Ζ
Broussard, Lance Armance '97
McCaleb, Jesse Earl '64

TX Η
Godwin, Albert Eugene '84
Hightower, Janice M. '67
McBay, Michael Raymond '73
Schaeper, Wilfred H. '76
Williams, Larry Donal '80

TX Θ
Trejo, Pablo Antonio '00

TX Ι
Harris, E. Douglas '83

TX Κ
Daniels, Jerry D. '79
Jolley, Lawyer Curtis '79

TX Λ
Carter, Jason Oliver '87
Carter, Norhanani B. '87
Garcia, Danny '85

UT Α
Patrick, William Moss '74

UT Β
Thompson, James Rowley '76

UT Γ
Torgesen, Greg Lau '80

VT Α
Bouchard, Donald Raoul '81
Goddard, Eric Hapenny '86
Wilson, Adam Bertrand '89

VT Β
Clark, David Thomas '81

VA Α
Barrell, Charles Davidson '70
Conway Jr., George Franklyn '70
Cosby, James Gordon '61
Dye, Michael Loren '87
MacKay-Smith Jr., Alexander '59
Mizelle, Peter Privott '60
Price, Michael Glendon '74

VA Β
Mann, Richard Jeffrey '75
Pearson, Glen Hamilton '71
Powell, James Davis '77
Ray II, Robert E. L. '74

VA Γ
Youssef, Menna Mohamed '04

VA Δ
Brenner, Joseph R. '55
Bunch Jr., Jennings B. '50
Michael, Glenn P. '66

WA Α
Brewer, Brian J. '82
Follett, Mark Samuel '74
Fosberg, Theodore Michael '59
Kinell, Donald Karl '64
Larkin, Robert Semple '61
Matteson, James Harris '66
Melton, Ronald Benjamin '77
Reavis, Gretchen Marie '84
Rising, Jerry Joseph '61
Schwam, Susan Elaine '88
Steinhauer, Loren Clifford '66
Strickland, Elizabeth Ann '77

WA Β
Aaserude, Robert Gerald '84
Anderson, Kyle Joseph '03
Groat, J. Everett '94
Hyde, Gary M. '64
Turi, Michael Allen '07
Williams, Harvey Ray '59

WA Δ
Burton, Brian Carver '97
Campion, Paula JoAnne '00

Continues on page 43.

Executive Council MEETING MINUTES

These are summaries from Executive Council (EC) Meetings — September 2021 through December 2021.

September 16, 2021
Virtual

The Council discussed cancellation/postponement of the 2021 Convention. Executive Director Gomulinski presented his report to the EC regarding the state of COVID-19 in Tennessee, the current registration counts for the 2021 Convention, and the potential expenses of cancellation. President Morales inquired when the contracts with the convention center and lodging were signed and Mr. Gomulinski noted that each contract was signed in 2019. Councillor Peterson encouraged keeping alternative plans in a separate discussion from the cancellation to vote. Councillor M. Youssef noted that the estimated airfare may not include tickets purchased by the Association Officials. Councillor Peterson moved that the in-person Convention, scheduled for October 21-23, 2021, in Knoxville, TN, be cancelled and postponed to a future date. Mr. Gomulinski noted that the present recommendation allows Headquarters options to set the best timing for a Knoxville Convention. After discussion, the Council approved to postpone/cancel the 2021 Convention.

Councillor M. Youssef discussed various options for the allocated dates for the 2021 Convention including a hybrid EC meeting and/or an Association Officials meeting. The Council discussed the advantages and disadvantages of holding a large scale in-person Association Official's meeting and the Council will discuss at a future meeting.

September 20, 2021
Virtual

The Council approved the following reappointments: **Phiwat Klomkaew,** *AL E '18*, and **Scott M. Trocchia,** *DC Γ '11*, to the Chapter Development Committee for a term beginning 7/1/2021 and ending 6/30/2024.

