

# THE BENT

OF TAU BETA PI

The Engineering Honor Society

WINTER 2011



2010 Convention  
Concepts of Self-Regulation  
Contributors to Tau Beta Pi



PHILOSOPHIAE  
NATURALIS  
PRINCIPIA  
MATHEMATICAE

Autore J. S. NEWTON, Trin. Coll. Cantab. Soc. M.  
Professore Lucasiano, & Societatis Regalis Sodalis

IMPRIMATUR.  
S. PEPYS, Reg. Soc. PRÆSE  
Julii 5. 1686.

LONDINI,

Jussu Societatis Regiae ac Typis Josephi Streater.  
plures Bibliopolas. Anno MDCLXXX



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- Universum Undergraduate Survey, 2010



# the Bent of Tau Beta Pi



WINTER 2011  
Vol. CII / No. 1

*f*ounded at Lehigh University, South Bethlehem, Pennsylvania, 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 Office. Member, American Society for Engineering Education and (co-founder) Association of College Honor Societies. Affiliate, American Association for the Advancement of Science.

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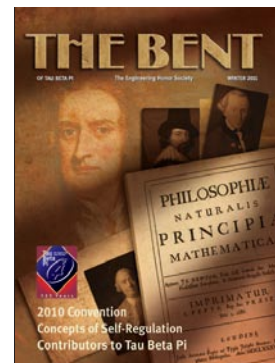
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*Daniel E. Williams looks at how concepts of self-regulation explain human knowledge, and he analyzes how philosophy has shaped the way that we have come to see reality.*

Cover artist: Dali Polivka



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*The Tau Beta Pi Association was founded at Lehigh University in 1885 by Edward Higginson Williams Jr. to mark in a fitting manner those who have conferred honor upon their Alma Mater by distinguished scholarship and exemplary character as students in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges.*  
—Preamble to the Constitution

COUNCIL'S CORNER

## Leadership Transition

At the close of the 2010 National Convention in Valley Forge, PA, Jim Froula's forthcoming retirement as our Association's Secretary-Treasurer, Editor, and Executive Director was announced. A position announcement seeking nominations and applications for the position of Executive Director can be found on Tau Beta Pi's website ([www.tbp.org](http://www.tbp.org)) and page 13. Applications will be reviewed beginning January 1, 2011, and the leadership transition will ideally begin during the middle part of 2011. Recognition and celebration of Jim's accomplishments will highlight the 2011 Convention in Indianapolis, IN, on October 27-29.

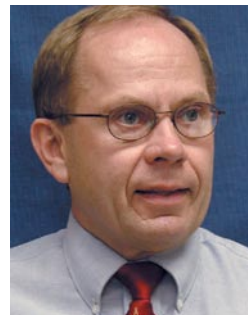
Jim, *TN A '67*, is only the third person to serve as Secretary-Treasurer of Tau Beta Pi. His 29-year career at the helm began in 1982 when he succeeded Bob Nagel, *NY A '39*, who succeeded R.C. Matthews, *IL A '02*. Nagel and Matthews each served as the Association's Secretary-Treasurer for 35 years. Recognizing that R.C. Matthews' title from 1905 to 1912 was Secretary of the Association, TBPI has had only three members lead the organization for the past 105 years! The title of Executive Director was added to that of Secretary-Treasurer in 1999 to reflect the position responsibilities more accurately.

The leadership transition will be an historic event, and it provides the Society an opportunity to take a good look at the administrative structure of the Headquarters office in Knoxville. Each of the 11 members of the staff has well-defined responsibilities that continue to evolve to serve TBPI appropriately as new programs are added. For example, "K-12 MindSET Coordinator" was recently added to Dylan Lane's responsibilities. The K-12 MindSET Program was just beginning in 2008 when he joined the staff as a Communications Specialist and assumed the communications portion of Pat McDaniel's responsibilities so she could focus her time as Director of Development. Pat has been very active with our evolving alumnus outreach effort. Receptions have been held in many parts of the United States in increasing numbers to help the Association reconnect with its wonderful alumni. A recurring comment by these alumni is, "This is the first time I have been invited to a Tau Beta Pi event since I graduated."

No one knows for sure what additional programs will become part of the Society's future. As we celebrate our 125th anniversary, we certainly expect that programs such as Engineering Futures, Scholarship, Fellowship, Convention, and Spring Conferences will continue to

flourish and to provide the foundation of our Association's activities and growth. MindSET participation will grow as we distinguish ourselves in support of a national K-12 STEM effort. Many great ideas will certainly evolve during the next 125 years just as they have in the past. Members of the 2006-14 Foundation Executive Council are committed to fostering an environment where ideas from all of our stakeholders can be presented, discussed, debated, and considered for implementation.

To stimulate thinking and encourage comments, I will share some thoughts that have surfaced during my visits with Tau Bates. The Washington, DC, Alumnus Chapter is working diligently to establish a mentoring program and networking opportunities for Tau Bates moving to the DC area. Should effort be directed to strengthening



alumnus chapters? Members of our alumnus chapters will be inclined to be active if they have some defined purpose. Perhaps assisting with MindSET can form this catalyst. Would there be a benefit in creating corporate alumnus chapters? This might provide opportunities for corporations to partner with our collegiate chapters to form outreach programs to benefit corporate entities, our engineering

institutions, and ultimately the future of the engineering profession. How much energy should the Society direct to establishing collegiate chapters outside the U.S.? Should we develop a program to support study abroad, either for undergraduates or for graduate students? Should TBPI promote programs to encourage engineering students to become more active in their community governance? For example, congressional internships could be supported and partially funded in a manner similar to our Fellowship and Scholarship programs.

The opportunities for TBPI to become even more recognized as the honor society of choice for eligible engineering students and to provide relevant benefits to the engineering profession are limited only by our creative thinking. I welcome your input as the leadership transition process continues ([larry@tbp.org](mailto:larry@tbp.org)).

—Larry A. Simonson, Ph.D., P.E., *South Dakota Alpha '69*,  
President

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## SEEKING 2011 AWARD NOMINEES BY FEBRUARY 1 AND APRIL 1

### TBPI DISTINGUISHED ALUMNUS AWARD

The Association wishes to recognize members who have demonstrated integrity, breadth of interest both inside and outside engineering, adaptability, and unselfish activity cited in our Eligibility Code and who have fostered a spirit of liberal culture on local, national, and international scales. Their personal qualities of excellence and leadership serve as examples to influence the professional careers and lives of our collegiate members.

Chosen by a committee of national officers appointed by the Executive Council, awardees are introduced at the Convention. A TBPI Scholarship is named in honor of each Distinguished Alumnus.

Any individual member or any chapter may nominate any alumnus member, except a national official. There is no limit on the number of nominations. A nomination requires only minimal information in digital format to be sent by February 1 to the Executive Director.

The required documentation is the name, contact information, chapter, and a brief summary of the nominee's career achievements. It may be submitted by mail, email to [tbp@tbp.org](mailto:tbp@tbp.org), or online at [www.tbp.org](http://www.tbp.org).

After an initial screening, the Selection Committee will contact by March 1 each nominee with a record of strong career contributions that parallel the objectives of the award.

The Executive Council encourages nominations from readers of THE BENT.

### TBPI MCDONALD MENTOR AWARD

Marion and Capers W. (North Carolina Gamma '74) McDonald and TBPI established an award to celebrate excellence in mentoring and advising among TBPI educators and engineers. The honor recognizes those who have consistently supported the personal and professional development of their students and colleagues through mentorship.

As engineering educators or as professionals in industry, government, or service organizations, these TBPI mentors contribute to our engineering community in many ways, serving as effective advocates and guides in both professional and administrative matters. They show true concern for individuals, support an environment for developing talents, and have earned respect and recognition for their contributions to their field and to the greater community.

Recipients of the TBPI-McDonald Mentor Award are presented a special medallion and a \$2,000 cash award (\$1,000 to honoree and \$1,000 to a chapter). Any chapter or member may nominate any alumnus member(s). The following brief material in digital format must arrive at Headquarters by April 1:

- 1) A one-page summary of achievements and/or contributions exemplifying the objective of the award.
- 2) Two letters of reference from persons other than the nominating party or sponsoring chapter president who are familiar with the nominee's contributions and achievements, such as a dean or supervising personnel.



EDITORIAL

# On to the Next Event!

Every 30 or 40 years, the President's call (page 13) invites members to apply for the position of Tau Beta Pi Secretary Treasurer (or Executive Director). The passage of time, rather than timing, seems to be a major factor in the transitions, after which the years pass quickly.

Beginning in 1895, an Executive Council was elected annually. At the 1905 Convention, a permanent Secretary was elected—Robert C. "Red" Matthews, *IL A 1902*. As TBPi's first employee and paid \$100 for his first year of work, Red spent the next 41 years helping to build TBPi.

In 1907, he moved the Headquarters to the campus of the University of Tennessee, which remains its home. Red created the catalog card and report system still used today and wrote the standard ritual that, though modified somewhat, is still followed at every initiation.

Retiring in 1947 at the age of 67, Red remained active and attended many more Conventions. The originator of acrobatic cheerleading, he always led the TBPi cheer, which he wrote in 1908. He passed away at the age of 99.

In 1942, a young civil engineer from New York was working in Knoxville. Red needed a new Editor and asked Robert H. Nagel, *NY Δ '39*, to do the job. An unpaid volunteer, Bob served as Editor of *THE BENT* for five years. The 1947 Convention increased the position of Secretary-Treasurer to full-time and added the duty of Editor to the office. Being the natural choice, Bob was appointed as Red's successor and served most effectively through the 1982 Moscow, ID, Convention—retiring soon after at age 65 with a weakened heart.

The undersigned never applied for the position but had been selected while serving as District 12 Director by the Executive Council. We succeeded Bob Nagel with the prophetic charge from the 1982 Convention Resolutions Committee to deliver "some new jokes."

So why would a Tau Bate in good health retire from one of the best jobs in the country while enjoying work with some of the most interesting people anywhere? Never a bureaucrat nor one interested in lengthy meetings, we have always had a passion for family and the outdoor "freedom of the hills." A responsible job done properly seems to interfere with visits to family and friends, softball games, long trips to national parks, various mountaineering expeditions, hiking the Appalachian Trail and the 800-plus miles of paths in the Great Smoky Mountains National Park, reading, and even daily walks with a neighbor's dog.

More importantly, there is the time required to seek and select properly the very best leader to take Tau Beta Pi to "the next level." We owe it to this magnificent Society to effect this succession process while all is well and any panic is avoided. We are not retiring from work, just from the grind that requires your best mental effort every single day. We are not walking away from the wonderful Tau Beta Pi family we have helped to unite for 29 years, but hope to remain active in financial



development activities if needed and participate with some new jokes at Conventions for a few decades.

The University of Tennessee's sports broadcaster John Ward said "It's time" as he hung up his microphone and retired in 1999. Ted Williams hit his final home run in his last at bat with the Red Sox on September 28, 1960, and hung up his spikes. For us, it is simply time to hang up the suit, oil the softball glove, spend more time outside, and have absolutely no regrets while enjoying a few more "Happy trails."

J.D.F.

## Send THE BENT to Me

(Visit [www.tbp.org/pages](http://www.tbp.org/pages) to pay by credit card, or detach and mail to: Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697.)

- I enclose \$60, for which I shall expect to receive **THE BENT** for life. I will keep you informed of any change of address.
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AFIT is the premier institution for defense-related graduate education in science, engineering, advanced technology, and management for the U.S. Air Force and the Department of Defense (DoD). Full details on these positions, the department, and application procedures can be found at [http://www.afit.edu/en/eng/employment\\_faculty.cfm](http://www.afit.edu/en/eng/employment_faculty.cfm). Review of applications will begin immediately and will continue until the positions are filled. The United States Air Force is an equal opportunity, affirmative action employer.

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## Alumnus Giving Special Gifts

*Special gifts were received in memory of Shawn R. Schwaller, SD A '95, from Stacey L. Forkner, WI A '96, Josuan Hilerio-Sanchez, PR A '07, Tricia E. Schwaller, SD A '98, Ellen S. Styles, AL Δ '85, and Robert C. Styles, AL Δ '76. Special gifts were received from Dr. Gordon W. Anderson, NY Δ '59, in memory of his grandfather, Frank W. Hillman, IL A 1905; Tricia E. Schwaller, SD A '98, in memory of Linda R. Stuffle, MI B '71; Donna Warner Regitz in memory of her father, Donald G. Warner, NY K '44; Susan Ward Schofield in memory of her father, Philip L. Ward, CA Γ '38; and Mr. & Mrs. Jack H. Waite, AL B '51, in memory of their friend, James A. Downey, AL B '52.*

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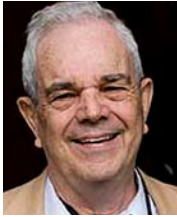
New City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Email to: [addresschange@tbp.org](mailto:addresschange@tbp.org) or complete and mail to: Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697



## WHO'S WHO

**Dr. Arthur E. Bryson Jr., Iowa Alpha '47**, has been awarded the 2010 Daniel Guggenheim medal by the American Institute for Aeronautics and Astronautics. A professor emeritus at Stanford University, he was honored for contributions to practical optimal control and estimation techniques to airplanes, rotorcraft, and missiles.



**Joseph M. Colucci, Michigan Alpha '58**, received the 2010 SAE International medal of honor. President of Automotive Fuels Consulting, Inc., he is retired executive director of materials research at General Motors Research and Development.

**Dr. John O. Dabiri, New Jersey Delta '01**, is a 2010 MacArthur fellow. He is a biophysicist whose work draws on a wide range of fields—including fluid dynamics, evolutionary biology, and biomechanics—to unravel the secrets of the earliest means of animal locomotion. Dr. Dabiri is a TBI Advisor and associate professor at the California Institute of Technology.



**Dr. Dale E. Klein, P.E., Missouri Alpha '70**, is now a director of major power producer Southern Company. Dr. Klein, a former chairman of the Nuclear Regulatory Commission, is associate vice president of research of the energy institute of the University of Texas at Austin.



**William B. Sansom, Tennessee Alpha '64**, has been confirmed by the U.S. Senate as a director of the Tennessee Valley Authority. Sansom, chairman and chief executive of wholesale distributors H.T. Hackney Co., is a former chairman of the TVA board.

**Eric L. West, P.E., Texas Beta '96**, was named as the NSPE's 2010 young engineer of the year. A team leader at the Midland, TX, office of full-service design firm Parkhill, Smith & Cooper, he oversees civil engineering employees in three offices.



**Dr. Robert W. Thresher, P.E., Oregon Alpha '62**, has been recognized by *Windpower Engineering* as a 2010 innovator in wind power. Widely described as the "grandfather of American wind energy," he is a National Renewable Energy Laboratory research fellow and was the director of the NREL's national wind technology center.



**Dr. Eric A. Brewer, California Alpha '88**, received the Association for Computing Machinery's 2009 Infosys Foundation award in the computing sciences for his contributions to development of internet services. Dr. Brewer set up the Federal Search Foundation, which built the portal for the U.S. government, now *usa.gov*. He was founder and chief scientist of Inktomi Corporation, now part of Yahoo!



**Aron L. Ralston, Pennsylvania Gamma '97**, is the subject of the new movie, *127 Hours*. It tells how Ralston, played by James Franco, was trapped by a boulder for nearly five days while mountain climbing in Utah and freed himself by amputating his own arm.



**Dr. Charles M. Vest, West Virginia Alpha '63**, president of the National Academy of Engineering, and **Dr. Robert S. Langer Jr., New York Delta '70**, MIT professor, have been elected international fellows of Britain's Royal Academy of Engineering. Dr. Langer is a widely recognized researcher in biotechnology, particularly in drug delivery and tissue engineering.

**Congressman Joe L. Barton, P.E., Texas Delta '72**, was re-elected to his 14th term in the U.S. House of Representatives, and he vows to continue fighting for the conservative values he shares with his constituents. The Republican has represented Texas's 6th congressional district since 1984. He is ranking member of the committee on energy and commerce, founding co-chairman of the congressional privacy caucus, and a member of the Tea Party caucus.



**Congressman Daniel W. Lipinski, Ph.D., Illinois Gamma '88**, was re-elected in November. He has served as chair of the subcommittee on research and science education of the house committee on science and technology. The Democrat was first elected in 2004 as congressman for the Illinois 3rd district.



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## 2011 SPRING CONFERENCES

**T**HE DISTRICT PROGRAM provides a vital link between the Association and individual chapters. Each spring the Directors meet with students at regional conferences to provide both retiring and new officers opportunities to improve chapter operations and to socialize. **Interested alumni are encouraged to attend**, but should email [tbp@tbp.org](mailto:tbp@tbp.org) for details. All chapters are urged to elect new officers before their District conference.

DISTRICT	LOCATION	DATE
1	Orono, ME	Apr. 16-17
2	Binghamton, NY	Feb. 12-13
3	Easton, PA	Feb. 11-12
4	Washington, DC	Apr. 16
5	Gainesville, FL	Feb. 26
6	Nashville, TN	Feb. 4-5
7	Grand Rapids, MI	Apr. 2
8	Indianapolis, IN	Apr. 1-2
9	Stillwater, OK	Mar. 5
10	New Orleans, LA	Feb. 19
11	Minneapolis, MN	Apr. 1-2
12	Salt Lake City, UT	Feb. 26
13	El Paso, TX	Mar. 4-5
14	Portland, OR	Apr. 2
15	Reno, NV	Mar. 11-12
16	Santa Barbara, CA	Apr. 30



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## LETTERS

### SOFIA Observatory

• I enjoyed Trudy Bell's SOFIA article in *THE BENT*. At first, I was going to skip the article because it falls on the periphery of my interests. But, when I saw who wrote it, I decided to read it since I know she does a wonderful job explaining these things. I read it and it exceeded my expectations. Thanks for your good work!

*Walter S. Ciciora, Ph.D., IL B '64*

• Congratulations and thanks, Trudy, for such a great telling of the outrageous story of the SOFIA observatory. What a great and wild engineering project to solve all those monstrous problems! I gotta go back and read it again tonight!

*Robert A. Pease, MA B '61*

### Odds & Ends

• I do appreciate reading *THE BENT*, so please keep sending it!

*Joel T. Abrahamson, KS A '06*

• I believe that excellent engineers and engineering approaches to pressing human problems are necessary in today's world. For example, it is engineering that gives us insight into the Gulf oil leak, as it reveals the lack of concern before the accident for the breakup of the blow-out preventer. I am not a petroleum engineer, but the lack of care seems not unlike taking no action when you see a penny bridging a fuse. That would be a cause for concern.

It is my hope that sound thinking that Tau Beta Pi promotes, along with unquestionable desire for integrity, are things that will lead to a better future for all of us—a future that puts technology to its best use always realizing that care is required because all human beings and their creations are imperfect imitations of their Creator.

*Kent B. Mickelson, P.E., TX A '77*

• As someone who has spent 36 years teaching mathematics, I welcome TBI's initiative to assist in the

professional development of K-12 teachers. Although I currently teach at a university, most of my teaching career has been spent in elementary, middle, and high-school classrooms. I ask that the effort be made as effective as possible so that it will maximize our contribution to our nation's future scientists and innovators.