Alex Cross, Assistant Director of Member Services, delivered a verbal report to the Council. Amy Chaney, ΤΒΠ Bookkeeper, heard back from Visit Knoxville, recommended to postpone to 2023 due to the football schedule. If postponed, we will be able to take advantage of the hotel that is currently undergoing renovations. Email announcement is on hold until tomorrow pending more information from hotels. Mr. Gomulinski has two drafts to chapters that are ready to send and when approval is received, he will send out both. The impression is that postponing convention center rental will not have a penalty, but need to confirm.

The EC discussed possibilities for Executive Council elections. President Morales moved to charge the Convention Program Planning Committee to provide assessment on the feasibility of a one-day virtual meeting for EC elections and alternatives. Councillor Peterson moved to add a two week response time and the amendment was approved and after discussion, the Council approved on a voice vote.

October 4, 2021
Virtual

The Council reappointed **Harry W. Lange,** *MI Z '75*, to the Trust Advisory Committee for a term beginning 7/1/21 and ending 6/20/24.

The Convention Program Planning Committee met and recommended not holding an alternative virtual event. Executive Director Gomulinski presented his recommendations regarding the 2021 EC elections and based on the recommendations, the Council took no action on scheduling a virtual event and as a result, elections and all other business will be deferred to the next in-person Convention scheduled for 2022. Mr. Gomulinski presented his recommendations for the business originally designated for the 2021 Convention. The Council discussed how to proceed with the EC meeting originally scheduled for October 20 in-person, in Knoxville, TN. Mr. Gomulinski updated the Council on the ongoing discussion with the facilities in Knoxville, the possible timing of rescheduling, and the possibility of penalties.

October 25, 2021
Virtual

The Council awarded a Distinguished Service Award to **Jason Rogan,** *NY P '92*, for 28 years as a District 2 Director. The **John C. Schmuhl,** *MI E '71*, Professional Development Fund was established.

Councillor Sciacca presented her proposals to adopt a virtual EC election process. The Council discussed the timing of sending a potential amendment to the chapters. Councillor Fable moved to commit the proposals to the Governance Committee and the Council approved on a voice vote.

Councillor Sciacca presented her suggestions to address the candidates of the 2021 elections. The Council discussed having the candidates fill positions on committees to engage them until the next elections. Councillor M. Youssef will advertise the committees to the candidates after the Association's officer election is complete.

November 15, 2021
Virtual

The Council awarded a Resolution of Appreciation to **Suzette Morales,** *NC A '09*, for 2 years as a District 4 Director.

Executive Director Gomulinski provided the following updates: the audits for FY19 and FY20 are well underway; the AMS selection process has narrowed down to two finalists and the process will continue after Thanksgiving; the annual report will be available in the Spring 2022 issue of *The Bent*; the Council was updated on the status of the Convention postponement consent, and Headquarters staff reviews are ongoing.

Councillor DeLin noted progress has been made on determining who will lead the DEI Committee's subcommittees and official appointment requests will be submitted soon to the EC.

Councillor Peterson moved to accept the revision to PA 01 Documentation Control and the Council approved on a voice vote.

Election of Executive Council Officers:

Rachel K. Alexander was elected as Vice President of the Association and the Council approved.

Councillor G. Youssef moved to elect Mike Peterson as Secretary of the Association by acclimation, and the Council approved.

Councillor G. Youssef moved to elect Russ Pierce as Treasurer of the Association by acclimation, and the Council approved.

The Executive Council Election proposed resolution was referred to the Governance Committee for further discussion.

Councillor Sciacca reviewed the current state of the Strategic Plan and highlighted the committees that are still missing goals.

Councillor Peterson moved to appoint Councillor M. Youssef as the primary representative for the Qatar and UAE inspections. The Council identified back-ups for all inspections. Councillor M. Youssef moved to approve the amended Proposed EC Representatives

for Inspections in 2020 and after discussion, the Council approved.

The Council discussed the practice of maintaining confidentiality of EC business and Councillor G. Youssef moved for the Governance Committee to look into crafting a policy covering Council members who violate the EC Code of Conduct up to and including expulsion, and the Council approved on a voice vote.

December 11, 2021
Virtual

Executive Director Gomulinski reported: the AMS core project team will meet next Wednesday with a final recommendation coming in January for the Council; auditing for the previous fiscal year and of net assets are well underway; staff reviews are nearly completed with raises in place before the end of the year; and staff completed an organization assessment to help identify and address issues.

Councillor Sciacca reviewed proposals for the process and appointments to fill Councillor Fable's vacant EC position. Councillor Sciacca moved to approve the appointments for the Advisor Membership and DEI Committees.

Councillor Pierce moved that the inspection team for Texas A&M University, Qatar, and American University, Sharjah, comprise the 2022 Association officers. The motion did not receive a second and failed to carry. For both domestic and international inspections, Mr. Gomulinski will identify dates and inspection team members based on availability of petitioning schools and team members.

Councillor Sciacca moved that the General Revision Phase 2 be sent to the chapters in accordance with Association Constitution Article XV, Sections 1(b) and 2(b) by ballot with a return date no later than September 1, 2022. After discussion, the motion failed to carry.

Call for Council Nominations

The 2022 ΤΒΠ Convention will elect three members to serve on the Executive Council (EC). Members interested in serving on the EC must be nominated by a collegiate or alumni chapter by July 1. The Executive Director can work with candidates needing a formal nomination.

Candidates with experience in a variety of functions—management, finance, teaching, business, research, etc. and those with knowledge in the areas of image enhancement, branding, fundraising/development, alumni relations, and advising collegiate chapters are strongly encouraged to consider running. Read the position description and letter for more information at: www.tbp.org/?ECjob. If you know of a qualified candidate or are interested in learning more, review the letter and send nominations to ΤΒΠ HQ.

JOIN US FOR THE 2022 CONVENTION IN KNOXVILLE, TENNESSEE

September 29 - October 1 at the Knoxville Convention Center
Hosted by the TN Alpha and Great Smoky Mountains Alumni Chapters

More information is available at: www.tbp.org/convention.cfm or, contact convention@tbp.org, with any questions.

FEBRUARY 1 — APRIL 30, 2022

Alumni Giving

Downing Club continued from page 41

WV Α Boggs, Mark Steven '80
King, Staci Renee '96
Lilly, Larry Joe '64
Ramsey, Walter Jackson '74
Schuler, Arthur Kurt '71
Skujins, Ojars '68
Spence, Peter Larkin '80

WV Β Bennett, Chris John '06
Lorkowski, Timothy Walter '93

WI Α Buehring, William Arthur '67
Goehring, Henry G. '57
Hoffman, Carl A. '85
Johnson, Joseph William '79
Martell, Donald Louis '60
Nesbitt, John David '82
Schuh, Peter O. '63
Senty, James Anton '60
Trnka, John Thomas '69
Zemke, Wayne Phillip '64

WI Β Kleinvehn, Lynn Allen '65
Kriofsky, Tom Allan '60
Lugthart, Cornell William '51
Marcouiller, Roger Albert '60
Pelt, Thomas Eugene '70
Penlesky, Richard J. '73
Petrie, Dennis James '78
Schiedermayer, Ruth Hines '81
Simon, James Bernard '65
Sommerville, Martin Glenn '94
Swiontek, Thomas John '69

WI Γ Stachowicz, Robert Walter '70

WI Ε Hubmann, Martin Thomas '13

WY Α Dwan, Terrence Edward '68
Galles, Daniel Joseph '74
Riley, Robert Hugh '82
Scharton, Craig Allen '85
Simon, Ronald Wayne '81

Letters continued from page 3.

I've put together and attended a number of climate change focused programs and worry at the slow pace we're going to address this calamity. I always think a big part of the path forward is to provide fossil fuel workers (oil, coal, and gas) a just and equitable transition to new jobs. This isn't just an education item, but a need to pay workers an equitable salary while providing the opportunity to find a different job. It hurts my heart to hear coal workers talk about wanting to keep their jobs because they need the money and enjoy the camaraderie with their fellow workers, while not acknowledging the risks of the work that surely shortens their life span. They and others need a workable and equitable alternative. Engineers in this field need a livable and equitable transition option, too.