*Murray H. Siegel, Ph.D., NY E '63*

### Sorting TBI Chapters

• The Winter 2010 inside cover lists the TBI Chapters. What goes on with the state alphabetic sorting? AL precedes AK; AZ precedes AR; DE precedes DC; ME precedes MD; MD precedes MA; NY precedes NC; VT precedes VA; and WV precedes WI. It's puzzling, and I kind of like it. But how do you explain it?

*Arthur Berger, NY A '52*

*[Good question. Spell the state completely to see why we do so.]*

### The Two Mile Time Machine

• I thought you might enjoy my short correspondence with Professor Richard B. Alley, earth and environmental systems institute and department of geosciences, Pennsylvania State University and author of *The Two Mile Time Machine*. In July 2009, I sent Alley the following: "I am a retired electrical engineer. I read the book in an effort to understand how it is possible to have reasonable data on hundreds of thousands of years of global temperature and CO<sub>2</sub> levels. Your description of the Vostok experiment was excellent. I read it because I was trying to help a younger ex-colleague see that the possibility of a climate change disaster is not a liberal myth. Therefore, I was disappointed in the last chapters of the book (published in 2000) where you refused to accept Al Gore's view of global warming as a dangerous crisis. I learned that you worked with the IPCC. However, I could not find a paper written by you after 2007 that gave your current view of what we are doing to our planet. Is there something you might

recommend for me and my friend to read?"

His response: "Leonard, many thanks for your interest. I've started on a major new project that will take a couple of years, laying out my more-recent views. I've been on Capitol Hill several times, testifying to the Senate and House and briefing individual members on the challenges faced and the possible ways forward. I made a trip to Greenland with several senators and answered their questions. If you follow the 'skeptical' arguments, some of them switched from 'no problem . . . no problem . . . no problem' to 'There's a problem that we can do nothing about so don't worry.' If we do nothing, the science is very strong that we will have a big problem, but it is equally clear that we can take actions that will improve things, and we are not doomed." —R.B. Alley

My young friend was not influenced by Alley's message; he had the *truth* about global warming. As a pragmatist, I try to be satisfied with what works. Arthur Schlesinger Jr.'s 1949 book, *The Vital Center*, convinced me of the value of uncertainty. Perhaps you could ask Alley to help to put some doubt in the large number of *BENT* readers who *know* global warming is a myth.

*Leonard Zimmerman, NY Z '52*

### Subject: Obturation?

• In the Fall *BENT* on page 9, Dr. E.W. Beans tried to explain the word *oburation*, and his definition and explanation are quite correct. But I know this word, and most dictionaries spell it *obturation*. Come to think of it, there seems to be another typo error in that letter: "It fits into the rifling." What it fits into is the rifling of the gun barrel. I do not know who made the typos. But everybody "gotta be careful about spelling and typos," as I recently published at: [electronicdesign.com/article/pease-porridge/what\\_s\\_all\\_this\\_proofreading\\_stuff\\_anyhow.aspx](http://electronicdesign.com/article/pease-porridge/what_s_all_this_proofreading_stuff_anyhow.aspx).

*Robert A. Pease, MA B '61*



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• The first three paragraphs are in response to Dr. Beans's letter, referring to my letter published in Summer 2010. It's not polite, but, afterward, I have a paragraph about a "Field Artillery Law."

*Oburation* is not a word, but *oburation* is, meaning *blocking*. There are several anatomical meanings in the dictionary, but the one relating to ballistics describes the blocking of combustion gases from moving backward toward the breech. This is usually accomplished by the forward edge of the cartridge case expanding to form a seal in the conical *chamber*.

What Dr. Beans describes as the *oburator*, artillerymen would call a *rotating band* on the projectile (shell), which engages the *rifling* (not *riffing*) in the barrel, in order to stabilize the shell in flight. While this band tends to seal the gases from expanding forward past the shell, it increases the need for *oburation* to seal the gases from escaping backward.

Tanks and air-defense artillery require linear (*flat*) trajectories and involve high muzzle velocities in the 1/2 mile-per-second range. That also increases the need for *oburation*,

so that the maximum energy can be transmitted to the shell.

Field Artillery Law: "Safety, accuracy, and speed, are important in that order." Blowing up a gun, killing the gun crew and perhaps the entire battery of up to six gun crews, is not worth trying to fire rounds faster. Shooting wildly is unlikely to lead to accomplishing the mission, while short rounds may destroy one's own forces—so-called "friendly fire."

A newspaper just reported that the explosive loaded into toner cartridges for printers being shipped to the U.S. via UPS is good old PETN, pentaerythrilitetranitrate. It rolls trippingly off the tongue for me after 50 years, because it was the explosive in Nike air-defense-missile warheads. Just imagine the fragment velocities required to hit a supersonic jet from a supersonic missile; you'll get an idea of the damage that those fake toner cartridges would have caused.

I sent this to you because I'm still dubious about the legitimacy of Dr. Beans' letter published in Fall 2010, and I thought of you as soon as I read the UPS article. *Oburation* was correctly spelled in the Summer 2010

issue, so *oburation* looked like a pun on *operation* and *oburator* punning *operator*. Maybe Dr. Beans didn't like my reference to "gun nuts," but he doesn't know my opinion on the rights conferred by the Second Amendment.

*Franklin S. Sax, MO Γ '55*  
[No, I did not mean the rotating band; I meant seal. I said that the function of the obturator was to seal the gases. In my limited experience in ordnance, I know the difference between sealing the shell and rotating the shell. I was trying to give an explanation that most people would understand, but was not technically correct.  
—E.W. Beans, Ph.D., OH Γ '53]

### Lyle's Laws

• Thank you and Dr. Feisel for his columns that appear in THE BENT. I look forward to each one and am delighted that the entire collection of "Laws" is now available on the website, as the wisdom offered is timeless!

The "Law of Locality," appearing in the Fall 2010 issue, offers good advice to those either entering the work force or moving to a new employer. A conservative approach,

## LETTERS

at least in the beginning, can result in greater acceptance and a strong foundation in the profession. Thanks to Dr. Feisel for his contribution.

*Thomas M. Barlow, WA B '57*

I read the Fall column to my wife, as I often do. She raised an issue about knowing where decisions are actually made in an organization in order to function effectively. She'll attend the 50th anniversary of her graduation at MIT next spring, having earned an S.B. in physics and an S.M. in math in three years. She's worked at most of the major aerospace companies in the past 45 years and held senior-staff and middle-management positions in engineering. She notes that a great many of the decisions appear to get made at meetings in a men's room, which presents an additional difficulty for female members of the organization. Just a thought in passing.

*Mique S. Talcott, WA A '48*

*[My thanks to you and your wife for the comments on Lyle's latest law. She is certainly correct in her obser-*

*vation about decisions being made in a men's room, and I hope that she was able to cope with that situation. At least, understanding the situation (knowing the territory) should have been useful. For a few years when I was dean of engineering, the president, the provost, and all the other deans were women. I was the only male in the senior academic administration. I used to joke (I think I was joking) that, while I didn't have to stand in line to use the rest room at administrative retreats, I was frozen out of the substantive discussions and decision-making. Thanks again for your comments.*

*—L.D. Feisel, Ph.D., P.E.]*

### Engineering Aspects of War

• Just a minor postscript to Dr. Delagrangé's wonderful article, "Engineering Aspects of War Part III," sidebar—Manhattan Project (THE BENT, Fall 2010). At the Roosevelt home in Hyde Park, NY, there is the original of a hand-written letter from Einstein to the President warning him that the Germans were stockpiling uranium and there could be no other reason than to build a nuclear bomb. *William S. Guttentag, D.Sc., NJ Γ '44*

• I have enjoyed reading THE BENT over the years and especially the Fall issue. I was in the corps of engineers during WWII and was stationed at Oak Ridge, TN. I worked with the units producing U235 via the electromagnetic process and knew that an atomic bomb was being developed, the only questions—when and where?

The reference to WWII and the Manhattan Project was timely for another reason. I had just finished reading a condensation of *Enola Gay*, the story of the training and mission of the *Enola Gay*. I already knew much of the story, and the book expanded my memories of Oak Ridge and the project. A good "read."

*Richard Morrison, NH A '48*

• Dr. Arthur D. Delagrangé is proud of his accomplishments during his long career as an engineer directly involved in the engineering aspects of war. His well-written article reads

like a textbook on "EAW 101." While offering insight and specific details of engineering and related military subjects, it is written in the style of "War is hell, but someone has to do it!"

I specifically sought a career in a U.S.-based multinational company that I thought (as a naive graduate) had little military involvement. As the career evolved, I came to the realization that I was mistaken about the DoD role. My company even had a sad legacy of having provided tabulating machinery to the Nazi regime that was used in keeping track of concentration-camp victims as well as stolen art treasures during WWII. I no longer was proud of my career choice, although I stayed a long time with civilian assignments.

I did learn some history from the article, such as the *wind-talkers* always having an escort with a dual assignment, protect or kill; yes, war is hell. The author reminded me that the winner gets to write the history books. However, he did stretch this adage beyond *winner's* as the sidebar: "A War that Started by Mistake," shows. There are few historians today who would not interpret the Gulf of Tonkin incident as a deliberate ploy by those in our government to escalate the Vietnam War.

Lastly, the author mentions "the September 11, 2001, terrorist attack." Well, what's wrong with that? Everyone else says the same phrase on mainstream media every day. The proper phrase in 2010 should be "the alleged September 11 terrorist attack." It has now been established by some through analysis of video and debris evidence that pre-planted explosives and/or incendiaries were used to demolish the twin towers and Building 7 at the World Trade Center. This is incompatible with the official conspiracy theory blaming a president and a band of hijackers. (See [ae911truth.org](http://ae911truth.org)). The analysis involves high-school level Newtonian physics, thermodynamics, chemistry, and peer-reviewed journal articles of the debris analysis. I have joined 1,300 architects and engineers in petitioning congress for an impartial forensic investigation with subpoena power. Tau Bates cannot claim scientific illiteracy!

## Statement of Ownership, Management & Circulation

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I certify that the statements made above are correct and complete.

*—James D. Froula, P.E., Editor*

The NIST analysis has been taken apart ([www.nist.gov/customcf/get\\_pdf.cfm?pub\\_id=860539](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=860539) NIST SP-1000-4 Shyam-Sunder, S.; Title: *December 2003 Public Update on the Federal Building and Fire Safety Investigation of the World Trade Center Disaster*). There are other inconsistencies with the official story as well; D.R. Griffin has written several well-documented books on this including his latest, *Cognitive Infiltration*. And then there is pride—one of the seven deadly sins.

John V. Mizzi, P.E. NY A '63  
*[I am in favor of more investigation. Judging from WWII, it may be half a century before we get the full truth. I am familiar with the "high-explosives" theory. If so, whose high explosives? How about the two planes witnessed? We have the names of the passengers and the hijackers. They obviously did not bring the buildings down immediately. Is there any photographic evidence of explosions when they fell or any flammability estimates on the contents of the building or any estimates of how many oxygen bottles in the building? Fire plus oxygen cuts steel. The most plausible explanation I have heard is that the buildings were a third of the way up when an asbestos ban went into effect and an inferior material to protect the steel supports was substituted. An engineer warned that if a fire ever burned halfway up, the building would collapse (unverified, not refuted). The counter-conspiracy theory is politics overruling engineering judgment. —A.D. Delagrangé]*

*[www.pbs.org/wgbh/nova/wtc/sunder.html Impact to Collapse:] The truth about exactly how the WTC towers collapsed matters greatly, both to the families of those who perished and to the future safety of buildings. In 2002, Congress called upon the National Institute of Standards and Technology to conduct a thorough investigation into the disaster. Civil engineer Shyan Sunder served as the lead investigator. In this audio slide show, he describes the series of structural and fire-related events within the towers as they progressed toward catastrophic collapse. As a result of the study, NIST made recommendations for changes*

*to building codes and standards. These recommendations, as well as other sobering findings of the study, are detailed (on the website). —Susan K. Lewis, PBS]*

#### Metric Please

• I ask that you stop using inch-pound units in THE BENT. Always use metric units. In the Fall 2009 issue I see 200 mph (p. 17), 300-pound stones & 300 yds (p. 18), 100 ft. high, and few miles (p. 23).

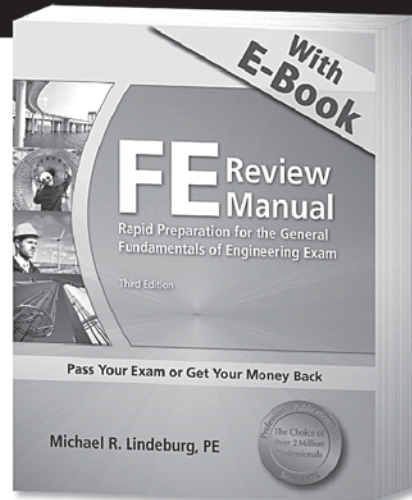
Engineering is a matter of measurement and numbers, and TBPi is the best of engineering, which I say is metric. THE BENT should be a leader in the metric mindset and in ending the use of inch-pound numbers. It is up to the Editor to do this.

Of course, historical stuff is full of inch-pound numbers. It is your editorial job to judge whether to keep the historic inch-pound numbers in what is printed along with the metric value. The metric numbers keep me in touch with reality. They are the numbers and dimensions I need to comprehend the text. I hope you can help all readers of THE BENT to be in this modern reality. Thanks for doing the tough job of Editor.  
 Robert H. Bushnell, Ph.D., P.E., OH Γ'47  
*[I disagree. German may be a better technical language than English, but you won't print THE BENT in German. Hexadecimal is better than decimal, but an article using hexadecimal wouldn't draw many readers. Metric is certainly better than English, but it still has two kinds*

*of calories and has both cgs and mks, so you still have two systems. Japanese tend to use odd-numbered metric wrenches while Americans use even, so I have two metric tool sets. Speedometers have both scales, but how many people could tell the policeman how many kph they were going?*

*In a lot of places it makes sense to change: foot races are in meters. I'm glad the medical profession uses metric because I like to minimize the number of mistakes made on me, but when the doctor describes the lumps on my thyroid in mm I have to get the calculator. When gas pumps changed to liters it didn't last long; it would have been better to get rid of the 0.9 cents. When the government takes control of everything, we will no doubt be forced to change anyway, if there's anything left to measure. —A.D. Delagrangé]*

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## LYLE'S LAWS

# Lyle's Law of Jobs

In keeping with our humble estate—and even more humble budget—my wife and I usually fly coach. Occasionally, however, an airline has a good sale, or we cash in some long-hoarded frequent flyer points and enjoy the comforts of the business class cabin, especially on a long overseas flight. Such was the case recently as we flew from Oslo to Philadelphia.

Forty thousand feet. Smooth ride. Comfortable seats. Good wine. And lousy service. I don't mean poor service. I mean atrocious service. The flight attendant repeatedly brought us the wrong orders after carefully writing them down. She would disappear for long periods of time. Our dessert and coffee dishes stayed on our trays for 10 minutes—15 minutes—20 minutes. Other flight attendants walked by en route to the galley, passing my used dishes without a sideward glance. "What is going on, here?" I asked myself. And myself provided no answer. Finally, I stood up, took my own dishes to the galley and found our flight attendant huddled with one of her colleagues, viewing photographs on his cell phone. I said—calmly, I think—"I'd like to see your supervisor." She replied—also calmly—"I am the supervisor." Well.

Then ensued a conversation, the details of which I will not burden you with except to say that it was calm and that I tried—I really tried—to be constructive and not too judgmental. Until ... until I pointed out how many flight attendants had walked by without picking up my dishes, and she replied, "But that's not their job."

Oh, my. I stayed calm—I really did. (Doth he protest too much?) But I did expound at some length on just what one's job should be, before returning to my seat. Disgruntled as I was, however, I am grateful for this experience because from that conversation was born Lyle's Law of Jobs: *Your job is greater than your assignment.*

Wherever you are employed, you have some defined responsibilities. Maybe you design jet engines. Maybe you write software. Maybe you teach control systems. Those assignments can be pretty specific or very general, but in any event you might feel justified in just designing jet engines or writing software or teaching control systems.

Indeed, you can feel successful if you obtain excellent results in performing your assigned function. However, while I don't know much about management theory, I don't think an enterprise can succeed if all do nothing more than fulfill their assignments. One reason for this belief is that I don't think anyone can think of all the things that need to be done to ensure that success. One

of several reasons for the failure of communism is the practice of central planning where the great planners define everything that needs to be done. A fatal flaw in central planning—among many—is that the planners can't think of all the tasks that must be done and then assign people to do them. Some will invariably be missed. Assignments alone will not assure success. Jobs will, if the jobs are greater than the assignments.

Like everyone, most of what I know I have learned from others. One of my best teachers was Harvey Fraser who was president of the South Dakota School of Mines when I was beginning my career in

academia. Harvey is a West Point graduate who fought in the Battle of the Bulge, later taught at West Point, and retired from the Army as a brigadier general. He was a deliberate and decisive leader who wrought many improvements during his tenure at the Mines. He was fond of saying that a campus should be "clean, green, and serene." The "serene" part was particularly significant because that was during the turbulent sixties, but he was serious about clean and green, too. As he walked across campus at any time of day, if he saw a piece of paper or a discarded pop can (Yes, "pop." We were west of the Mississippi) he would go out of his way to pick it up. Was that his assignment? Hardly. Was it his job? He thought so. And his example—not only, I hasten to add, in picking up trash—taught me to think so as well.

Would that piece of paper have been picked up if President Fraser had not done it? Of course. That was someone's assignment and someone would eventually get to it. But meanwhile, "clean, green, and serene" would suffer.

It is also important for students to understand what their job is. One of the easiest and most effective tech-

*Your job is greater  
than your assignment.*



niques for improving the quality of education is, in my humble opinion, the use of clear educational objectives. Tell students what they should be able to do at the end of the course, and they are much more likely to be able to do it. I'm sure of it. And what's more, people who know a lot more about educational theory than I do are also sure of it. What's not to like?



Well, one argument against using objectives is that if you specify what students are supposed to learn, they will learn only what is specified. I would like to reject that argument completely but have to admit that it has a certain amount of validity. But not if students understand that their job is greater than their assignment.

It may be too narrow to say their assignment is to get a degree, but I don't hesitate at all to say their job is to get an education—in all its broadest meanings.

Perhaps the significant difference between an assignment and a job is that of motivation. Fulfilling an assignment is *internally* motivated. I want to keep my job. I want to get a raise. I want a promotion. Doing a job (as defined in Lyle's Law) is *externally* motivated. The campus looks clean and green. The company I work for is more successful. My community—or the community I'm visiting—is a better place. Someone else—a friend, someone I know, or someone I don't know—is happier or safer.

You will be judged by someone else on how well you do your assignment. You will judge yourself on how well you do your job.

—Lyle D. Feisel, Ph.D., P.E., Iowa Alpha '61

## Cleve's Back!

**Cleveland L. Campbell, P.E., Iowa Alpha '47**, is once again offering to match first-time donations



to Tau Beta Pi's Alumnus Giving Program. Any such gift received in 2011 (up to \$2,000) will be matched dollar-for-dollar, until we reach \$25,000. Past challenges of \$10K, \$12K, and \$25K were met and matched.

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—Joel N. Mehler, Kansas Beta '05  
Campbell Scholar No. 4

## ANNOUNCEMENT FROM THE PRESIDENT

James D. Froula, P.E., who has served Tau Beta Pi as Executive Director, Secretary-Treasurer, & Editor since 1982, has indicated his intention to retire in the fall of 2011. During his tenure, the Association has had tremendous growth and experienced many positive changes. It remains a complex organization requiring innovative and dedicated management. A hard person to replace, Jim has expertly guided the Society through continuous improvements while maintaining the basic purposes and mission of TBII. However, it is transition time again, and we need your help.

Please send the name of a capable TBII member, including yourself, who might be interested in the position. A search committee is soliciting nominations and applications in confidence. See [www.tbp.org](http://www.tbp.org) for additional information. Send a cover letter, résumé (3-5 pages), and names and addresses of three references to: Search and Screen Committee, c/o Russell W. Pierce, The Tau Beta Pi Association, P.O. Box 2697, Knoxville, TN 37901-2697 or electronically submit digital files to [russ@tbp.org](mailto:russ@tbp.org). Applications will be accepted until the position is filled, and review of applications will begin January 1, 2011.—L.A.S.

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# Greater Interest in Government

*The purpose of the Greater Interest in Government Program, established in 1969 by Frederick A. Faville, Illinois Beta '19, is to stimulate interest in civic affairs and public-policy issues among student members of Tau Beta Pi. The Executive Council awards annual grants up to \$750 each for these activities from the investment earnings of the Greater Interest in Government Fund.*



Jobs done, volunteers pose with the happy recipient, above, and kids enjoy the rubber bridge, below.

## Ohio Iota

Ohio Northern University's Ohio Iota Chapter was notified of the need for two wheelchair ramps to be constructed in the community. One of the ramps was for a gentleman in the village of Ada who had not been out of his house in two years because he was wheelchair bound. The other ramp was for a local Christian center to allow chair-bound individuals to enter the building. The projects cost approximately \$670.

Each project brought its own challenges. The one for the gentleman included a four-foot-square deck attached to his house and in need of an 18-foot-long ramp. Our chapter thought it would be beneficial to approach the ASCE campus chapter to encourage interest in building this ramp as a joint venture. Upon agreement, the deck and ramp were designed by members of both chapters, who also were involved in the construction that took place during a weekend.

Digging the foundation and placing the posts had to take place during the previous week to allow for the concrete to set. Construction then took place on Friday and Saturday.

The second wheelchair ramp was much smaller in size, only six feet long, but had to be made so that it could be moved to a closet when not in use. This ramp was built by TBPI members who met on a Saturday to cut pieces and build the ramp. It was then moved to the center and set in place. The center director had also asked that a grab bar be installed in one of the bathrooms for the handicapped. This was done when the ramp was delivered.

When consulting with our chapter advisors, we learned that there was a similar service project in 2002 when members constructed two wheelchair ramps for individuals in the Kenton area.

—**William R. Wolfgang**, President, 2009-10

## Utah Gamma

According to the U.S. Census Bureau, 3,000 children living in Cache Valley, UT, have some type of disability. A project was proposed by the Whittier Center in Logan to build a playground accessible to all, whatever their physical abilities. The project was funded by donations from private individuals, organizations, and businesses.

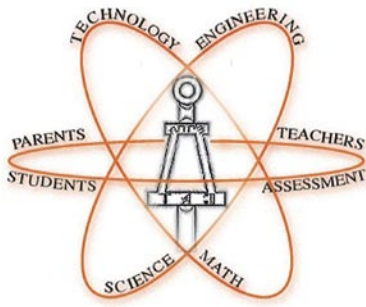
Utah Gamma members thought this to be a worthy project to pursue, so we drafted a proposal for a GIG grant. It was accepted, and the chapter received \$750 to purchase a rubber bridge for the playground. This was purchased by Utah Gamma, although the GIG grant was only a portion of our donation to the playground.

The project needed not only funding, but also volunteers to help with construction. The chapter provided 20 member volunteers, more than 75 percent of the active membership. The total number of volunteers furnished by TBPI was increased by recruitment of family, friends, and members of the Utah State University Engineers Without Borders chapter. The majority of the volunteers met at the construction site Friday, September 18, 2009.

Construction of the playground began on Monday, September 14, so most of the structure was already intact. Volunteers were each assigned an individual task. These included safety-fence construction, castle interior fine-finish work, attachment of castle tower roofs, painting, construction material processing and fitting, rubber-floor installation, and cleanup. Volunteers who could not work on Friday gave their services throughout the week of construction. The bridge has become one of the most popular pieces of equipment at the playground.

—**Benjamin H. Timmins**, President, 2008-09





# MindSET Grants



## Florida Delta

This year, the University of Central Florida's TBP Florida Delta Chapter was lucky to partner with both corporate community leaders and the TBP Engineering Honor Society to plant a small seed of curiosity and knowledge in the greater-Orlando area.

The exciting growth of the chapter's MindSET project began last year. In cooperation with Lockheed Martin, four MindSET modules were presented at the South Orlando Family YMCA. The space was ideal for the events since it featured a multimedia room, ample desks and whiteboards, and, most importantly, middle-school students in plentiful numbers. The program started slowly, but the last module presented, *Rockets*, brought in four times as many students as the first session—while the outpouring of volunteer and media support outnumbered even the students. Everyone loves a cold-water rocket on a hot summer day.

As the year continued, the chapter began to take MindSET more seriously as a program that would need to be centralized by the main campus. With help from Dr. Jonathan F.K. Earle, P.E., leader of the archetype for MindSET, Florida Delta partnered with a local high school to bring a message to hundreds of senior students about the importance of the STEM fields and the many opportunities available to them simply by considering higher education. They were also invited to the four sessions held by Florida Delta through the fall semester and three in the spring semester. At first, it was difficult to motivate students to go to school on a Saturday, but at times entire families would stay and participate.

The final session of the year again involved rockets, but this time there was a twist. A comparison of small and large rockets was used. Hundreds of students from 23 area elementary schools were at the event! Sure it sounds too good to be true, and maybe it was the Florida Science Olympiads that brought in the crowds, but you can be sure that whizzing rockets demand attention from any bystander. After safety clearance was given, students would swarm to collect and measure the distances the rockets flew, even those who weren't participating in the module. Through a Florida Delta initiative to involve the college of education in the planning and promotion of MindSET, hundreds of fliers and information notices were distributed by education majors during classroom visits.

The road to the success of a MindSET project isn't painted with the streaks of soda-bottle rockets but instead colored by the sweat of TBP volunteers who help a child first feel comfortable with science and math.

—**Pamela S. Caraballo**, Corresponding Secretary 2009-10, and MindSET Chair

## Colorado Alpha

The Colorado Alpha Chapter continued to grow last year and increased the number of service projects. One of the project groups focused on K-12 outreach. Team members worked to address many of the MindSET goals during the 2009-10 academic year and will expand their efforts using the remaining funds during 2010-11.

First, a group of TBP students tutored local high-school students in math and science on our campus last year. The tutoring sessions were one evening per week, and the resource was advertised at the two nearest high schools. Sadly, the number of high-school students willing or able to travel to campus was small. Thus, the program was moved to Golden High School in September 2010 and partnered with the math honor society at Colorado School of Mines to take the tutors to the students.

The second part of the K-12 outreach group worked on developing hands-on projects focused toward middle-school students. Lesson plans for a penny-launcher project are nearly complete and will be tested in the classroom in the fall. A second project making biodiesel is more of a teacher demonstration project. The biodiesel topic was introduced to local teachers by Professor and Chapter Advisor Matthew W. Liberatore at a teacher workshop hosted at CSM. These workshops train both teachers and graduate-student fellows. The fellows work on math and science in the K-12 classrooms in and near Denver. The opportunity for Tau Bates to shadow fellows and teachers in a K-8 classroom was arranged during fall 2010.

Overall, only a small fraction of the funds was spent to date. Remaining funds will be used to develop new hands-on demos like the penny launcher and buy supporting supplies for these projects.

—**Prof. Matthew W. Liberatore**, Advisor

# How Concepts of Self-Regulation Explain Human Knowledge

by Daniel E. Williams, Ph.D., P.E., Florida Zeta '95

Epistemology is a field within philosophy seeking to understand the nature of knowledge, with perhaps the most significant contributions made by Immanuel Kant. Kant's epistemological contribution was inspired by his attempt to understand how the deterministic physics of Isaac Newton was so effective in describing reality. A notable physical scientist in his own right, Kant is almost impossible to read, at least in translated English, but fortunately there are many insightful interpretations. In essence Kant believed the absolute reality of the universe was unknowable and that the mind imposed order on inputs from the senses.

Immanuel Kant's influence can be seen on Thomas Kuhn's modern day *Structure of Scientific Revolutions* that introduced the term *paradigm shift* into our modern vernacular while casting doubt on the absolute truth of science. Kuhn believed the scientific community organizes around a theory and develops instrumentation and experiments based on that theory to verify the theory. Kuhn's notion of the paradigm was significant because it is opposite of inductive scientific reasoning first suggested by Francis Bacon, where particular observations lead to general theory. The following work contends that truth can be found only by the dual processes of man's contemplation of and interaction with his environment. These dual processes can be thought of as a closed loop, and concepts familiar from control theory are applied to this epistemological model. When basic system-theory concepts are applied to the closed-loop scientific process, various strands of epistemology can be pulled together and historical events put in context.

## A Control-Theory Primer

Control theory is a body of knowledge that describes the interaction of dynamic systems and guides the engineer to design such systems to achieve a desired result. In general, a typical control-theory problem would be to design a computer algorithm so that information from various sensors (devices that glean information from the physical world) is mathematically manipulated to produce signals that drive actuators (devices that act upon the physical world). The interesting and powerful thing about control theory

is that actuators have an effect on sensors, so that the control system is self-regulating. It is able to check itself and make sure that the desired result is being achieved in the physical world.

The controls engineer concentrates on mathematical manipulation of sensor data. Drawing an anthropomorphic comparison to the human body, the sensors are the five senses, the actuators are the muscles, and the control algorithm is the brain. The remainder of this work will develop this comparison and apply system theoretic principles to human understanding of the universe.

There are two main ways a controls engineer goes about developing an algorithm. The first, useful on only the simplest of systems, is to use complicated instrumentation (an extension of the senses) to drive the actuator in a certain way and see what happens to the sensor signal. Using this actual data produced from driving the system, rules are used to determine the control strategy that will achieve the desired result. This method is normally useful only on a simple system with a Single sensor Input and a Single actuator Output (SISO), but, for this common class of simple systems, it is quite powerful.

More complex systems feature Multiple sensor Inputs and Multiple actuator Outputs (MIMO), such as the flight-control system of an airplane. It

is not possible to drive these systems to acquire data and use empirical design rules to determine the optimal control. In this case a model of the physical world is constructed that relates the actuator effects to the sensor measurement. In the flight-control systems example, the model is the dynamics of the airplane, the inputs are the positions of the flight-control surfaces, and the outputs of the model are sensors that measure the resulting motion of the airplane. Using this model a closed-loop control strategy can be developed to transform the sensor measurements to actuator inputs.

The model used by control theorists is comprised of—appropriately enough—blocks. These are not children's building blocks, however; they are mathematical characterizations of how an input signal is transformed to an output signal. In general, the input and output signals can be arrays of multiple variables. For example, the input signal



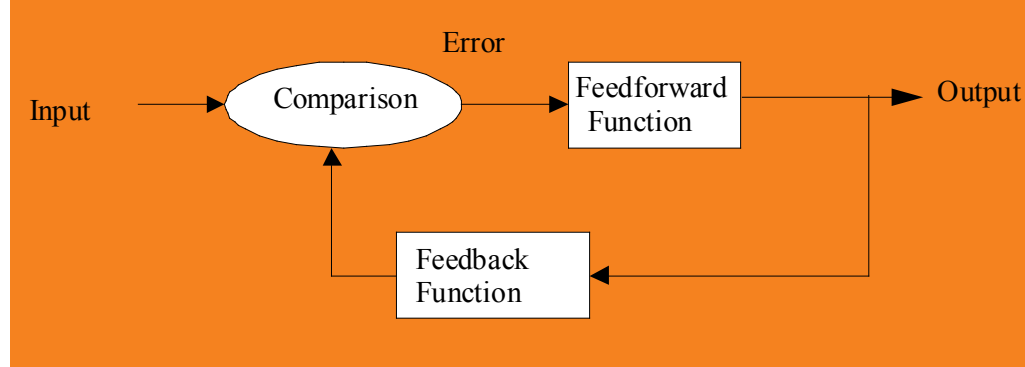


Figure 1: The closed-loop process

to a mechanical spring is a force, the output is the spring displacement, and the transfer function is the inverse of the spring stiffness, known as compliance. Instead of acting on a stiffness, a force could act on a mass to produce an acceleration inversely proportional to its inertia. The power of this type of modeling is that an electrical circuit produces a model with stiffness and inertia replaced by capacitance and inductance. So the same differential equation can represent vastly different physical realities, providing an extremely parsimonious mental model of the physical world.

A simple control block is an example of an open-loop system characterized by an input that is transformed to become an output. A very interesting behavior occurs when the output of such an open loop or *feed forward* block is measured and *fed back* to be compared with the original input, as shown in Figure 1. When this feedback occurs, the controls engineer designs the dynamic properties of the feedback block so that the error between the input signal and the feedback signal is minimized. It is important to appreciate that the output of the feedback block will track the input if the error between the input signal and feedback signal is minimized. This may seem a trivial result, but it has great practical application. One way to control the speed of your car is to give it a constant open-loop accelerator input. The problem with this method is that if you happen to be going downhill the constant accelerator input will allow the car to go faster, and going uphill it will go slower. Your car's cruise control does a better job of controlling speed because it is a closed loop. The controller compares your desired speed with the measured speed and, if you are going too slow, increases the accelerator input and, if too fast, reduces it. This property is known as disturbance rejection. Of course this example is the simplest of control systems. The main point is that all well designed control systems minimize the difference between the input signal and the feedback signal.

### The Importance of a Model

Sometimes it is required that the control not merely minimize the difference between the input and feedback signals, but completely eliminate this error signal—achieved by accumulating or numerically integrating it. The absolute value of the error signal might be small, but as it persists in time the integral becomes quite large. By seeking to minimize the integral of the error, precise agreement between the input and feedback signal is achieved.

Once a dynamic model of the physical world exists, there is a rich and highly developed body of mathematical

techniques that will result in an optimal control algorithm for MIMO systems. The most powerful of these techniques assume that the system is linear in a dynamic sense. By this it is meant that in some way the output is proportional to the input. Consider a spring. The output, or spring displacement, is proportional to the input, or the force that compresses the spring. If you press twice as hard the linear spring is squeezed twice as much.

A nonlinear dynamic system can be seen in a block (in this case an actual toy building block) sliding on a surface with some friction. Initially a small input force produces no output motion. Only when the input force is sufficient to break the static frictional connection is there motion. Nonlinear dynamics can sometimes follow certain trends and patterns, popularized as chaos. Controlling such systems, however, must be accomplished on a case-by-case basis, and lessons learned in one nonlinear system might not apply to another.



Sir Francis Bacon

### State of the System

Happily, most systems are close to being linear in some sense. Cars and airplanes at certain speeds can be well described by a linear dynamic model, which is often sufficient if the task is to design a speed controller. Because the controller's purpose is to keep the system operating in the neighborhood where the linearity assumptions are valid, this can work for systems that are generally nonlinear. With an adequate linear model in hand, an optimal control algorithm is possible; however, it is

more an art than a science to determine an adequate model. Consider the open-loop speed control of a car. One physical model is that when the accelerator pedal is pushed, the car goes faster. Another model would be that as the accelerator is pushed, the engine generates more torque, and that torque accelerates the driveline and wheels, and the car goes faster. Yet another model would be that the accelerator is pushed, more fuel enters the cylinders, more powerful explosions drive the pistons with greater force, which generates more torque on the driveline, which accelerates the wheels, and the car goes faster. This deterministic process could theoretically be extended, but there is a practical limit as the Heisenberg uncertainty principle does not allow the precise simultaneous knowledge of where a particle is and what it is doing, known as the state of the system.

For Newtonian dynamics to completely describe the behavior of a dynamic system, complete knowledge of the initial state is required, and this includes all positions and

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velocities. So the real world is not always linear, and, even if it were, it would not be possible to completely model a dynamic system. The model that a controls engineer uses to establish the optimal control is only an approximation of reality. The model of a dynamic system is a Kantian phenomena. It is not reality, and yet it is the way the controls engineer can conceive reality that can be used to manipulate it.

Using theoretical design techniques, an optimal controller can be designed that mirrors the model on which it is based. If the theoretical model of the physical system is complex, the controller will be equally complex. Associated with this complexity is the requirement that more parameters of the physical system be valued. Thus, there are counteracting tendencies at work with increasing model complexity. First, as complexity of the model is increased, more of the dynamics present in the real world are accounted for. Second, for each degree-of-freedom added to the dynamic model, perhaps three or even more parameters need to be established—each parameter the result of an assumption of linearity that is true to varying degrees.

## The Art of Modeling

An increase in complexity has the potential both to improve and to degrade the overall performance of the control system—thus requiring the art of modeling. Sufficiency of a model is contingent upon its intended purpose. Optimality of a model is the simplest sufficient model. Following Einstein's advice, the model should be "as simple as possible, but no simpler."

This conceptual parsimony is perhaps most famously illustrated by the Copernican heliocentric-solar-system model supplanting Ptolemy's earth-centered concept. Both models sufficiently explained observation. Copernicus' model was simpler, and therefore optimal. This simplicity had advantages in the transmission and use from person to person, and it required fewer assumptions (e.g., combinations of epicycles and eccentrics). Furthermore, the Ptolemy model is an example of a classic problem with model complexity. As model complexity adds degrees of freedom, it can be increasingly tuned to match the received data. The model becomes nothing more than an instrumental representation of past observation. There is a general belief that if several models more or less equally explain observation, the simpler model comes closer to capturing the physical essence.

One way to resolve this dilemma rationally is to take a controller that is optimally designed for a complex dynamic model and reduce its order while maintaining a resemblance to the original system in some meaningful sense. Each degree of freedom of a mechanical model usually has two states

associated with it, position and velocity. The state trajectory of the system can be visualized as a multi-dimensional plot of the state variables of the system. A simple single-degree-of-freedom system is a mass that is allowed to move in one direction only, like a train on a straight track. The state of this mass can easily be plotted as position vs. velocity on a piece of two-dimensional paper. As forces act on the mass, the state trajectory becomes a two-dimensional line. The state of complex multi-dimensional modes cannot be plotted so simply. Although dynamic dimensions are not equivalent to spatial dimensions, they are often represented in the two and three spatial dimensions available to us. Our ability to visualize higher dynamic dimensions is clearly inhibited

by our three-dimensional spatial experience. If the train becomes a car and is allowed to move in two dimensions on a planar surface, the state of the system requires four dimensions to express it. This system state cannot be represented in our three-dimensional world in a way that our senses can interpret, like a graph on paper, but it is no less valid a representation of a physical system. A suspended vehicle going straight along a bumpy road has 14 states—position and velocity of each of four wheel hubs and position and velocity of pitch, roll, and heave of the car body. Control theorists have been forced to conceive of the physical world in dimensions far greater than our five senses have trained us to think as we control our muscles in three-dimensional space.