Keep up the great research and writing.

Ann Nye, *CA Γ '86*

Decarbonizing the Atmosphere

I read your article and wanted to bring a few things to your attention:
The article states that the U.S. generated 4TWh of electricity in 2020. This is incorrect by a factor of 1000. The U.S. generated 4,000 TWh of electricity in 2020. I am surprised that the editors did not catch this error, especially given that three paragraphs earlier the correct order of magnitude is used to describe 688TWh is somewhere between Brazil and Japan's annual power consumption.

For discussions such as in the "Sequestering the CO_2" section, I would suggest flipping the framing to focus on the need for geologic storage for the most part, and utilization where those opportunities exist. Even though most of the CCUS to date here in the U.S. has been accomplished with EOR as a use case, on the grand scale of our climate challenge we will need to focus on geologic saline reservoir storage.

Jarad Daniels, *KS Γ '94*

Decarbonizing the Atmosphere

Before engaging on the below 'tirade,' I must admit to admiring Trudy Bell's articles in a number of different publications for many years. They are generally scholarly, well-researched, insightful (sometimes "inciteful"), and entertaining. This carries to the Spring 2022 issue — especially the sequestration methods and cautions described. I do, however, note that most of the source material for why we need sequestration of carbon dioxide is from sources such as the Intergovernmental Panel on Climate Change (IPCC), and others who appear to me to be biased. I am afraid that we are being "stampeded" into spending trillions based on controversial, if not downright faulty science and computer simulations. We may also be relegating major parts of the world (Africa, etc.) to permanent third-world status. Per the proponents of anthropogenic climate change, we must act fast or be ruined — this has been the clarion call for many years, even though several "doomsday" dates have already passed.

Being a casual student of the Global Climate Change (GCC) "saga" from the 1970s — first cooling, then warming, then GCC (covers both) — has shown me that the "science" is ***not*** settled. Consensus is not science, especially when the consensus is within a very insular group of mostly academics, self-proclaimed (and sometimes hypocritical) environmentalists, and government types. A very little math based on readily available figures from a web search reveals the following. The percentage of the atmosphere that is carbon dioxide is 0.0004. The percentage of atmospheric carbon dioxide that is the result of human activity is 0.03 or 3/100. Multiply these two numbers to get the percentage of the atmosphere that is carbon dioxide caused by human activity. The result is 0.0004 x 0.03 = 0.000012 or 0.0012% (some checking about results in variability in this final number, but it is less than 0.002% at worst). Compare that to the average percentage of the atmosphere that is water vapor, which is (varies) roughly 2.5% — with most of that near the surface. Water vapor and clouds account for 66% to 85% — some claim 90+ percent — of the greenhouse effect, compared to a range of 9-26% for carbon dioxide. Note also the ratio of percentages of water vapor to carbon dioxide (2.5/0.0012 > 2,000). For me, it is hard to believe this small percentage change in CO_2 is affecting the climate much, given the other factors. Beyond this, there is widespread disagreement as to whether the temperature rose first or the CO_2 concentration. Also, there is some linkage between the two and also some positive feedback and "collapse" cycles in both temperature and CO_2 levels. There are also graphs of temperature over the eons showing as much as 10 degree C temperature swings and 100 ppm CO_2 swings (last one about 100,000 years ago). Granted, studies and reports vary greatly, but the variability is there and is cause for concern when the IPCC pushes only their scenario as fact and world leaders, etc. accept it. Many of the doomsday predictions are the result of computer simulations.