So even the most complex imaginable model will be incomplete and very likely inaccurate. These complicated multi-dimensional models can be projected into a smaller dimension with robustness and some sense of optimality preserved. This projection of a system into a smaller dimension is every bit analogous to Plato's famous projection of three-dimensional space as shadows on a two-dimensional wall. Information is lost as the dimensions of the system are reduced, but the Kantian brain processing the images of the shadows does not know what it does not know.

As instrumentation has extended our senses to probe our habitable spatial dimensions, we have had to revise our understanding of the physical world. It is possible that there are dimensions completely hidden from our senses. David Bohm has shown that if such hidden dimensions are assumed, quantum effects can become deterministic. String theory requires more than three spatial dimensions. Advanced control theorists are quite comfortable projecting a complex model of reality into a reduced dimension state space and using the result to perform a useful function in reality.

Beginning with the Greeks through Descartes to Einstein and his famous thought experiments, men have believed that



Sir Isaac Newton

they could develop a mental concept of nature. Such thinking is known as rationalism and prefers reason to observation. Rationalists are inclined to discount observations that do not fit their model. Such rationalists can be dogmatic and, in the extreme, delusional. Opposing rationalists are empiricists, who believe that we know nothing apart from what we observe. Extreme empiricism, typified by David Hume, can infer nothing about the future from the past, denying causality. Tension between rationalists and empiricists has long been evident in Western culture.

### A Theory of Scientific Knowledge

As the scientific method was formalized, Francis Bacon classically considered the hypothesis to be a mental model resulting from an inductive process of summarizing observations. Thus the hypothesis can be thought of as a parsimonious mental model of observation. In Bacon's traditional view of scientific knowledge, theory (hypothesis) is a sequential, rational forward processing of particulars to form generalities. Relatively recently, Karl Popper and Thomas Kuhn claim that the reverse is actually true. A tentative theory is developed, guiding subsequent observation that either reinforces its validity or refutes it. This is essentially a sequential process as well, with hypothesis (theory) leading to observation, an empirical deductive processing of generalities to particulars.

Empiricists and rationalists are both right. Theory results from observation and in turn promotes further observation and theoretical refinement. This establishes a *chicken-and-egg* loop, of the form similar to the closed loops of control theory. This particular closed loop was formed when science became the significant input to technology. Technology can be considered the manipulation of nature to suit man. Throughout most of history, technology has been divorced from science. Practical men were artists, craftsmen, and guildsmen using rules of thumb passed along by word of mouth. Prior to the rise of science, technology was developed through a combination of individual innovation and trial and error, with the trials largely motivated by extrapolation of experience, mimicking nature, religion, and mysticism. Technological innovation can produce positive results unanticipated and, in fact, unexplained by scientific theory. This somewhat embarrassing situation for scientists can drive theoretical creativity. Thomas Kuhn analyzed the simultaneity of *discovery* of the principle of the conservation of energy among 12 independent researchers. The vast majority of these were technologists working on steam engines, and yet they discovered one of the most elegant consistencies of nature.

As the predictive qualities of science improved, scientific theory became the prime technological input, largely replacing trial and error. Technology became a practical, positive test of scientific theories. The significance of this event cannot be underestimated. It formed a feedback loop.

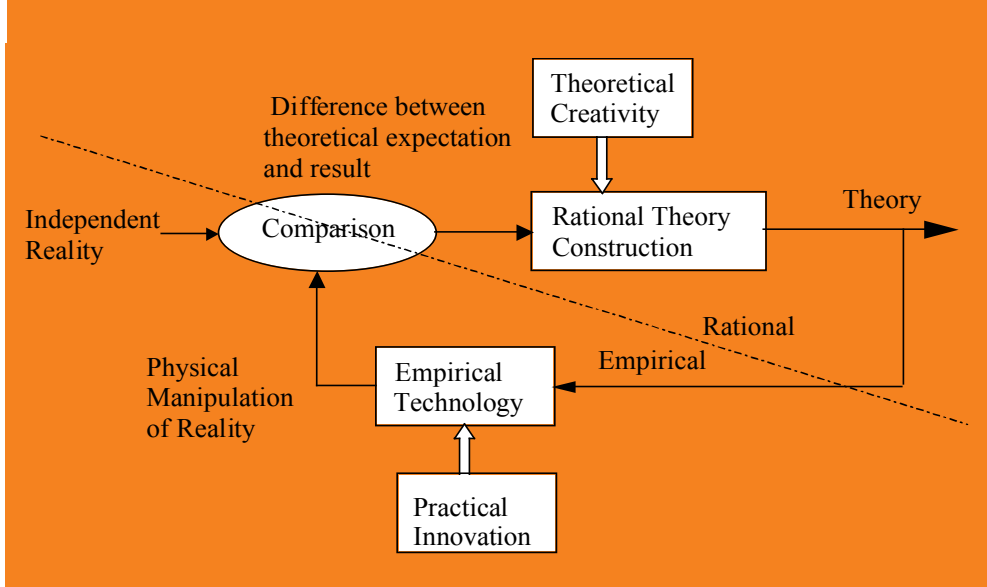


Figure 2: The scientific closed-loop

If science was a process of constructing theory from reality, technology became the inverse process of manipulating reality based on theory. When theory is used to manipulate reality, the expected result can be compared with the actual result. This allows the full attention of science to be placed on developing theories that are successful in predicting reality and thus driving technology, as shown in Figure 2.

No longer is scientific theory driven by cumulative observations of independent reality as suggested by Bacon. To the extent that these observations are successfully incorporated into scientific theory, they cease to be important. When experiments produce the theoretically expected results, there is no error signal in the closed loop. No new information is transmitted to the mental model, as the existing mental model is producing the appropriate results in practice. The theoretical process of science is driven not by observation, but by the error between observation and prediction. Thus the closed-loop scientific process agrees with much of Popper's emphasis on falsification. Only when there is an error can there be an improvement in the mental model. Popper insightfully states that the easier it is potentially to falsify a hypothesis, the stronger the hypothesis is if it stands. A hypothesis attributing a specific effect to divine intervention is very hard to prove wrong. However, a hypothesis regarding the outcome of a specific experiment is easily falsified if the results are unexpected. Using Popper's reasoning, the strongest theories are those most successful in predicting reality. The weakest theories explain, but do not predict.

### Theory Tracks Reality

As Popper rightly suggests a falsified hypothesis should be celebrated because something new is learned. In addition to the positive successful application of theory, technological activity is here defined to include any contrived test of theory, such as an experiment. This is a falsifying or negative technology, and plays a key part of Popper's refutation. A hypothesis is refuted when there is a large error between the observation and the result predicted by theory that cannot be reduced by slight modifications and extensions of the theory. In this case, it is quite likely that a radical, structural change in the theory is required to reduce the error.

The flyball governor of a steam engine is an example of a closed-loop process that might be familiar to the reader.

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Without a governor, a steam engine will reciprocate with increasing speed until failure. The action of the flyball governor serves to reduce the input to the steam engine as its speed increases. The reference signal is the desired speed, the forward process is the engine turning steam into motion, and the feedback is the governor turning motion into flyball position, which can be compared with the reference position (equivalent to the desired speed). Thus, if the engine runs slower than the desired speed, more steam is allowed, and, if the engine runs faster than desired, the input is reduced.

In such a closed loop, it is impossible to say if the engine drives the governor (which it does) or the governor drives the engine (which it does). Similarly, in our model of the scientific process, it is equally valid to say that theory drives practice (as Popper) or that practice drives theory (as Bacon). Just as the closed loop of the steam engine ensures that actual engine speed corresponds to the desired engine speed, the closed-loop scientific process ensures that our scientific theories correspond to reality.

This closed-loop characterization of the scientific process is well known to applied mathematicians and engineers familiar with control theory. A well designed closed-loop system works to minimize the error or the deviation between the reference and feedback. In this case, the reference signal is reality, and the feedback is the output of technology. When technology transforms theory into a desired result useful in reality, the error is small, and in many practical ways the feedback signal equals the input. The empirical technology feedback block can be thought of as a transformation from the mental model of reality to manipulation of the material world. The mental model determines how reality needs to be acted upon based on its sensory inputs, and this intention is transformed by the empirical technology transfer function. If there is no error between reality and feedback, the mental model is static, and the inverse of the empirical technology transfer function is the mapping of reality to the mental model. This transformation is the key to understanding Kant.

A closed-loop system will more completely eliminate error by accumulating (integrating) it, which is equivalent to memory. Errors accumulate over time and increasingly drive the theoretical process to work to eliminate them. When accumulated error is zero, the mental model explains all past observations. It is difficult to agree with Popper that this model remains *provisional* when it cannot be possibly improved with all that is known in the history of observation. When the accumulated error is zero, the inverse of the technology transfer function is the optimal mapping of

reality to our brain. The Kantian brain does not impose an arbitrary order on reality. Rather, as the loop is closed, there is a specific mapping from reality to the mental model.

The function of a closed-loop system is to force an output to track a reference. In this case, scientific theory tracks reality. Hume was correct in that Bacon's linear inductive process of theory from observation does not necessarily result in truth. When scientific theories are driven by accumulated errors between the consequences of their theories and reality, theories will resemble reality in an optimal sense. All that is required are assumptions that reality is consistent and sufficiently well behaved in the mathematical sense to allow interpolation between observations to say, contrary to Hume, that there are things we can absolutely know about reality and causality. The closed-loop process

of science rescues epistemology from Hume's empirical dead end. At the same time, the closed-loop process refutes the Kantian notion that man imposes order on nature. Man does not impose order on nature; rather nature rewards man for better theoretical models of her deeper order. Thus the closed-loop theory of knowledge eliminates the excesses found in purely rational or empirical knowledge.

## Changing Theories

Frequently, new knowledge is the result of a technological innovation extending or amplifying the actions of our muscles and sensitivity of our senses. Initially the model is perturbed to eliminate the error. Usually this is successful, but rarely structural changes are required, and this is referred to by Kuhn as a *paradigm shift*. Self-organizing closed-loop systems can be constructed that change their structure,

in effect adapting to maximize their performance. In mathematical language, such systems are known to converge to local optimums, but in general cannot be guaranteed to converge to absolute optimums. In laymen's terms, such adaptive systems will usually converge to very good solutions—in fact the best in a mathematically defined neighborhood. When starting from different initial conditions, the adaptation could converge to a different solution, which would be the best in a different neighborhood. A paradigm change can be interpreted as a movement from one neighborhood of solutions to another. This suggests another function of the scientific hypothesis or model, agreeable to Kuhn. It directs experimentation and is able to absorb new information as it arises. A particularly good scientific theory will be incorporated into the structure of a succeeding theory as a limiting or special case, as with Newton and Einstein.

Recall that no information was obtained when the old model correlated with reality. Therefore, to the extent



David Hume

that the old model represents accumulated verification by its stability over time in the face of potential falsification, the new paradigm should resemble the old in its domain of effectiveness. When a paradigm shift occurs, the new paradigm must provide a similar response to the old paradigm in the input region where the old paradigm was accumulating inputs, or else accumulated verification will be lost.

### Incorporating Sociology and Values

Scientific learning occurs at the personal level, but there are significant interactions between the individual and society. The role of memory implies the importance of recorded material to transfer accumulated errors between generations. Since accumulated error drives theoretical innovation, the more participants in technology, whether in the negative sense of experimentation (in an attempt to falsify) or the positive sense of technology (in an attempt to utilize), implies a value in scale, or numbers of participants, and, therefore, the value of community. Communication is important both between and within generations. Simple theories are easier to communicate and use than more complex theories. Our early concepts of theory are often learned from books, which represent the accumulated experience of the ages. Therefore, it is not surprising that the scientific process accelerated with the invention of the printing press and can be expected to accelerate again with the advent of the internet.

The proposed theory fundamentally agrees with Kuhn's conception of a sociology of science determining the paradigm around which it will organize. Kuhn believes that theories are false, and the decision to accept one theory over another is made with considerations other than absolute truth. Additional considerations in paradigm selection, such as parsimony, serve to make the paradigm more useful as a driver of practical technology. When Copernicus replaced Ptolemy, his system was not absolutely accurate, nor was it even relatively more accurate. It was roughly as accurate as Ptolemy, but far simpler, and, therefore, more parsimonious and useful. As an approximation, our mental representation of reality is most valuable when it is parsimonious. At the end of the day, the proposition must explain reality at least as well as its competing paradigms and must be more effectively transmitted within the community of scientists in order to survive in the marketplace of theories.

### Conclusion

Science is not unique in its endeavor to transform observation into theory. All of the social sciences in some sense attempt this explanatory function. The difference between science and these fields is that their theory is not sufficiently predictive to drive technology, and conversely they do not as efficiently incorporate new information into their models. If other theoretical disciplines aspire to advance as quickly as science, they must develop a closed-loop linkage between theory and practice. The rationalist feedforward process of inductively generating a parsimonious mental model of reality is required to generate new hypothetical extensions and to be efficiently communicated to the scientific community. By itself, the rationalist feedforward process can support

an explanative function common in social science while lacking predictive ability and therefore not be subject to falsification. The empirical feedback process of experimental technology ensures that theory will resemble reality. Both rationalism and empiricism are required for the scientific closed-loop process to work.

A desire exists to consider science as objective and quantifiable and reserve such subjective notions as values to a different realm. This is an overly simplistic view of performing science. As one of several competing paradigms is accepted, it is because of such things as elegance and simplicity, or in other words—values. At a personal level, the experience that we accumulate is largely determined by values. So we must conclude that, despite our aspirations otherwise, our encounter with the material world is shaped by our values and filtered by our senses. Only by using theoretical knowledge to anticipate a desired interaction with the physical world—and accumulating the empirical result—does man understand nature.

### Bibliography

- Bacon, Francis, *Novum Organum*. Reprint. New York: Wiley Book Co., 1944.
- Bronowski, J. and Bruce Mazlish, *The Western Intellectual Tradition: From Leonardo to Hegel*. Reprint. New York: Barnes and Noble Books, 1960.
- Kant, I, *Critique of Pure Reason*. London: Penguin, 2007.
- Kuhn, Thomas S., *The Copernican Revolution*, Harvard University Press, 1957.
- Kuhn, Thomas S., *The Essential Tension: Selected Studies in Scientific Tradition and Change*. Chicago: University of Chicago Press, 1977.
- Kuhn, Thomas S., *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press, 1962.
- Popper, Karl, *The Poverty of Historicism*. Reprint. London: Routledge, 2002.

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# Vertical Center of Gravity

by Mark T. Summers, Texas Iota '84

ONE OF the most important parameters of a high-performance race car is the location of the center of gravity  $CG$ . This center of mass location will greatly affect the breaking and cornering characteristics of the vehicle.

To determine the front-to-back and side-to-side  $CG$  location is a straightforward process. One method is to drive the vehicle on a set of four scales, record the weights, and determine the  $CG$  locations with simple equations. These equations are developed by taking advantage of the fact that the moments about an axis through any two of the wheel/scale centerlines will sum to zero.

However, computing the vertical location of the  $CG$  is more challenging. The method described below uses the same scales mentioned, with an additional measurement made after inserting a block under the rear wheels, which rotates the vehicle about the front axle.

For simplicity, I define  $SF$  as the sum of the two scale readings on the front wheels and  $SR$  as the sum of the two scale readings on the rear wheels. Other variables and parameters are shown in the figure.

First, we take a weights measurement and compute the  $CG_x$  value by summing the moments about an axis through the front axle:

$$1. CG_x = WB \times SR / (SF + SR).$$

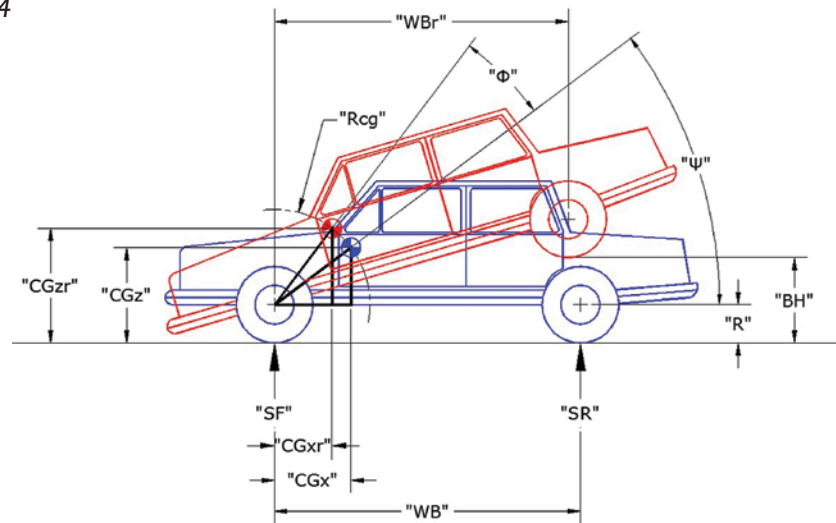
Next, we locate a block to lift the rear wheels off the ground and take a second weights measurement. Using trigonometry, we develop the following set of additional equations:

$$2. BH = WB \sin(\phi) \text{ and}$$

$$3. WB_R = WB \cos(\phi).$$

Now we need to relate these two  $CG$  locations so we can calculate the vertical component of the  $CG$ .

Taking advantage of the fact that when the vehicle is lifted on the block it is rotated about the axis defined by the axle of the front wheel, the location of



the  $CG$  (with or without the rear wheel block) must always lie on the circle with the radius labeled as  $R_{CG}$ . Also, knowing that the horizontal legs of the two bold triangles shown in the figure represent the two front-to-back center of gravity locations  $CG_x$  and  $CG_{XR}$ , we write the following two additional equations:

$$4. CG_x = R_{CG} \cos(\psi) \text{ and}$$

$$5. CG_{XR} = R_{CG} \cos(\psi + \phi).$$

Solving each for  $R_{CG}$  and equating then results in the following equation:

$$6. CG_{XR} \cos(\psi) = CG_x \cos(\psi + \phi).$$

Using a familiar trigonometric identity, we can re-write the right side of equation 6, which results in:

$$7. CG_{XR} \cos(\psi) = CG_x \{ [\cos(\psi) \cos(\phi)] - [\sin(\psi) \sin(\phi)] \}.$$

Since we can calculate the value of  $\phi$  from its relationship with known values of the wheelbase and block height from equation 2 above, we re-write equation 7 as follows:

$$8. CG_{XR} \cos(\psi) = CG_x \{ [\cos(\psi) WB_R / WB] - [\sin(\psi) BH / WB] \}.$$

Now, with algebraic manipulation, I develop the following equation that allows us to solve for  $\psi$  with respect to known geometric parameters:

$$9. \tan(\psi) = [(CG_x \times WB_R / WB) - CG_{XR}] / [CG_x \times BH / WB].$$

Lastly, using trigonometric relation-

ships, I write the following correlation between the angle  $\psi$  and the center of gravity locations  $CG_x$  and  $CG_z$  and the radius of the vehicle's wheels:

$$10. \tan(\psi) = (CG_z - R) / CG_x.$$

Now, let's remove our mathematician's hat, put the car on the scales, and calculate our vertical  $CG$ . With the rear wheel block removed, we get the following values from the scale readings for weighing No. 1:

$$SF_1 = 1,440 \text{ pounds and}$$

$$SR_1 = 480 \text{ pounds.}$$

Knowing this and that I have a 160" wheelbase vehicle ( $WB=160$ ) with 20" radius wheels ( $R=20$ ), I compute the front-to-back  $CG$  location using equation 1:

$$CG_x = WB \times SR_1 / (SF_1 + SR_1) = 60 \times 480 / (1,440 + 480) = 40".$$

Next, I use a sturdy block to raise the rear wheels for the second weighing. I measure its height, which is 44.8". This is a convenient value that will make my calculations easier. With the block in place, I check the scales again and record the following values for weighing No. 2:

$$SF_2 = 1,615 \text{ pounds and}$$

$$SR_2 = 305 \text{ pounds.}$$

Now, using equations (2) and (3), I  
(Continued on page 24.)

# President Simonson Reports to the 2010 Convention

The Executive Council leads the Association under the provisions of the Constitution and Bylaws and the Acts of the Convention. It provides leadership to guide national programs through Executive Director and Secretary-Treasurer Jim Froula, Assistant Secretary-Treasurer Roger E. Hawks, the Headquarters staff, District Directors, chapter advisors, and many additional outstanding volunteers. The Council receives guidance from and reports to the Convention. Therein lies your responsibility.

## THE CONDITION OF THE ASSOCIATION

Tau Beta Pi is the largest engineering society in the world with more than 517,000 initiated members and 455,000 living members. The number of active members is most important to the health of the Association. Tau Beta Pi's 236 chapters had a very good year, initiating 8,704 members, an increase of more than 1,000 initiates reported three years ago. I challenge you to allow me to report another increase in initiates at next year's Convention in Indianapolis.

Tau Beta Pi is a very active honor society, providing many member benefits. Your attendance here is an opportunity for you to be involved in conducting the business of the Society. Your participation is important for the future of our Association. Please accept your responsibilities and be actively involved. This Convention is funded from many sources, including each initiate's Convention assessment, contributions from more than 12,000 members, and earnings from the Association's Trust.

Looking at the numbers, contributions from alumni members are just under \$1,000,000 each year. The assets of the Association include \$17,000,000 of portfolio investments, an increase of 10.6 percent compared to last year. As you are painfully aware, the economy of the United States has faced many challenges in the past two years. Tau Beta Pi's financial situation is solid despite the shared pain of financial turbulence. The annual budget of the Association is about \$3 million. Approximately \$700,000 is spent for Headquarters operations located in Knoxville, TN. The staff is talented, loved by the Association, and efficient. Approximately \$380,000 is spent to support students with fellowships and scholarships. (Would all of the Tau Beta Pi Fellows and Scholars, past and present, please stand and be recognized?) Approximately \$350,000 is spent on this Convention. Fourth on the list of expenditures is publication of *THE BENT*—\$300,000. Next will be \$200,000 for the District Program, which includes the spring conferences, and \$100,000 for the Engineering Futures Program. We are supported by hundreds of volunteers and thousands of donors. Every year we are joined in our mission by several thousand top engineering students.

## 2009 CONVENTION BUSINESS

Each year the Convention has an opportunity to make changes to the Constitution and Bylaws. One constitutional amendment and one bylaw amendment were approved by the chapters based on action of last year's Convention in East Brunswick, NJ. Several matters were referred to the Executive Council (EC) for action.

Based on a recommendation from last year, a Tau Beta Pi Investment Policy has been prepared and will be submitted to the Committee on Chapter and Association Financial Affairs at this Convention.

## OTHER EC ACTIONS SINCE THE 2009 CONVENTION

The Executive Council has met face-to-face three times since last year. We also held several meetings via teleconference to reduce travel expenses. We plan to continue this schedule this year. We are watching the expense side of the ledger very carefully in an attempt to not compromise the benefits enjoyed by you, the members of Tau Beta Pi.

You will hear much about Tau Beta Pi's K-12 Math and Science Program, MindSET. Councillor Dr. Jonathan Earle continues to lead this effort. The organizational structure is in place, and many Tau Beta Pi volunteers are working diligently through the National Management Committee, the Regional Management Committees, and the chapter implementation teams. We expect this program to be nationally prominent in its impact on the future of our profession. Please take time to learn how your chapter may become involved. This is exciting stuff.

In order to promote interest in our MindSET Program, a Tau Beta Pi K-12 MindSET training session is being planned for this fall. The purpose of the meeting is to form a working network for key people involved in the implementation of the MindSET Program. Chapters are invited to prepare and submit applications to send teams of three people to the summit. The three people for each team will be the student MindSET coordinator, the MindSET advisor, and a school district liaison. Many chapters have an elected officer in charge of leading their MindSET outreach work. The MindSET advisor is the key person providing continuity. This person does not need to be one of the four chapter advisors. He or she could be a campus person involved with university outreach programs for the engineering college or could be an industrial person who has a vested interest in promoting math and science initiatives for K-12 students. The school district liaison needs to be identified also. Applications should include a commitment from each of the three people mentioned and a brief description of past and projected MindSET activity for your chapter.

Dylan Lane, MindSET coordinator and Communications Specialist at Headquarters, is the point person to receive chapter applications, which are due on October

21. Up to ten chapter teams will be selected to attend the training session and will be notified in time to make transportation arrangements three-to-four weeks in advance. Please contact Dylan or me with any questions that you may have. We are available during the Convention and via email.

During the past year, Tau Beta Pi alumnus receptions have been held in Phoenix, AZ; Pasadena, CA; San Diego, CA; Naples, FL; Louisville, KY; Detroit, MI; Dayton, OH; Knoxville, TN; Houston, TX; Arlington, VA; and, right here in King of Prussia, PA. On October 10, we will meet for the fourth time in the past four years with Washington, DC, area alumni at a reception at the Army Navy Club in Arlington, VA, to begin another year of active involvement with our members throughout the United States. Attendees are very pleased to re-connect with the Society and often comment that it is the first contact they have had with Tau Beta Pi since they graduated from college.

In addition to our receptions around the nation, the formation of Alumnus Chapters provides another way to stay connected to Tau Beta Pi. We would like to provide many opportunities for Tau Bates to remain connected to the Association.

During this Convention you will have a chance to review the petition for a collegiate chapter from Embry-Riddle Aeronautical University in Daytona Beach, FL.

You will also have an opportunity to review the site bids from two chapters to host the 2013 Convention: Iowa Alpha at Iowa State University and Washington Delta at Gonzaga.

Let's have a great Convention and a great Tau Beta Pi year. I challenge you to convert the energy that you bring to this Convention into productive projects to benefit your chapter's members and to impact positively the future of the engineering profession.

The Executive Council looks forward to another great year.

## 2006-14 PRESIDENT

**Larry A. Simonson**, *South Dakota Alpha '69*, Ph.D., P.E., received B.S., M.S., and Ph.D. de-



grees in electrical engineering from South Dakota School of Mines and Technology and returned to his *alma mater* as a member of the faculty after working for Texas Instruments for three years. He is former departmental chair and current Hoffert Professor and associate dean for ad-

advancement. He travels extensively to meet with School of Mines alumni and corporate officials throughout the country. Dr. Simonson also serves as a program evaluator for ABET.

He was initiated into Sigma Tau in 1968 and has served as Chief Advisor of South Dakota Alpha since 1986, District 12 Director during 1994-2006, and Engineering Futures Facilitator since 1990. He was recognized as his university's presidential outstanding professor in 2004 and as the Tau Beta Pi 2002 National Outstanding Advisor. Dr. Simonson is a registered professional engineer and has served as president of the South Dakota Electrical Commission since 1996. In 2001, he founded Youth Engineering Adventure, a week-long program for high-school students interested in mathematics and science.

## MATH CORNER

(Continued from page 22.)

calculate the values for the rotation angle  $\phi$  and the rotated projected wheelbase  $WB_R$ :

$$\phi = \text{asin}(BH/WB) = \text{asin}(44.8/160) \approx 16.3^\circ$$

$$WB_R = 160 \cos(\phi) \approx 160 \cos(16.26^\circ) = 153.6''$$

Knowing this, I calculate  $CG_{XR}$  with equation 1 to sum the moments about the front axle:

$$CG_{XR} = WB_R \times SR_2 / (SF_2 + SR_2) = 153.6 \times 375 / (1,545 + 375) = 24.4''$$

Now, I use equation 9 to calculate the value for  $\tan(\psi)$ :

$$\tan(\psi) = [(40 \times 153.6/160) - 24.4] / [40 \times 44.8/160] = 1.25$$

Finally, I compute the vertical center of gravity using equation 10:

$$CG_z = [\tan(\psi) \times CG_x] + R = [1.25 \times 40] + 20 = 50 + 20 = 70''$$

The Math Corner is guided by **Don A. Dechman**, *TX A '57*, who encourages readers to send ideas for columns to [dondechman\\_2000@yahoo.com](mailto:dondechman_2000@yahoo.com).

## NEW ZIMMERMAN FELLOWSHIP

In November 2010, the Association received a generous bequest from the estate of Marlin U. Zimmerman Jr., *Maryland Alpha '44*. The restricted gift of \$200,000 will establish and support a fellowship for graduate study in the field of engineering.

A graduate of Johns Hopkins University, Mr. Zimmerman received his B.S. in chemical engineering in 1944 and later earned an M.B.A. from Harvard University in 1966. He held key positions at Standard Oil of Ohio, the Norton Company, and John Van Der Valk and Associates before becoming a private consultant for an international fertilizer company. He held many patents including one for improvements of the TOSCO shale process for oil recovery.

Mr. Zimmerman passed away on May 23, 2010.

# Pennsylvania Alpha hosts 2010 gathering Tau Beta Pi's 105<sup>th</sup> Convention

**T**HE FOURTH-LARGEST gathering of Tau Bates ever participated in the 105th Convention in King of Prussia, PA, October 7-9, 2010. These 506 members represented 227 collegiate chapters, six alumnus chapters, and the national organization. Of the total, 343 were students and 163 were alumni. Chapter advisors totaled 66, all invited and most partially reimbursed by Tau Beta Pi; more than 60 guests, recruiters, and consultants participated, enjoying Valley Forge, other nearby attractions, and banquets.

The Pennsylvania Alpha Chapter at Lehigh University was official host of the meeting. The Arrangements Chair was **K. "Dennis" Tung**, PA A '11, who, with President **Robert E. Asselin**, PA A '11, led the host committees in such duties as the campus visit, transportation, publicity, souvenirs, and hospitality.

Headquarters for the national meeting were at the Radisson Valley Forge. Four meals were enjoyed and all meetings were held in the Valley Forge Convention Center. Comprised of 37 booths hosted by recruiters from graduate engineering programs and corporations, a popular Recruiting Fair enhanced Thursday's activities.

The Convention formally opened in the Lehigh Ballroom on Thursday afternoon. It closed on Saturday night with the Initiation and Award Banquet in the Bucks Ballroom—followed by a casino party. Four business meetings were held, beginning with Thursday's session when the President's Report for the Executive Council was presented and end-



ing with the business actions on the final banquet program, when the 2010 Tau Beta Pi Distinguished Alumnus, Laureates, National Outstanding Advisor, McDonald Mentor, and national chapter award winners were honored.

Special Quasiquincentennial events included banquet presentations by **Dr. Lyle D. Feisel**, P.E., IA A '61, **Terry J. Hart**, PA A '68, NASA astronaut, and **Dr. Alton D. Romig**, PA A '75, Sandia Labs executive, and a one-man play, *Einstein the Man*, by Bill Landry.

Almost all business at Tau Beta Pi Conventions is handled by committees. Seven standing committees are called for in the Constitution, three *ad hoc* committees were appointed, and every collegiate chapter voting delegate served on a group.

Full details of the business meetings are recorded in the official minutes and in detail in the December 2010 BULLETIN ([www.tbp.org](http://www.tbp.org)). Major actions of the Convention are reported in this article.

## One New Chapter Granted

In response to a petition received during 2009, a new collegiate chapter of Tau Beta Pi was granted by the Convention. The successful petitioner was the local engineering honor society at Embry-Riddle Aeronautical University in Daytona Beach, FL, which was represented at the Convention by a student officer and one advisor. Installation ceremonies are planned for Florida Iota on March 12, 2011. This will raise the number of active collegiate chapters to 237.

## Chapter Programs & Practices

Understanding the complexity of Tau Beta Pi's financial status presents challenges to students, but the Chapter and



TOP: Bent rededicated: Lehigh engineering dean **Dr. S. David Wu**, PA A '81, with support from university president **Dr. Alice P. Gast**, CA A '80, unveils the Bent monument at its new site outside Asa Packard Hall.

ABOVE: Actor Bill Landry presents *Einstein the Man*.

# 2010 • NATIONAL • CONVENTION



Association Financial Affairs Committee democratically reviewed all financial matters—including the Executive Director's, Financial Review Committee, and auditor's reports—and concluded that the Association's financial health is in proper order.

The committee recommended, and the Convention adopted, specific allowable Convention expenses beyond those specified in the Bylaws for delegates to the 2011 meeting. The group worked with chapters to resolve debts and reviewed and accepted the Council's formal Trust Investment Policy without recommending any change.

The Constitution and Bylaws Committee spent time dealing with a proposal to fine a chapter \$5 for failure to file the appropriate IRS 990 form and \$50 for failure to file the form for two consecutive years, and the Convention amended the Bylaws to do so, by the required three-fourths vote; these changes became effective immediately.

The Convention also adopted, by the required vote, an amendment to Constitution Art. III, Sec. 2(b) and (d), to allow multiple Officers and Directors appointed to a Convention committee to serve as advisors to that committee and to correct an error in the actual procedure of selecting, rather than electing, the Convention Chair; final approval of this change is subject to chapter ratification.

Finally, the Convention directed each chapter to specify in its chapter bylaws its method of determining junior and senior standing and to report compliance to Headquarters by April 1, 2011.

The Rituals Committee organized an impressive model initiation ceremony for the nine students, one alumnus, and one eminent engineer of Pennsylvania Alpha and one initiate for Indiana Alpha. The Convention approved one minor change in the Ritual.

The Award Committee worked long hours in reviewing the 2009-10 records of the chapters and in selecting the recipients of the R.C. Matthews Outstanding Chapter and the R.H. Nagel Most Improved Chapter Awards. Announcement of these awards and the 16 honorees in the Chapter Performance Scholarship Program are reported in detail on pages 28-29.

## 2013 Convention

The 2010 Convention reviewed proposals from Iowa Alpha and Washington Delta and accepted the bid from Iowa Alpha to host the 2013 Convention in Ames. This recommen-

ation was reviewed by the Executive Council in December, and the decision by the Convention was upheld.

## 2010 Tau Beta Pi Laureates

The attendees enjoyed both meeting and hearing about the diverse achievements of Laureates **Christina L. Bonnington**, *Mississippi Beta '10*, **Jaclyn R. Kondratko**, *Indiana Delta '10*, **Elisabeth Linton**, *Utah Gamma '08*, **Travis W. Walker**, *South Dakota Alpha '08*, and **Stephanie N. Zastrow**, *Minnesota Alpha '11*. Vice President Solange C. Dao presented commemorative plaques and \$2,500 checks to each.

## Tau Beta Pi-McDonald Mentor

The delegation met and learned about 2010 McDonald Mentor **Dr. Donna S. Reese**, *Mississippi Alpha '79*, associate dean for academics and administration at Mississippi State University's college of engineering, where she is an Advisor to Mississippi Alpha. Councillor Norman Pih presented her commemorative medallion, \$1,000 check, and another \$1,000 for her chapter.

## National Outstanding Advisor

All were pleased to meet 2010 TBPI National Outstanding Advisor **Dr. Robert E. Efimba, P.E.**, *Massachusetts Beta '63*, an associate professor of civil engineering at Howard University. He has served as Chief Advisor to District of Columbia Alpha for 20 years and as an Advisor for nearly 33 years. Councillor Jonathan F.K. Earle presented \$1,000 and a commemorative plaque to Dr. Efimba and another \$1,000 for Howard University's engineering-school discretionary fund.

## Distinguished Alumnus

The attendees enjoyed hearing the career accomplishments of 2010 Tau Beta Pi Distinguished Alumnus **Dr. Merl Baker, P.E.**, *Kentucky Alpha '45*. President Simonson presented a commemorative plaque to his son, and a TBPI scholarship of \$2,000 will be presented in his honor to a student this spring.

ABOVE: Delegates to the 2010 Convention.

RIGHT: Lawrence A. Jacobson, executive director of the National Society of Professional Engineers, shares some career advice for a Tau Beta Pi at the Recruiting Fair before the Convention opening. Corporate recruiters were eager to discuss possible jobs and internships with Tau Bates.

### 2010-14 Executive Council Installed

The Executive Council of the Association for the 2010-14 term was informally installed during the final banquet program and will continue its responsibility for leadership of the Association.

Re-elected by the 2009 Convention, its members comprise the preceding 2006-10 Executive Council: President **Larry A. Simonson**, Ph.D., P.E., *SD A '69*, Vice President **Solange C. Dao**, P.E., *FL A '95*, and Councillors **Jonathan F.K. Earle**, Ph.D., P.E., *FL A '65*, **Jason A. Huggins**, P.E., *FL A '96*, and **Norman Pih**, *TN A '82*.

### Other Business

The 105<sup>th</sup> Convention carefully handled all of the routine chores of the Society. The Chapter Development Program, including excellent Interactive Chapter Exchanges and Engineering Futures and District meetings, is reported in a separate article in *THE BULLETIN*. Many delegates expressed appreciation for the usefulness of the exchanges and the EF sessions.

The *ad hoc* Curriculum Review Committee examined appeals by two chapters to include three non-ABET/EAC curricula in their bylaws as eligible curricula for new members. The Convention granted two appeals for computer-science programs after extensive debate.

The *ad hoc* Chapter Website Committee made recommendations to improve collective chapter websites and also the official "Chapter Website" at *tbp.org*.

The *ad hoc* Chapter Advisor Committee reported progress being made through the Advisor Recruitment and Development Committee on the topics of advisor-training materials and the advisor selection process.

Alumnus chapter delegates met and discussed a pilot program in District 4 to increase alumnus interest and loyalty to the Society by welcoming graduates and providing opportunities to network with other Tau Bates and to continue activity in the Association.

The TBEI K-12 MindSET Program encouraged members to help and support math and science intervention programs. On Thursday night a dual-presentation was given by teacher and MindSET trainer Carol Goehring on the teacher-training aspect of the program and by Ashish

## Made Possible by...

Tau Beta Pi gratefully acknowledges the following Convention recruiters and sponsors:

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Myles, *FL A '02*, on the development of MindSET modules.

Preparations were also made for participation in the USA Science & Engineering Festival. Ten more chapters expressed interest in starting MindSET projects, and the circuit-board module was taught to members of Maryland Beta and Maryland Delta.