The web version of the *Encyclopedia Britannica* lists the most "Notorious Greenhouse Gases" in decreasing order — water vapor, carbon dioxide, methane, surface-level ozone, and trace gases produced by industrial activity. The various climate accords and protocols completely discount the effect of water vapor — the most effective — so much for science. Water vapor would be an amplifying greenhouse gas; more heat trapped by water vapor results in higher temperatures which results in more water evaporating and so on. Carbon dioxide would not have anywhere near this amplifying effect but would increase due to higher temperatures (out-gassing from warmer oceans). Variations in solar output are also ignored — I discount this as the results depend on the group reporting. GCC proponents say there has been no increase in sun output and others (usually labeled "deniers") say, yes, the sun output has increased. All of the above begs the question of why we are so concerned with a tiny fraction of the atmosphere that is carbon dioxide (and methane, etc.) and not concerned with water vapor. Methinks the "developed" world has quite properly rid itself of real pollutants such as oxides of nitrogen and sulfur and the enviro-zealots need something else to pick on. Admittedly, water vapor is nearly impossible to control, so let's go for the next best one — carbon dioxide. Incidentally, carbon dioxide is needed for plants to grow. We could "fix" this problem (a non-problem, in my opinion) by going to nuclear power and a hydrogen economy.

I suspect the powers that be — governments, environmental types, human apologists — don't want to solve problems except by the masses of humanity "living less" especially those of us in the industrialized and relatively free west. In my opinion, this is the latest ploy by would be-totalitarians to remove our freedoms and evolve a society with two classes: a relatively small number of elites who will live "wealthy and westernized" and the rest of us, who will live as serfs and serve those elites. There are two kinds of enviro-zealots. The first is the "true believer;" the second is the malefactor willing to take advantage of those true believers for their own purposes. I have not met many honestly true believers, as evidenced by their behavior. Most seem to be in the category of "do as I say, not as I do," so they are malefactors, I think. There are also many — a majority — environmentally responsible people who want to live their lives free of government interference. I sense hypocrisy — mostly from governments and various environmental organizations. I don't doubt there is climate change; the Christian Bible records vast forests in Lebanon, a fraction of which exist today. Also, Googling the climate in say, Africa, reveals that science has determined that 6,000 years ago it was pretty lush there compared to the desert conditions that prevail today. No

industry back then, so I maintain that the present desert was not caused by human activity. My conclusion is that today's "climate criers" are following in the footsteps of earlier predictors of disasters that didn't happen.

I do heartily agree with Bell's comments regarding "flaring" (burning) of gases at refineries, etc. That has always impressed me as a waste. Also, the use of blockchain and the "mining" thereof (Bitcoin, etc.) is a horrible waste of resources, both energy and human, and it is expected to worsen over time. There are, by my reading, entire power plants in China that do nothing more than feed these mining operations — and some of these are lignite (brown coal) plants which are extremely dirty.
I believe that the article by Bell misses one way to "sequester" carbon dioxide — make things out of it — buildings, cars, airplanes, etc. I would think that carbon composites could use a lot of CO_2. My tongue-in-cheek fear is that stripping the carbon from CO_2 might result in an enrichment of the atmosphere with extra O_2 — would that become a new pollutant?

John D. Foell, P.E. (ret.), *NY Θ '77*

Baseball Rule Change

I heartily disagree with the author about changing the rule about the runners lane. It is a good rule and should be enforced vigorously. The minuscule advantage he calculates for the runner by running a straight line from the batters box does not override the potential for injury.

Many years ago, I was playing first base at an Army base when a batter hit a ball toward an infielder who threw it toward me. Just before the throw reached me the runner, who had taken a straight line from the batters box, barreled into me at full speed. Fortunately, no permanent damage. The umpire correctly called the runner out for not running in the runners lane.

I once saw a game where they used an oversized first base bag that extended into the runners lane to prevent the need for the runner to tippy toe to the bag as the author describes it. And the rule was enforced there. Good idea.

Baseball is not a contact sport. Keep the rule. Enforce it. Vigorously.

Bernard E. LaPorte, P.E., *RI B '58*

Decarbonizing the Atmosphere

The article was very interesting, but it failed to mention that the science on the effect of CO_2 emissions on warming of the Earth is far from settled. While scientists on both sides of the issue agree on many scientific facts concerning the effects of increasing atmospheric CO_2 levels, ie. CO_2 is a greenhouse gas.

There is major disagreement on the amount of warming that any increases will cause? The United Nations IPCC bases it's future predictions for atmospheric temperature increases on computer models. These models have failed to accurately predict the temperature increases observed over the last three decades based upon both actual weather balloon and satellite data. One of the major issues is that of what is called "positive feedback." Since water vapor is by far the most prevalent greenhouse gas, the models assume that small increases in CO_2 trigger increases in surface water evaporation which in turn cause the major portion of any atmospheric temperature rise. The problem is that weather balloon data over the last 60 years show no increases in atmospheric humidity. This a major issue that needs to be resolved, along with several other major technical issues such as the effect of the sun.

The article also correctly states that the United States CO_2 emission reduction target is 80% by 2050. What it fails to mention is the baseline year of 1995 from which this reduction must be measured. The effect is a staggering 97% reduction in actual emissions. Many economists who study the effects of energy cost on GDP predict this 97% reduction will bring the U.S. economy down to the level of some current third world countries. Given these facts and that we are currently seeing some countries starting to weaponize energy supplies and costs, we need to carefully review our current energy policy direction as well as the speed of implementation.The policy direction we take will involve huge capital expenditures and time. If we are wrong, we may have little time to recover. There is a reason why our global competitors are not moving down the same path we are currently on. Higher energy cost means higher manufacturing cost and less USA competitiveness, good for them and bad for us. What is currently happening in Germany will hopefully be a wake up call for U.S. energy policy.

Edmund J. Piasecki, *MI E '69*

Decarbonizing the Atmosphere

The article in the most recent issue by Trudy Bell regarding decarbonizing the atmosphere was very interesting. However, I have some comments about this subject that I would like to make.

Late in the article Ms. Bell mentions hydrogen-powered vehicles, and rightly highlights the fact that hydrogen is currently produced from fossil fuels and the emissions of that process, even with carbon capture and storage, could be greater than the emissions from using natural gas as fuel.

The other process that uses electrolysis to produce hydrogen from water is considered green and has no emissions, unless the electricity used for the electrolysis comes from fossil fuels. My home state of New Mexico is pushing to be a hydrogen hub, as are other western states. The issue I have with this approach is both processes need water to make hydrogen, and the western United States is currently and has been in a drought situation for many years. It makes no sense to me to use water, which is such a precious commodity, to make hydrogen.

Another point that is rarely mentioned is that the combustion product of using hydrogen as a fuel is water vapor. Water vapor is the most abundant greenhouse gas in the atmosphere. It is not as effective trapping heat as carbon dioxide and methane, but it does trap heat. One has only to look at the small differences between the daily low and high temperatures in our coastal areas where the humidity is high to see that effect.

I will admit up front I take the reports by the IPCC and other climate groups with many grains of salt. We have been told for many years the end is coming if we do not change our ways and reduce carbon emissions, but so many of the dire predictions have not come through. The ice in the Arctic has not disappeared and polar bears have not gone extinct. An English climate scientist predicted several years ago that English children would never see snow again, then three years later England had one of the heaviest December snowfalls in thirty years.

Finally, I take serious issue with the weight that is put on the "scientific consensus" regarding climate change. As far as I am concerned, a consensus has everything to do with politics and very little to do with science. One has only to look at past examples to see how weak they have been. Many years ago, there was a "scientific consensus" the world is flat. It was proven very wrong. Later there was a "scientific consensus" the sun revolved around the Earth. The great scientist Galileo was put in prison because he dared to disagree and state the Earth revolved around the sun. He was proven very correct. More recently, there was a "scientific consensus" the atom was the smallest particle of matter. Since then, physicists have discovered many sub-atomic particles.

If we are going to spend trillions of dollars and disrupt the economies of our country and the world, we need to be very sure it is necessary to decarbonize. I am not convinced it is necessary at this time, and we need to proceed very slowly.

Jeff Peace, *NM A '76*

ALUMNI NOTES

Your fellow Tau Bates are interested in news about **you**.

ALABAMA EPSILON '06

Dee Anne Odom P.E.

Dee Anne was selected as a member of Mobile Bay's 2022 Class of 40 Under 40. She is a distribution support manager at Alabama Power and ΤΒΠ Scholar (2005), former ΤΒΠ Association Official, and past AL Epsilon Chapter advisor and president. Her B.S. degree is in electrical engineering from USA.