Finally, the Resolutions Committee was responsible in thanking the host chapter members, officials, generous alumni and sponsors, award winners, Headquarters staff, volunteers, and others for all the good things that happened to Tau Beta Pi during the year and closing the Convention with an inspirational message to the delegates. The committee delivered a succinct inspirational thank-you to all, concluding as follows:

*Finally, we appreciate all of you, the collegiate and alumnus chapter leaders, for your dedication and service to Tau Beta Pi throughout this year, especially for maintaining and improving the visibility and public image of the Association and its members.*

# National Awards

## Outstanding Chapter: California Psi

**C**alifornia Psi at the University of California, San Diego, was named the R.C. Matthews Outstanding Chapter for 2009-10.

The Award Committee recognized that California Psi best demonstrated the goals and values of TBPI over the year with outstanding efforts in activities that benefited their community, institution, and members.

The chapter conducted a total of 42 projects. These included reaching out to students at Florence Elementary School and tutoring fellow students.

Members take part in a community outreach program, with groups of five Tau Bates going to a local grade school once a week to teach basic science and engineering principles through fun-filled and exciting experiments.

The chapter also offered free tutoring services for all engineering students in lower and upper-division classes. California Psi leaders last year were President Christopher D. Lau, Vice President Marcellinus S. Harsono, and Treasurer



Emi Nakayama, right, California Psi President, accepts the Outstanding Chapter Award from Committee Chair Ken R. Fukumoto, ID  $\Gamma$ , (left) and Vice Chair Joshua J.M. Fegurur, CA  $\Upsilon$ .

Tien-Hao Lai. Chief Advisor is Dr. Geoffrey M. Voelker.

Honorable mentions went to **California Alpha** at the University of California, Berkeley, and **Ohio Iota** at Ohio Northern University.

## Most Improved Chapter: Montana Alpha



Montana Alpha President Eric J. Moog is congratulated by Award Committee Chair Ken R. Fukumoto, ID  $\Gamma$ .

**T**he R.H. Nagel Most Improved Chapter Award was established in 1971 to recognize major improvement in chapter development.

The 2009-10 recipient is **Montana Alpha** at Montana State University. The Award Committee recognized its extensive and increased project activity and membership participation.

Chapter projects ranged from a Bent-polishing barbecue to taking part in Science Saturday, a science and technology outreach program for elementary students. Topics presented by Montana Alpha were nanotechnology, polymers, and the science of music. Members also hosted an Engineering Futures event in conjunction with the school's career fair.

Over three years, the chapter Headquarter-report ratings rose from Group 7 (< 75 percent) to Group 1 (100 percent). It was also commended for punctual Headquarters reports in 2009-10. Chief Advisor was Dr. Abigail M. Richards, and Advisor was Dr. Hongwei Gao.

Honorable mention went to **Michigan Lambda** at Grand Valley State University.

# 2010 Convention

The Bent sits on its new site in front of Lehigh University's Asa Packard Hall after being unveiled during the Convention.



## 31 Chapters Recognized

Assistant Secretary Roger Hawks presented commendations to these chapters for membership improvements in 2009-10:

Alabama Beta	Massachusetts Alpha
Alabama Epsilon	Massachusetts Iota
Arizona Beta	New Hampshire Beta
California Alpha	New Jersey Beta
California Delta	New Jersey Gamma
California Nu	New York Mu
California Tau	New York Tau
California Psi	Ohio Iota
California Omega	Ohio Kappa
Connecticut Alpha	Ohio Nu
Georgia Alpha	Oregon Gamma
Idaho Gamma	Pennsylvania Beta
Illinois Alpha	Pennsylvania Kappa
Indiana Delta	South Carolina Alpha
Iowa Alpha	South Carolina Gamma
Kentucky Beta	

## \$8,000 in Scholarships

Sixteen chapters, each of which have won Chapter Project Awards for three consecutive years, won \$500 scholarships.

CHAPTER	INSTITUTION	DELEGATE
Alabama Epsilon	University of South Alabama	Sean M. Ramsey
California Alpha	University of California, Berkeley	William H. Li
California Psi	University of California, San Diego	Emi Nakayama
District of Col. Alpha	Howard University	Ehimwenma Nosakhare
Florida Alpha	University of Florida	Elizabeth C. Graham
Florida Gamma	University of South Florida	Cory A. Nation
Indiana Delta	Valparaiso University	Stephen E. Odegard
Iowa Alpha	Iowa State University	Adam P. Christiansen
Michigan Gamma	University of Michigan	Robert J. Warren
Michigan Epsilon	Wayne State University	Eric M. Gingrich
New Mexico Gamma	New Mexico Inst. of Mining & Tech.	Sarah M. Kilmer
New York Tau	Binghamton University	Kirstie T. Caesar
Ohio Iota	Ohio Northern University	Lauren T. Sutherland
Texas Alpha	University of Texas at Austin	Michael Vu
Vermont Beta	Norwich University	Joseph R. Sargent
Wyoming Alpha	University of Wyoming	Robert W. Streeter



## New MindSET Grants

Chapters may receive up to \$1,000 to conduct a project helping to educate local K-12 students in the STEM disciplines. The money is available to chapters from TBP's MindSET Program, to involve young students in their communities and develop engineering modules that stress the importance of math and science.

Send your chapter's proposal to Headquarters. Application guidelines are in Section C-VI of the *President's Book* on the website.

Up to 10 grants may be given, and proposals will be considered on a first-come, first-served basis. Visit: [www.tbp.org/mindset](http://www.tbp.org/mindset).

## Five win TBP Grants!

**Colorado Alpha** (\$750), **Florida Delta** (\$500), and **New Hampshire Alpha** (\$350) received cash support from the TBP MindSET Program—for projects during the year involving K-12 students.

**Ohio Iota** (\$670) and **Utah Gamma** (\$750) received GIG Grants for their community outreach projects that were conducted in 2009-10.

Chapters may receive up to \$750 from TBP's Greater Interest in Government program to conduct a special project involving students in their communities or the political process. Application guidelines are listed in *Chapter Projects* at [www.tbp.org](http://www.tbp.org).

## 153 TBP Scholarships!

The Tau Beta Pi Association Scholarship Program for senior-year study during the 2011-12 academic year will close March 1, 2011, when applications must be in the hands of Director of Fellowships D. Stephen Pierre Jr., P.E.

Depending on investment earnings, 153 cash awards, each worth \$2,000, will be given in this fantastic program. They will be made on the basis of high scholarship, recommendations, extracurricular activities, and financial need. Winners will be selected and notified in April. Junior members of TBP who will be full-time, on-campus seniors in 2011-12 are eligible to apply at [www.tbp.org](http://www.tbp.org).

# 2010 Convention

## 30 Chapter Project Awards

*At the 2010 Valley Forge Convention, Executive Director Jim Froula presented Chapter Project Awards for outstanding performance during 2009-10 to the following 30 chapters:*

Ray Thompson, TIBT

CHAPTER / INSTITUTION	NO. PROJECTS	CHAPTER / INSTITUTION	NO. PROJECTS
AL E University of South Alabama • Helped Habitat for Humanity • Worked with MathCounts	20	MN A University of Minnesota–Twin Cities • Collected and sent holiday cards for the troops • Built Kits For Kids	17
CA A University of California, Berkeley • Were ‘Pioneers in Engineering’ • Recognized an outstanding faculty member	68	NM Γ New Mexico Institute of Mining & Technology • Helped with science fair • Organized activities for children at Socorro Fest	10
CA Δ University of Southern California • Helped local school children Discover E • Carved some pumpkins	10	NY N SUNY at Buffalo • Helped Buffalo Re-Use • Reached out to K-12 students	13
CA E University of California, Los Angeles • Provided mentorship for freshmen • Helped kids build aluminum foil boats	28	NY T Binghamton University • Taught elementary-school kids science and math • Helped clean Ross Park zoo	11
CA Ψ University of California, San Diego • Reached out to Florence elementary students • Tutored fellow students	42	OH A Case Western Reserve University • Conducted pi-mile run • Organized annual bookswap for fellow students	23
CO A Colorado School of Mines • Helped children learn about Thomas the Train • Went ‘Into the Streets’ to deliver canned food	33	OH B University of Cincinnati • Held canned food drive • Tutored fellow students	11
DC A Howard University • Cleaned the Bent monument • Held FE review sessions	7	OH Θ University of Dayton • Participated in E-Day • Helped with Christmas on campus	30
FL A University of Florida • Can you say GatorTrax? Project that started MindSET • Helped in pet adoptathon	42	OH I Ohio Northern University • Participated in JETS • Judged at high- and middle-school science fairs	30
FL Γ University of South Florida • Participated in a Gandhi day of service • Built low-cost wheelchairs	43	OH K University of Akron • Helped PB&J program provide food for school kids • Participated in MLK day of service	25
IN Δ Valparaiso University • Reached out to Boone Grove middle school • Held picnic for college of engineering	17	SC A Clemson University • Joined in engineering & science week events • Introduced high schoolers through CU Eng’g. 101	19
IA A Iowa State University • Brought 65 high schoolers to ‘Building the Future’ • Adopted a highway	31	SD A South Dakota School of Mines & Technology • Conducted MindSET project • Volunteered at Journey Museum	22
KY A University of Kentucky • Held Mechanalia at high-school summer camp • Assisted ‘Circle of Love’ at Christmas	23	TX A University of Texas at Austin • Cleaned Greenbelt Creek • Held Engineering Day at Austin children’s museum	67
MDB University of Maryland • Conducted bone-marrow drive • Helped Habitat for Humanity—on the Gulf coast	30	TX B Texas Tech University • Participated in trebuchet contest • Became Friends of the Library	13
MI Γ University of Michigan • Held fall chore day to assist senior citizens • Conducted project SEED at Angell elementary	97	VT B Norwich University • Hosted brainteaser at E-week • Held Norwich day of service	13
MI E Wayne State University • Worked at Capuchin soup kitchen • Conducted Order of the Engineer ceremony	53	WY A University of Wyoming • Hosted engineering honors banquet for college • Held a blood drive	11

# Contributors to Quasquicentennial Alumnus Giving Program

The names of 9,162 Tau Beta Pi alumni who made donations to the Association in the 2010 Quasquicentennial Alumnus Giving Program appear in two separate sections on the following pages. Their gifts totaling \$701,312 arrived between February 1 and November 15, 2010. Gifts received after November 15 do not appear here but will be published in the Spring.

The generous assistance of each member is deeply appreciated by the Executive Council and other national officers of the Association. The financial resources have permitted strengthening our programs in several areas that emphasize the importance of Tau Beta Pi's basic objectives and that help all collegiate chapters and student members.

Donors' names in the special section beginning on page 41 are arranged alphabetically within their chapters. Names of members who have qualified for the Tau Beta Pi Donor Recognition Clubs are listed only in the first section immediately below. Alumni who made gifts of \$125 or more and are club donors are also members of the 125th Anniversary Club and are noted below with an asterisk. All others who made gifts of \$125 or more and certain first-time donors are listed on page 41 as members of the 125th Anniversary Club.

Names marked with a † symbol are of deceased members in whose memory donations were made either by relatives and friends or through bequests. In addition to the gifts acknowledged here, several were made anonymously through the Combined Federal Campaign or JustGive and are also deeply appreciated. Matching entities are listed on page 45.

## Recognition Club Donors

The names of 6,728 Tau Bates appear in this first section. They made donations to the 2010 Alumnus Giving Program between February 1 and November 15, 2010, and they have also made contributions and bequests to Tau Beta Pi through the years totaling from \$250 to more than \$700,000.

The Donor Recognition Clubs are part of our effort to recognize a donor's total lifetime cumulative giving to Tau Beta Pi. Such continuous support significantly contributes to the overall strength of the Association and allows our Society, with confidence in our financial resources, to plan for modest growth in our services to the engineering profession. These clubs were chartered by the Executive Council in 1986 and have been set at the following levels:

Matthews Club	\$500,000	Alpha Club	\$25,000	Chi Club	\$1,000
Nagel Club	250,000	Beta Club	10,000	Second Century Club	500
Williams Club	100,000	Delta Club	5,000	Founder's Club	250
Heikes Club	50,000	Zeta Club	2,500	125th Anniversary Club	125

### MATTHEWS CLUB

CA † Forge, Charles O. '56

### WILLIAMS CLUB

IN A \*Bechtel Jr., P.E., Stephen D. '46  
MDA † Zimmerman Jr., Marlin U. '44  
VA B \*Anonymously '49

### ALPHA CLUB

IN A \*Forney, Robert C. '47  
MI † Fox, Gordon B. '63  
WVA \*Clutter Jr., James H. '70

### BETA CLUB

AK A \*Mease, John W. '60  
AZ B \*Myers, Edward E. '70  
CA † \*Davies III, Paul L. '83  
\*Jones, Thomas V. '42  
CA A \*Anderson, Vincent C. '83  
CO B Hasund, Svein H. '67  
\*Teets, Peter B. '63  
IN A \*Koller, David C. '62  
LA B \*Kitchens, Philip H. '67  
MD † \*Wilson, William R. '49  
NY E \*Hollander, P.E., Lawrence J. '51  
NY K \*Knox, Keith T. '70  
NY E \*Denning, Peter J. '64  
OH B \*Barthel, Gerald R. '67  
OH † \*Mahaffey, Jack L. '54  
PA A \*Goldstein, Steven S. '65  
RI B \*Brennan Jr., John F. '81  
\*Keddie, William J. '59  
SC B \*Brandel, William J. '52  
SD A \*Schwaller, Tricia E. '98  
TN A \*Holmes, M.D., William S. '78  
\*Moore, Billy J. '59  
TX A \*Schulte, Francis L. '49  
TX † \*Loewenstern Jr., Walter '59  
TX H \*Taylor, Lee D. '68  
\*Trich, John A. '70

### DELTA CLUB

AL A Brackney, William M. '58  
AL E \*Pierre Jr., P.E., D. Stephen '90  
AK A \*Stella, Damien F. '82  
AR A \*Brotherton, Robert H. '67

CA B \*Marshall III, J. Howard '57  
CA † \*Johnson, F. Martin '58  
\*Kennedy, Robert P. '61  
CA A \*Hadley, Arthur H. '49  
\*Mleczko, Eugene L. '47  
Seltzer, Sol '50  
CA † \*McClay, Michael D. '73  
CO A \*Armentrout, Michael Lee '94  
CO B \*Kinzie, Edward O. '64  
CT B \*O'Brien, Donald J. '51  
DE A \*Gutshall, Thomas L. '60  
FL B \*Robert, Raymond W. '66  
FL E \*Faske, David G. '85  
IL A \*Hang, P.E., Daniel F. '41  
IL B \*Gendron, Roger J. '55  
\*Miyasaki, John K. '54  
IL † \*Johnson, R. Douglas '62  
\*Rasmussen, Warren W. '53  
IN A \*Clemens, David '80  
\*Davidson, Charles D. '72  
\*Radewan, Clark H. '65  
\*Schwind, Ralph E. '50  
Wainscott, William S. '48  
IN † \*Rice, Donald B. '61  
IN E \*Dausman, P.E., Alan V. '77  
IA A \*Burmeister, Jon B. '68  
\*Smith, Richard J. '69  
IA B \*Fleming, John R. '50  
LA A \*Longwell Jr., Harry J. '63  
LA † \*Baldwin Jr., George A. '78  
\*Rivers, John V. '63  
MDA \*Goudy, Paul R. '38  
MDB \*Stahle, Carl M. '81  
MAA \*Keogh, Brian J. '84  
MAE \*Holm, John W. '43  
MAH \*Garriques, Ronald G. C. '86  
\*Sin, Chi-Kai '88  
MI B \*Brule, David J. '72  
\*Meyers, James P. '52  
MI † \*Meisel, Al M. '51  
MI E \*Lahti, P.E., Gerald P. '59  
\*Strebenndt, Richard E. '65  
MI Z \*Hau, Ross M. '54  
MS A \*Sinclair, William F. H. '63  
MT A \*Melnick, Charles H. '41  
NJ B \*Dunlop, Robert B. '50  
NY A \*Mayer, Ernest '62  
NY B \*Frantz, William T. '80  
NY † DeGhetto, Kenneth A. '50

Gorin, Ralph E. '70  
\*Woodward, Allen D. '52  
NY A \*Wright, Peter A. '75  
NY Z \*Friend, William L. '56  
NY † \*Cohen, Bernard '54  
NC † \*Kennedy, Theodore C. '52  
OH A \*Friedman, Robert G. '44  
\*Herke Jr., Frederick P. '54  
\*Salomon Jr., Peter F. '71  
OH B \*Eggleston Jr., Robert F. '74  
OH † \*Kolbas, John M. '47  
OR A \*Lundeen, Robert W. '42  
OK A \*Poster, P.E., Charles E. '61  
OR A \*Lundeen, Robert W. '42  
PA A \*Brunner, Thomas M. '63  
PA B \*Norton, Richard S. '57  
PA Z \*Abriola, Joseph L. '48  
\*Feldbaumer, William C. '51  
PA A \*Schuler, Joseph J. '80  
SC B \*Daley, Leslie N. '71  
TN A \*Goodrich, P.E., Henry C. '43  
\*Wilson, Wayne '77  
TN † \*Hall, Kristofer Brian '98  
TX A \*Mickelson, P.E., Kent B. '77  
TX † \*Wilson, Richard O. '56  
TX A \*Fox, Craig A. '77  
\*Mitchell, George P. '40  
\*Sisney, Steven L. '83  
TX E \*Sitton, Randal W. '85  
UT A \*Ramo, Simon '33  
VA B \*Hogan, James C. '70  
WAA \*Asplin, Lyle I. '59  
\*Peterson, Donald E. '46  
\*Pierce, Russell W. '70  
Swanson, P.E., Hilmer S. '76  
WI A \*Grainger, David W. '50  
WI † Cronce, Richard G. '77

### ZETA CLUB

AL A Griffith, Gordon H. '57  
\*Spurlock Jr., Jerry '72  
\*Wilhelm, William J. '58  
AL B \*Drummond, Garry N. '61  
\*Mosley, Talmadge M. '65  
AL † \*Hammer, George F. '39  
AL A \*Fogle, Frank R. '80  
AL A \*Gaddis, P.E., B.L. '73  
AZ A \*Milan, John M. '67

AZ B \*Jarvi, Theodore C. '66  
AR A \*Gammill, Edward L. '50  
\*Gunderman, Tony R. '89  
\*Vratsinas, P.E., Gus M. '67  
CA A \*Ikeda, Kenneth A. '62  
Keith, Edward J. '61  
\*Masatani, Peter James '04  
CA B \*Shombert, Lee A. '79  
CA † \*Gilker, William H. '41  
\*Davis Jr., Joseph S. '59  
Jedenoff, George A. '40  
\*Trane, Frank H. '53  
\*Tyson Jr., James J. '58  
CA A \*Cozens, Eric T. '48  
\*Nelson, Thomas A. '49  
CA E \*Case, Daniel K. '87  
Friedmann, Norman E. '50  
Sipma, Dale M. '67  
CA Z \*Fisher, Dean L. '75  
\*Peters, Robert W. '61  
CA H \*Crotchet, Denton R. '71  
\*Noble, Gary D. '96  
CA † \*Smith, Gregory W. '75  
CA † \*Pickett, Stephen E. '75  
CA A \*Coombs, Richard A. '75  
\*Crews, W. Brian '70  
\*Domning, Edward E. '84  
CA N \*Erickson, Ralph E. '71  
\*Joy Jr., Robert L. '66  
\*Lytle, Scott K. '86  
\*Steenhoven, P.E., Jerry C. '77  
CA E \*Boyd, Robert A. '74  
\*Hickey, Robert W. '88  
Robe, Charles E. '79  
CA Y \*Puttgen, Hans B. '71  
CA Y \*Mukhar, Marwan John '93  
\*Neuman, William R. '61  
CO A \*Hickman, Richard L. '65  
\*Musser, Jack W. '72  
CO B \*Kidd, Thomas W. '44  
\*Walker, Richard F. '49  
CT A \*Bishop, Broughton H. '50  
CT B \*Killingbeck, David R. '77  
\*Lof, John L. C. '38  
DE A \*Hyer, Frank S. '58  
\*Sharp III, H. Rodney '60  
DC † \*Cooper, Reid F. '77  
FL A \*Holcomb, Rebecca Ann '04  
\*Vice, William E. '70