ARIZONA ALPHA '17

Jason N. Keatseangsilp

Jason is ranked No. 2 nationally in men's wheelchair tennis singles. He earned his B.S. degree in biomedical engineering from the University of Arizona after injuring his spinal cord in a rappelling accident his senior year of high school. Currently, he's enrolled in a master's program at Johns Hopkins Univ.

CALIFORNIA CHI '15

Lauren N. DuCharme

Lauren received the Recent Graduate Award from Cal State Fullerton, where she earned her B.S. degree in mechanical engineering. Lauren is a fault protection systems engineer at NASA's Jet Propulsion Laboratory working primarily on R&D for Mars technologies. She is a past CA Chi Chapter VP and president.

INDIANA BETA '92

Kevin W. Gilbert Ph.D.

Kevin recently retired from the U.S. Air Force after 27 years of service and has started working at NASA Goddard Space Flight Center in Technology Management for the Mission Resiliency & Protection Program. He was awarded the U.S. Air Force Senior Military Engineer of the Year Award in 2014.

IOWA ALPHA '19

Maktoom Alseiari

Maktoom tragically passed away in a car crash in 2020. He graduated with a chemical engineering degree and was a citizen of the United Arab Emirates. His country has endowed a scholarship at Iowa State University in his memory that will support students who participate in the study abroad program that he was heavily involved in.

MARYLAND DELTA '22

Joshua D. Slaughter

Joshua received a 2022 Marshall Scholarship — becoming only the second recipient in UMBC history. He is majoring in computer engineering, will pursue his Ph.D. in informatics at Univ. of Edinburgh, has a goal to advance equity in the developing field of personalized medicine, and serves as ΤΒΠ chapter rec. secretary.

MASSACHUSETTS EPSILON '22

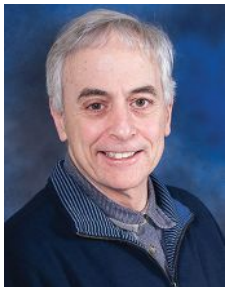
Regan E. Kelly

Regan is a recipient of the 2021 Education Corporation President's Scholarship from the American Council of Engineering Companies of Massachusetts. She is pursuing a dual B.S. and M.S. degree in civil engineering at Northeastern University with a concentration in structures.

NEVADA BETA '21

Kristen P. Tagaytayan

Kristen, a mechanical engineering graduate student, is conducting renewable energy research with a material known as "perovskits" as a NASA Fellowship recipient. She earned her B.S. degree from UNLV and currently serves as NV Beta Chapter president.



NEW YORK BETA '65

Harvey K. Schuman Ph.D.

Harvey was named a Semiconductor Research Corp. (SRC) Fellow for contributions as a technical professional. He has worked at SRC for 25 years with expertise in signal processing and electromagnetics, earned three degrees in electrical eng'g from Syracuse University, and is now a technical expert.

NEW YORK THETA '86

Halsey G. Brown P.E.

Halsey has achieved Life Member status in the American Railway Engineering and Maintenance of Way Association. He recently retired from a 35-year railroad career as a civil engineer, has a B.S. in civil engineering from Clarkson University, and an M.S. in civil engineering from Villanova University.

Send items about civic activities, honors won, weddings, promotions, etc. to Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697 or to media@tbp.org. Material for publication must be received by August 1 for the Fall issue and by November 1 for the Winter issue. Include name, address, chapter/class year, and email address or phone number. Thank you!

OKLAHOMA GAMMA '16

Mattie N. Abbott P.E.

Mattie became Oklahoma Department of Transportation District 1 construction engineer earlier this year. In this role, she oversees eight Eastern Oklahoma counties handling all aspects of highway and bridge projects — construction to completion. Her B.S. and M.S. degrees are in civil eng'g from Oklahoma State Univ.

PENNSYLVANIA BETA '93

Todd J. Garing P.E.