FL B \*Messulam, Aldo J. '67  
FL A \*Pauley, Jason '93  
GA A \*Jenkins, William C. '68  
ID A \*Frohnen, David J. '83  
IL A \*Baits, Paul G. '79  
Beermink, Kurt P. '82  
\*Luzbetak, Paul Daniel '96  
\*Wait, Jay J. '71  
IL B \*Bernhardt, John Edward '89  
\*Carter, David W. '68  
\*Clewett, Thomas Alan '88  
Lewis, Ted H. '68  
IL † \*Crow, Lester '46  
\*Grimm, Richard C. '80  
IL Z \*Allendorfer, Robert K. '83  
IN A \*Avril, Thomas B. '45  
\*Barany, James W. '53  
Christensen, Billy C. '50  
\*Crockett, Christine H. '79  
\*Grimm, Robert A. '50  
\*Livesay, Nancy A. '80  
\*Murdock, Jay H. '51  
Orr, Billy E. '56  
\*Palas, Richard F. '65  
\*Reitz, Richard A. '63  
\*Sherman, Robert '49  
\*Vosteen, Louis F. '52  
Watkins, Eugene A. '52  
IN B \*Conn, Richard L. '76  
IN † \*Jackewicz Jr., Joseph I. '75  
IN E \*Bligh, Joseph A. '52  
IA A \*Harms, Richard P. '65  
\*Jacobson, Allen F. '47  
\*Krambeck, Scott D. '82  
\*Peterson, Michael L. '89  
Pride, Richard A. '47  
IA B \*Carson, David N. '54  
KS A \*Powell, Ricky S. '80  
Wilson, P.E., Donald G. '38  
KS B \*Mueller, Robert L. '67  
Patton, Robert E. '70  
KS † \*Hefty, Keith W. '87  
KY A \*Gould, William H. '61  
KY B \*Lambert, Linda M. '88  
LA A \*Schweizer, Charles B. '36  
LA B \*Evans, Frederick A. '50  
LA † \*Mohr, James D. '55  
\*Snyder Jr., William M. '34  
MEA \*Gordon, Richard O. '36

## ZETA CLUB, CONTINUED

MDA	*Johnson, Christine E. '82 Whited, William E. '52 *Mao, David Chu-Chih '00 *Park, August R. '53	PA A	*Smith, Richard N. '57 *Berglund, Thomas A. '82 *Nisley, Elmer E. '74 *Wagner, Theodore W. '71	AZ B	*Berry, John Bradley '89 Claspell, Ogal B. '66 Hauptmann, Robert C. '80 Jackson, Stephen W. '63 *McDaniel, Richard M. '65	CO I	Tinnan, Mitchell T. '76 Turner, P.E., Edward W. '50 Winsand, Amos O. '52 *Mead, Richard W. '63		*Dye, Frank R. '57 Enochs, Idolo L. '50 *Feltner, Loren D. '57 *Finley, Richard W. '66						
MDB	*Ausherman, Donald W. '79 Beard, Sherman L. '67 *Booth, Andrew W. '64 *Burdick, Martin M. '56 *Burgio, Robert B. '87 *Crane, Thomas C. '52 *De Oms, James H. '68 *Farmer, Nick A. '68 *Hawkins, Albin L. '80 *Owings, USA Ret, James B. '55	PA B	*Weber Jr., John H. '63 *Schaffer, Stanley G. '41 *Whitehurst, Theodore R. '41 Williams, John R. '60 PA A *Bordogna, Joseph R. '55 Gebhardt, Robert C. '53 *Harker, Patrick T. '81 *Hart, Oliver J. '50 PA E *Scott, Walter A. '59 PA Z *Forbes, Blair C. '58 PA H *Martin, Roger E. '49 *Sykes, Robert F. '47 PA Ø *Baddorf, David L. '80 *Caramanico, Thomas A. '71	AR A	Hedden, Terry E. '81 Hill, Larry J. '71 *Kimmel, Dennis E. '88 Powers, Tom L. '58 Weaver, Mark E. '57 Basset, James W. '50 Bragg, Robert H. '49 Butner, David N. '61 *Coleback, Jasper M. '58 *Crooks, Lawrence E. '73 Figuera, Michael R. '71 Pong, Kirby W. '87 Forsten, Harold K. '58 Gottwald, Carl H. '48 Hoe, Albert '92 *Kepler, David E. '75 Kirschman, Randall K. '66 Masson Jr., James R. '42	CA A	Pong, Kirby W. '87 Forsen, Harold K. '58 Gottwald, Carl H. '48 Hoe, Albert '92 *Kepler, David E. '75 Kirschman, Randall K. '66 Masson Jr., James R. '42 McCown, Donald P. '62 Miller, William F. '49 Pigozzi, Leo J. '50 Richman, Mitchell I. '77 Robson, Clayton W. '58 *Wing, Jimmie '52 Woods, Philip '54 CA B *Bowman, Thomas E. '60 *Drowley, Clifford I. '75 Greenwood, Don T. '44 *Hammer, David A. '64 Kulawik, Alan Eugene '93 Dixon, Paul M. '72 *Fowle, Mark C. '76 *Hess, Kenneth L. '74 *Hillier, Frederick S. '58 *Holmen, Robert R. '85 *Kwok, Munson A. '60 *Levin, Robert W. '50 *Parker, Henry W. '45 *Patty, Duncan V. '47 *Taniguchi, Brian Y. '77 Tirado, Leo A. '73 *Trinasthy, John A. '52 *Woodbridge, Roy P. '40 *Whithead, Peter B. '61 *Wong, Richard L. '74 *Yost Jr., Frank M. '40 *Bar, Juliana '80	CT B	Zajac, Gerald E. '68 Cirella, Robert M. '85 *Fitton, John J. '70 *Hudson Jr., Frederick J. '58 *Hunziker, Robert N. '83 *Klopfenstein, Rex C. '59 Staiger, Eugene H. '57 Reis, David R. '62 Dell, Gregory A. '82 Folsom, Steven A. '77 Locke, David W. '43 Swope, Richard D. '69 Engram, Robert L. '69 Gillam IV, Isaac T. '53 *Toran, Alfonso M. '59	DE A	DE A *Waltz, Daniel M. '74 Folsom, Steven A. '77 Locke, David W. '43 Swope, Richard D. '69 Engram, Robert L. '69 Gillam IV, Isaac T. '53 *Toran, Alfonso M. '59	DC A	DC A *Ford, Martha '74 Orzech, Joseph M. '71 *Walsh, Bryan Patrick '97 DC I *Altamore, Annette '79 Ashie, Ibrahim A. '70 *Haldeman, Paul M. '70 Joyce, James W. '61 Keene, Warren E. '57 Keltie, Robert J. '69 *Mitchell, Reginald S. '65 Richmond, Alfred W. '55 *Waire, Timothy A. '91 *Alonso, Hector '72	IN B	*Bakos, Stephen F. '75 *Mills, Matthew D. '87 *Nobilt, Niles L. '73 *Powell, Robert L. '51 Rose, Willis E. '44 Rudnick, Everett L. '64 Soneda, Shinji '49 Boehnen, Daniel A. '72 *Harvey, Earl V. '55 *Kelly, Robert A. '65 Lombard, Michael G. '76 *Lucey, Josephine Ann '80 *McDonald, Patrick J. '60 *Zupic, Esq., Anthony M. '70
MAE	*Dipietro, William O. '42 Mahoney, John J. '56 *Boraski, Nicholas '50 *Cetti, Richard P. '70 *Goodwin, Robert L. '58 *Lewis, Nelson D. '76 *Poulin, James E. '63 *Walker Jr., William E. '57 MAH *Wotiz, Robert P. '78 MI A *Bozian, Edwin B. '50 Smith, Harry '64 MI I *Burchfield, Jack E. '56 *Clark, Walter B. '69 *Hopping, William D. '71 Sarns, Richard N. '76 *Telking, P.E., John T. '62 MI A *Dietrich, Robert W. '57 *Klimaszewski, Richard A. '65 Kogut, Kenneth J. '71 *Mihalj, Louis C. '52 *Stanczak, John S. '70 MI E *Ciarokowski, Arthur A. '71 *Kolarz, David G. '59 *Phillipsart, Nancy L. '60 *Schmuhl, John C. '71 *Timmins, William D. '62 MI Z *Dymale, Raymond C. '70 Jordan, Gary L. '73 *Pettiford, Steven D. '72 MI H *Richard, Jesse W. '52 MNA *Hemp, Gene W. '61 *Rush, Philip J. '43 *Stanley, Steven Francis '84 MS A *Coley, James W. '61 *Faries Jr., Charles E. '57 Pittman, William C. '51 MO A *Edgington, P.E., Bobbie G. '69 Hurwitz, Dan N. '50 *Phillips, Patrick William '98 Taber, Norma J. '80 MT A *Rover, Erlind G. '81 MT B *Samuels, Blake R. '64 NE A *Walcott, Gwen S. '82 NJ A *Cuming, William R. '42 Skowronski, Victor J. '71 NJ B *Blasi, Michael G. '68 *Gibson, Thomas K. '45 NJ I *Friedman, Frank R. '63 *Greene, Elvin '52 *Petrucci, Raymond A. '84 *Stadlin, P.E., Walter O. '52 *Wojslawowicz, Jack E. '70 NJ A *Paulman, Roger '59 NMB *Slominski, Paul '78 NY A *Elwell, W.E., Samuel C. '44 *Florman, P.E., James C. '44 NY B *Fleisher, Richard S. '72 *Leininger, Rolf '63 *Newman, Michael '84 NY I *Anderlik, Jeffrey David '89 NY A *Abel, John F. '63 *Gibson, Michael A. '66 *Swanson, John A. '62 NY E *Grosso, John J. '69 *Marsocci, P.E., Velio A. '53 NY Z *Frohman, John E. '72 NY H *Buttnerman, Heidi C. '79 *Urban, Mark '78 *Varon, Michael '73 NY Ø *Lieberman, Lester Z. '51 *Van Wagenen, William E. '78 NY K *Sturiale, Gino R. '52 NY A *Kuras, John E. '69 NY N *Sherman, Lawrence J. '74 NY II *Demmel, Johann G. '83 *Stalzer, Jeffrey '74 NC A *Vercaemert, Carol S. '76 OH A *Ikeda, George T. '54 *Markuson, Donald M. '80 *Rasbold, James Charles '83 OH B *Forchione, Dennis A. '73 *Zureick, Elizabeth A. '72 OH I *Beans, E. William '53 Bilikam Jr., Robert C. '60 *Holl, Barton S. '48 OH E *Pasady, Ronald C. '70 *Taber, Margaret S. '58 *Wahl, Frederick B. '56 OH Ø *Decance, Richard P. '76 OH Ø *Adler, Richard A. '65 OH I *Anonymous '87 OK A *Anderson, James K. '49 Miller, Loyle P. '49 OK I *Wear, Steven M. '85 OR A *Halligan, Darrell W. '52	PA A *Jessup Jr., W. Edgar '44 RI B *Dusablon, Louise V. '64 SC A *Jones, Walter F. '78 Roesel, Helen A. '79 SC I *Davis, Emmett I. '50 *Good, Mary Lowe '50 *Hanes, Richard M. '67 SD A *Adel, Greg T. '78 TN A *Pih, Norman P. '82 *Rosser, Howard W. '70 *Slaughter, Joseph T. '65 *Snyder, William T. '54 TN B *Casson Jr., Walter A. '56 *Rowan Jr., William H. '55 *Thomas, James L. '77 TN A *Stewart, John D. '78 TX A *Clark, Glynn A. '48 Dorr, Lawrence D. '68 Iglehart, Donald R. '48 *Schweizer, John L. '51 *Wells, Roger M. '71 TX B *Bucy Jr., J. Fred '51 *Carey, Martha D. '80 *Green, Stephen W. '66 *Green, Chester A. '46 *Ingram, Wesley W. '77 *Tye III, John M. '67 *Womack, Robert K. '75 TX I *Hedrick, O. F. '44 *Jordan, Paul Joseph '90 TX A *Clinton Jr., P.E., Daniel D. '52 *Davis, Kenneth W. '49 *Latham, Raymond E. '56 *Mathis, James F. '46 TX E *Repsher, Kenneth W. '76 *Sams, William N. '81 *Wint, Stephen P. '83 TX H *Lin, Kuo-Chiang '80 Nicholson, James E. '75 UT A *Sadauskas, Leonard '66 VT A *Brand, Ronald P. '80 VA A *Agosti, Steven J. '81 *Pitzer, William G. '75 *White, R. Dudley '76 VA B *Adams III, George B. '78 *Berk, Benjamin C. '72 *Creslein III, William E. '52 *Friar, Billy W. '58 VA I *Glass, Christopher E. '83 VA A *Echols Jr., M. Patton '45 WAA *Beall, P.E., Richard L. '77 *Gunter, Robert A. '62 *Herold, Robert E. '59 *Okita, Richard Y. '56 *Bills, Daniel G. '49 Calkins, Myron D. '42 *Cass, Robert D. '83 *Emery, Frederic P. '51 *Zwolinski, John A. '68 WVA *Fournay, Michael E. '58 *Miller, Betty L. '47 WI A *Page, William H. '53 Yee, Paul Yuen-Po '70 WYA Davidson, Steven L. '80	CA I	CA I *Dixon, Paul M. '72 *Fowle, Mark C. '76 *Hess, Kenneth L. '74 *Hillier, Frederick S. '58 *Holmen, Robert R. '85 *Kwok, Munson A. '60 *Levin, Robert W. '50 *Parker, Henry W. '45 *Patty, Duncan V. '47 *Taniguchi, Brian Y. '77 Tirado, Leo A. '73 *Trinasthy, John A. '52 *Woodbridge, Roy P. '40 *Whithead, Peter B. '61 *Wong, Richard L. '74 *Yost Jr., Frank M. '40 *Bar, Juliana '80 CA A *Duckworth, John E. '66 *Fairwell, Robert H. '50 *Holcombe, Richard P. '51 Lancaster, Sidney C. '50 Moulton, James R. '54 *Rothwell Jr., Thomas L. '55 *Slafer, Loren I. '68 CA E *Bramblett, George C. '59 Brunton, Richard W. '73 *Curry Jr., Winfield S. '57 *Dobbs, Michael W. '66 Eytuhov, Viktor '56 Gordon, James D. '63 *Graham, Lloyd J. '59 *McCandless, Roger J. '65 *McDonnell, John D. '80 Nesbit, Richard A. '58 *Rifkin, P.E., Allyn D. '72 *Spencer, Gordon F. '74 *Warner Jr., John H. '67 *Wenck, James C. '73 *Yoshizumi, Steven A. '88 CA Z *Going Jr., E. Jackson '49 *Espy, Goodman B. '57 *Farr, Emory W. '54 *Fawcett, Clinton Douglas '92 *Gilliland, Clinton R. '59 Hancock, John L. '45 *Henderson, Richard D. '53 *Monk, Robert F. '63 *Sutton, John H. '88 ID A *Marks Jr., John R. '77 Satre, Wendell J. '39 IL A *Beambosson, Todd M. '80 Bein, Robert W. '56 Deuchler Jr., Walter E. '51 *Ephgrave, James T. '52 *Epstein, Sidney '43 *Gillette, P. Roger '38 Hines, John W. '56 Kellet, Alan B. '51 *Magnuson, William L. '60 *McGinnis, Gerald E. '58 Nelson, Gordon K. '51 *Nolte, Kenneth G. '64 Schub, Linda G. '79 *Snyder, Dan W. '50 *Tatara, Richard M. '88 *Tirpak, Thomas M. '87 *Tomasic, Michael G. '66 *Waranaukas, Amy B. '85 IL B *Anderson, Robert F. '62 *Forish Jr., George E. '75 *Jaras, Anthony A. '67 *Kacek, George J. '54 *Kapoun, Robert '52 *Kusner, William J. '59 Lewis, Burton A. '48 *Plesniak, Michael W. '83 *Tryko Jr., John E. '56 *Therak, Frank C. '82 IL I *Armstrong, Donald R. '62 Ayres, Richard O. '79 *Carlson, Norman W. '81 Cohen, Sanford C. '58 Dever, John A. '51 *Dixon, David A. '63 *Fenton, Suzanne S. '79 *Gajda, Gregory J. '80 *Handel, Gene M. '68 *Henry, Thomas P. '73 Lee, James A. '88 Silverblatt, Charles E. '52 IL A *Hachtel, Dale A. '68 IL E *Fligor, Pamela S. '92 *Williams, Michael Joe '95 IL Z *Wislek, Michael A. '89 IN A *Amaya, Mark A. '85 *Blythe, James E. '50 *Bogart, S. Locke '65 *Bronson, Henry D. '57 *Brown, David R. '56 *Cartwright, Kenneth O. '41 *Chrisman, Donald W. '42 *Clarke, Roderick W. '49 Cooper, David B. '55 Dunn, Philip C. '64	FL A	FL A *Biasco, James R. '78 Burkart, Scott L. '78 Crlenjak, Richard V. '77 *Daniher, Peter M. '66 Flewellen Jr., William B. '50 Hewes, Ralph J. '85 *MacLaughlin, James W. '78 *Osteen, John A. '67 *Shaeter, Philip '79 Traverse, P.E., Richard S. '71 *Unger, Robert B. '74 *Walding, Joseph D. '51 FL B *Snyder, Allen L. '70 FL I *Ball, Arthur M. '77 Collins Jr., William L. '75 Dip, Anthony '86 Fleming, Gerald J. '82 Garcia, Gerard W. '83 *Jones, William D. '74 *Lyons Jr., Thomas F. '76 *Shimura, Mitsuo '74 FL A *Jammal, Suheli E. '61 *Palm, William H. '55 FL E *Skemp, Susan H. '81 *Smith, Richard '87 *Stierlein, Lorelei Beth '97 GA A *Akridge, G. Russell '62 Austin, Edward M. '56 Coloney, P.E., Wayne H. '50 *David Jr., Edward E. '45 *DeLoach, Thomas C. '69 Dishongh, Jefferson L. '66 *Espy, Goodman B. '57 *Farr, Emory W. '54 *Fawcett, Clinton Douglas '92 *Gilliland, Clinton R. '59 Hancock, John L. '45 *Henderson, Richard D. '53 *Monk, Robert F. '63 *Sutton, John H. '88 ID A *Marks Jr., John R. '77 Satre, Wendell J. '39 IL A *Beambosson, Todd M. '80 Bein, Robert W. '56 Deuchler Jr., Walter E. '51 *Ephgrave, James T. '52 *Epstein, Sidney '43 *Gillette, P. Roger '38 Hines, John W. '56 Kellet, Alan B. '51 *Magnuson, William L. '60 *McGinnis, Gerald E. '58 Nelson, Gordon K. '51 *Nolte, Kenneth G. '64 Schub, Linda G. '79 *Snyder, Dan W. '50 *Tatara, Richard M. '88 *Tirpak, Thomas M. '87 *Tomasic, Michael G. '66 *Waranaukas, Amy B. '85 IL B *Anderson, Robert F. '62 *Forish Jr., George E. '75 *Jaras, Anthony A. '67 *Kacek, George J. '54 *Kapoun, Robert '52 *Kusner, William J. '59 Lewis, Burton A. '48 *Plesniak, Michael W. '83 *Tryko Jr., John E. '56 *Therak, Frank C. '82 IL I *Armstrong, Donald R. '62 Ayres, Richard O. '79 *Carlson, Norman W. '81 Cohen, Sanford C. '58 Dever, John A. '51 *Dixon, David A. '63 *Fenton, Suzanne S. '79 *Gajda, Gregory J. '80 *Handel, Gene M. '68 *Henry, Thomas P. '73 Lee, James A. '88 Silverblatt, Charles E. '52 IL A *Hachtel, Dale A. '68 IL E *Fligor, Pamela S. '92 *Williams, Michael Joe '95 IL Z *Wislek, Michael A. '89 IN A *Amaya, Mark A. '85 *Blythe, James E. '50 *Bogart, S. Locke '65 *Bronson, Henry D. '57 *Brown, David R. '56 *Cartwright, Kenneth O. '41 *Chrisman, Donald W. '42 *Clarke, Roderick W. '49 Cooper, David B. '55 Dunn, Philip C. '64	IN A	IN A *Brandt, Daniel M. '74 Elyver, Michael P. '65 Klepper Jr., Frederic W. '67 Lorenz, Mark J. '80 Luecke, Edgar J. '55 Rodeck, Merlyn C. '55 Lieschig, Douglas L. '73 *Amos, L. Lynn '69 *Berkholtz, Nicholas E. '56 *Carlson, Mary Terese '78 Davenport, Delbert J. '67 *Derr, Curtis R. '85 *Hamm, Kelly Jean '89 Hoverseth, Earl W. '58 *Hurd, Mary K. '48 Kreer, John B. '51 *Markowski, Alan T. '68 *Paris, Stephen W. '75 *Pedersen, Robert D. '62 *Puffett, George F. '83 *Schwenk, Vernon L. '60 *Shepherd, Kevin J. '83 *Snyder, Merrill H. '68 *Stanley, P.E., Richard H. '55 Stout, Thomas M. '46 Wallace, Jean E. '81 Lyon, Bert '58 Roach, John U. '78 *Sacks, Newton N. '41 *Schmidt, Charles C. '73 Schwartzing, Eugene R. '63 Snyder, M. Duane '63 *Anschutz, Glenn W. '50 *Becker, Frank J. '58 *Conrad, Kenneth F. '74 *Creighton, Donald L. '54 Franklin, Marjorie A. '57 *Hannony, Marlin D. '58 Jones, Don B. '50 *Looney Jr., Chesley H. '50 *Metzger Jr., James I. '60 *Meyer, Leslie D. '65 *Nash, Samuel K. '42 Parrish, Joseph V. '72 *Timmerman, Robert W. '38 *Westlake, Richard D. '35	IA A	IA A *Arvon, Charles '88 Roach, John U. '78 *Sacks, Newton N. '41 *Schmidt, Charles C. '73 Schwartzing, Eugene R. '63 Snyder, M. Duane '63 *Anschutz, Glenn W. '50 *Becker, Frank J. '58 *Conrad, Kenneth F. '74 *Creighton, Donald L. '54 Franklin, Marjorie A. '57 *Hannony, Marlin D. '58 Jones, Don B. '50 *Looney Jr., Chesley H. '50 *Metzger Jr., James I. '60 *Meyer, Leslie D. '65 *Nash, Samuel K. '42 Parrish, Joseph V. '72 *Timmerman, Robert W. '38 *Westlake, Richard D. '35	KS A	KS A *Brown, Cheryl Ann C. '82 *Palmer, Mark W. '83 *Walter, Myron D. '59 *Wilson, Bryan K. '85 *Bucher, William A. '76 *Gemmaehich, Donald J. '83 *George, Darin L. '86 *Larson, Reed E. '47 *Anderson, Lee R. '71 Bittle, David F. '59 Congleton, Stephen D. '79 *Gardner, Timothy A. '75 Holloran, Stephen R. '75 Hockrette, Rita W. '72 Hord, Jesse '56 *Kemper, Raymond A. '50 *Arbaugh, Andrew Carey '95 *Dahlben, Bernard A. '51 Lasky, William T. '86 *Traffon, James O. '53 LA A *Capell III, Robert L. '70 *Cheatham, Bernard L. '63 *Payne, Howell B. '56 *Schexnayder, Isby L. '63 *Cappel, Thornton '44 *Fechar, Thomas J. '44 *Kleg, Warren E. '44 *Bele, David '53 *Moore, J. Scott '77 *Paul Jr., Howard C. '80 *Quarles, Harry F. '74 *Rogers, R. Bradford '79 *Vaughan, Robin M. '81 LA I *Cormish, Merrill A. '67 *Hammack, Felix M. '53 *Samuels, Anne K. Schroeder '88 *Toney, Jewell '59 Reed, John W. '65 Wyche III, James E. '59			
<b>CHI CLUB</b>															
AL A	*Bowers, Charles J. '69 *Henderson, Phillip R. '62 *Pierre Sr., Donald Stephen '58 *Rowell, William J. '69 *Slotkin, Arthur L. '68 *Smith, David B. '70 *Stone, Jeffrey I. '79 *Uptagraff, Dewitt '72 *Vollberg, Walter K. '73 AL B *Bess, William E. '46 *Ellis, Giles Milton '37 *Harwell, P.E., Kenneth E. '59 *Johnson Jr., James H. '59 *Jordan, William D. '42 *Mann Jr., William H. '59 *Morris, Perry B. '49 *Whaley, Edward W. '52 AL I *Blankenship, Howard B. '83 *Boam, Ashley B. '93 *Braden, James M. '76 *Jacobs, Bryan K. '81 *Langner Jr., Eugene E. '52 *Norton, William Boehms '91 *Robins, Todd '37 AL A *Styles, Ellen S. '85 *Styles, Robert C. '76 *Wilkinson, Brian D. '87 AK A *Keeney, Joseph H. '78 *Robinson, Wayne M. '80 *Usibelli, Joseph E. '59 AZ A *Bell, Edward A. '72 *Carrillo, Danny J. '95 *Dickson Jr., Paul W. '54 *Lundquist, Thomas G. '72 *Mensch Jr., William D. '71 *Seabury, David G. '82 *Snyder III, Robert J. '77 *Sonkup, P.E., David J. '76	AL A	*Bowers, Charles J. '69 *Henderson, Phillip R. '62 *Pierre Sr., Donald Stephen '58 *Rowell, William J. '69 *Slotkin, Arthur L. '68 *Smith, David B. '70 *Stone, Jeffrey I. '79 *Uptagraff, Dewitt '72 *Vollberg, Walter K. '73 AL B *Bess, William E. '46 *Ellis, Giles Milton '37 *Harwell, P.E., Kenneth E. '59 *Johnson Jr., James H. '59 *Jordan, William D. '42 *Mann Jr., William H. '59 *Morris, Perry B. '49 *Whaley, Edward W. '52 AL I *Blankenship, Howard B. '83 *Boam, Ashley B. '93 *Braden, James M. '76 *Jacobs, Bryan K. '81 *Langner Jr., Eugene E. '52 *Norton, William Boehms '91 *Robins, Todd '37 AL A *Styles, Ellen S. '85 *Styles, Robert C. '76 *Wilkinson, Brian D. '87 AK A *Keeney, Joseph H. '78 *Robinson, Wayne M. '80 *Usibelli, Joseph E. '59 AZ A *Bell, Edward A. '72 *Carrillo, Danny J. '95 *Dickson Jr., Paul W. '54 *Lundquist, Thomas G. '72 *Mensch Jr., William D. '71 *Seabury, David G. '82 *Snyder III, Robert J. '77 *Sonkup, P.E., David J. '76	CA M	*West, Timothy D. '78 *Brownell, Michael P. '84 *Hoag, Richard D. '85 *Hoes, John S. '70 *Mitsuoka, Jeffrey M. '79 *Tucker, Nathalia P. '89 CAN *Harmeyer, Michael Allen '90 *Lamoureux, Mark S. '81 *McCroskey, William T. '71 *Savage, Homer E. '74 *Shimokawa, Reym Yukio '85 Snow, Terry M. '56 CA E *Henry, James J. '75 Wong, Frank '79 CA O *Cabrallero, Ross C. '72 CA P *Andersen, Eric K. '79 *Fussler, Britt L. '77 *Sotell, Roger E. '78 CA S *Fable, Scott Edward '96 CA Y *Dawson, P.E., Carole S. '85 *Grappe, Nancy T. '80 *Idemmill, Ethan Matthew '04 CA Ø *Oviatt, Heather Watson '97 Shelly, Ronald W. '62 CA A *Abell, Joseph M. '56 *Allred Jr., Ivan D. '59 *Anderson, Arvid N. '54 *Knight, William J. '79 *Peters, Richard A. '80 *Rense, John A. L. '74 *Sargent, William A. '77 CO B *Blackwelder, Ron F. '64 *Geist, Jerry D. '56 *Hidahl, Jerry P. '77 *Kern, Robert E. '43 *McDonnell, Sanford N. '48 *Miles, Gabriele Sonja '85 *Mosser, Kirk E. '77 *Purcell Jr., Robert H. '49	CA Ø	*Oviatt, Heather Watson '97 Shelly, Ronald W. '62 CA A *Abell, Joseph M. '56 *Allred Jr., Ivan D. '59 *Anderson, Arvid N. '54 *Knight, William J. '79 *Peters, Richard A. '80 *Rense, John A. L. '74 *Sargent, William A. '77 CO B *Blackwelder, Ron F. '64 *Geist, Jerry D. '56 *Hidahl, Jerry P. '77 *Kern, Robert E. '43 *McDonnell, Sanford N. '48 *Miles, Gabriele Sonja '85 *Mosser, Kirk E. '77 *Purcell Jr., Robert H. '49	IL B	IL B *Anderson, Robert F. '62 *Forish Jr., George E. '75 *Jaras, Anthony A. '67 *Kacek, George J. '54 *Kapoun, Robert '52 *Kusner, William J. '59 Lewis, Burton A. '48 *Plesniak, Michael W. '83 *Tryko Jr., John E. '56 *Therak, Frank C. '82 IL I *Armstrong, Donald R. '62 Ayres, Richard O. '79 *Carlson, Norman W. '81 Cohen, Sanford C. '58 Dever, John A. '51 *Dixon, David A. '63 *Fenton, Suzanne S. '79 *Gajda, Gregory J. '80 *Handel, Gene M. '68 *Henry, Thomas P. '73 Lee, James A. '88 Silverblatt, Charles E. '52 IL A *Hachtel, Dale A. '68 IL E *Fligor, Pamela S. '92 *Williams, Michael Joe '95 IL Z *Wislek, Michael A. '89 IN A *Amaya, Mark A. '85 *Blythe, James E. '50 *Bogart, S. Locke '65 *Bronson, Henry D. '57 *Brown, David R. '56 *Cartwright, Kenneth O. '41 *Chrisman, Donald W. '42 *Clarke, Roderick W. '49 Cooper, David B. '55 Dunn, Philip C. '64	KS I	KS I *Wilson, Bryan K. '85 *Bucher, William A. '76 *Gemmaehich, Donald J. '83 *George, Darin L. '86 *Larson, Reed E. '47 *Anderson, Lee R. '71 Bittle, David F. '59 Congleton, Stephen D. '79 *Gardner, Timothy A. '75 Holloran, Stephen R. '75 Hockrette, Rita W. '72 Hord, Jesse '56 *Kemper, Raymond A. '50 *Arbaugh, Andrew Carey '95 *Dahlben, Bernard A. '51 Lasky, William T. '86 *Traffon, James O. '53 LA A *Capell III, Robert L. '70 *Cheatham, Bernard L. '63 *Payne, Howell B. '56 *Schexnayder, Isby L. '63 *Cappel, Thornton '44 *Fechar, Thomas J. '44 *Kleg, Warren E. '44 *Bele, David '53 *Moore, J. Scott '77 *Paul Jr., Howard C. '80 *Quarles, Harry F. '74 *Rogers, R. Bradford '79 *Vaughan, Robin M. '81 LA I *Cormish, Merrill A. '67 *Hammack, Felix M. '53 *Samuels, Anne K. Schroeder '88 *Toney, Jewell '59 Reed, John W. '65 Wyche III, James E. '59				