Todd was named president of Mueller Associates, an award-winning engineering firm he joined in 1993. Todd has been at the helm of many of the firm's most significant projects, including the modernization of the National Air and Space Museum in D.C. His B.S. degree is in architectural eng'g from Penn State.

PENNSYLVANIA GAMMA '80

Scott W. Sibley P.E.

Scott was awarded the 2021 National American Council of Engineering Companies Community Service Award at their fall conference. He is senior vice president in the transit & rail corporate business group of Gannett Fleming, Inc., and has volunteered on a dozen organization boards, including the ASHE.

VIRGINIA BETA '96

Lale G. Lovell Ph.D.

Lale was recognized by the department of chemical & biological COE at CU Boulder with an Alumni Engagement Medal, which honors alumni who have been highly engaged through volunteerism. She is a Sr. DevOps engineering manager at Seagate, chair-elect of the Colorado Chapter of Women in Manufacturing, and serves as a student mentor.

CALIFORNIA UPSILON '07

Mel T. Ayala P.E.

Who said engineers are only good at math? Engineering is more than just numbers and science — but the application of the knowledge you have learned.

Founder Mel Ayala started his engineering journey at California State University, Sacramento, (Sac State) with his bachelor's degree in mechanical engineering in 2007. On October 23, 2021, Aquire Maps Token (AQMT) was born; a product of Sac State and Tau Bates.

So, what is AQMT? It is a crypto currency that is built on the Binance Smart Chain and the vision of this revolutionary crypto is to bring people into the 21st century with its solid use case of utility — Aquiremaps.com and its crypto AQMT.

In today's world, vendors, contractors, service providers, and everyone in between are posting images, short clip videos, and writing a comment about a post without real validation that the attachment is tied to a project they worked on. Aquiremaps.com is changing this by creating a solid profile — not just of the professionals using it but also for the property at the address level. Real validation — every post is tied to the project's property address.

Mel Ayala is founder of Aquire Maps Token seen with logo (left). Learn more at: *https://twitter.com/AquireToken*

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Words / Art:
Krishna M. Sadasivam
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It could be featured in the next True Tales from the Test Bench! Send your submissions for consideration to **dylan@tbp.org**.

CONSTITUTIONAL AMENDMENT RATIFIED

2020-21 Constitution Amendment

In 2021, the Executive Council sent a ballot to the chapters to adopt the following:

Adjust the Executive Council election process to utilize preferential (ranked choice) voting instead of the current process outlined in the Constitution. [Const. Art. X, Sec. 3 (a)]

In normal times, a strong majority of chapters successfully submit a valid ballot — whether in favor of or opposed to the amendment. Some were invalid and several chapters did not submit a ballot at all.

The Executive Council is authorized (Const. Art. XV, Sec. 3(c)) to vote the balance of invalid and absent ballots. Normally, the sense of the chapters is easy to discern as the successful ballots indicate a strong preference regarding the Amendment, for or against.

Although the fraction of submitted, valid ballots was less than 50 percent, a strong affirmative vote of those ballots was indicated. The Council acted and voted on behalf of those chapters submitting an invalid ballot or no ballot. The amendment is now in effect.

THE BENEFITS OF MEMBERSHIP

See the complete list at: **www.tbp.org/memb/benefits.cfm**

DELL: Discount program on Dell branded personal products, electronics, and accessories.

LINKEDIN: Join 33,200 members in our official group for professional networking and career discussions.

RECRUITING FAIR: Details on 2022 in-person and virtual options on back cover of the magazine.

LOCAL HOSPITALITY: Access to a worldwide inventory of hotels at exclusively discounted rates.

PPI: 20 percent discount on professional licensing exam review materials (FE/EIT, PE, and more).

TAU BETA PI JOB BOARD: Post a resume online and browse hundreds of engineering jobs at top companies.

Need a Feature from a Back Issue?

You can find previous features from the magazine on our website. A month after each *Bent* is published, the features from that issue are posted in PDF format at: *www.tbp.org/?Features*
You can reach out to us at *media@tbp.org* with any other requests. Keep reading!

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Questions? Contact Pat McDaniel: pat@tbp.org

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