### CHI CLUB, CONTINUED

		Dreibelbies, George A. '55 Fisher, Robert H. '72 Grimm, James H. '51 *Householder, John H. '48 Huber, Ronald K. '70 *Hummel, John R. '73 Krolick, Ronald D. '83 Kutz, Scott A. '71 Longenecker, John R. '71 *Marsteller, Charles E. '74 *Moore, Albert L. '56 *Nicholas, David G. '74 *Pfeiffer, Sigmond B. '52 *Reese, J. Mark '80 Skoooglund, John W. '51 *Sternier, George R. '62 *Strawbridge, Lee E. '58 Walsh, John A. '52 Wilt, Kenneth D. '84 Zimmerman, Susan L. '78 PA Γ Coffin, Ralph S. '63 *Dvorsky, James E. '81 Petzer Jr., John A. '56 Harvey, Edward D. '39 McAleer, William K. '42 *McIvried III, Howard G. '53 *Robb, Frank J. '73 Roberts, George A. '39 *Shaffer, David B. '68 Taylor, Robert E. '83 Wisman, Craig B. '75 PA Δ *Besarab, M.D., Anatole '65 Epstein, Herbert '47 Heilmeyer, George H. '58 Silvasi, Gabriel John '93 Walker, James G. '83 PA E *Albus, Donald R. '49 Coffey, James M. '75 Krein, Philip T. '78 Kuhn, William L. '67 Lissenden Jr., George C. '58 Miller Ruth D. '64 *Richards, Gerald T. '57 Sarkisian, Matthew J. '84 PA Z Aeppli, Theodore C. '62 *Burns, Bruce P. '64 *Dieter Jr., George E. '50 Ebner, Alan M. '61 Mergel, Joseph E. '72 *Pecsvardi, Thomas '64 *Struckman, Russell W. '64 Walter, Donald K. '53 PA H *Bolitt, Charles M. '73 Ellis Jr., Ira T. '56 *Reimer, Robert E. '83 *Thompson, Robert A. '60 PA Θ Behen III, John E. '72 *Castellan, Susan M. '84 Diener, David E. '67 Gallen, P.E., Robert M. '64 Lynch, Robert L. '83 Meyer, James L. '68 *Walsh, Daniel J. '69 PA I *Salyers, John Marshall '01 PA Δ *Honath, Mark F. '80 *Kondylis, Demetre E. '82 Smierciak, Joseph M. '90 PR A Garcia, Antonio '83 *Merceder-Heimann, Marilia '82 *Negron, Jenaro R. '60 *Ramirez, Miguel A. '73 *Ridguez, Rafael L. '00 Fancher, H. Braimard '35 *Franklin, William L. '49 *Getter, Gustav '47 Healy, Henry S. '71 Kennedy Jr., Joseph '50 Nielsen Jr., Carl E. '56 *Petersen, David B. '58 *Steen, Paul H. '75 *Vascelano, Jeremy C. '74 *Vigar, Judith W. '83 RI B Binns, George '59 Luz, James J. '80 Toy Jr., Paul C. '70 SC A Dalrymple, Gerald A. '83 *Davis, Joyce Lawrence '91 Doss, Thomas G. '71 *Holcombe, Milton W. '53 *Hunter, James R. '85 *Lisicky, James D. '71 Palmer, Jeffrey T. '70 Rankin, Anne Marie '90 Rast Jr., Heber E. '63 *Rushton, Floyd R. '63 Speed, Penelope H. '87 SC B Allison, H. Bard '53 *Harris, Raymond E. '87 Husband, D. Mark '83 *Massey, Kristina '71 Moore, William Edwin '50 Palmer, Thomas A. '59 *Pinckney, Charles P. '77 Shippey Jr., Kelley F. '64 *Thomas Jr., Cunningham P. '58 Wilson Jr., Robert L. '39 SC Γ Evans, Gustavus H. '59 Evans, Joseph M. '60 Geentens Jr., P.E., Gaston P. '56 Gooley, Thomas J. '55 *Macdonald, J. Ross '44 *Pittman, Steven M. '49 *Reed II, Henry M. '60 *Seckinger, P.E., Allen H. '50 SD B *Stoebner, Richard A. '78 TN A *Armentrout, P.E., Daryl R. '65 Ayers, William R. '80 Baker, Jon P. '74 Barnhart, Philip W. '48 Bounds, John A. '80 Cook Jr., Joseph C. '65 *Goodwin, William A. '49 *Hueser, David L. '76 Jarratt, James S. '68 *Kaminsky, Lawrence V. '81 Kennedy, Michael E. '86 *Layman, Ronald T. '77 *McCurdy, Richard C. '43 *McDougle Jr., Edwin A. '69 Moore, Terry M. '67 O'Quinn, Alethea H. '77 Peach, Judith E. '69 Prescott, Wallace S. '47 Shaffer, Robert W. '47 Stickle, Gene P. '53 Tomlinson, Edward T. '72 Totter, Barry N. '82 *Whitten, James R. '59 TN B Burnett Jr., Wilton W. '67 Hall, John R. '55 Hampton, David R. '85 *Hodges Jr., Willie E. '67 *Pentecost, Eugene E. '50 *Shackelford III, James R. '60 Sloan, Barbara F. '74 TN Γ Ingraham, Edward R. '68 Perkins, William S. '54 *Seselman, James T. '71 TN Δ *Knight, Joseph Brent '93 *McLeod, Jeffrey K. '83 TN E *Schellhardt, Richard H. '51 Stone, Robert H. '58 TX A Adamo, Paul M. '85 *Batala, August J. '66 Bellows, Frank W. '47 *Carroll, Billy D. '64 *Chambers, John D. '49 Dillard, Frank J. '72 Edgar, Arlen L. '57 Fair, James R. '42 *Finley, Mark H. '63 Grimes, William O. '43 Haley, Dennis C. '70 Hogan, David W. '69 Hurst, Terry L. '76 Kuenemann, Wesley B. '59 Lancaster, David C. '61 Luks, Claude E. '52 Smith, Daniel R. '92 *Smith, M.D., Matthew T. '92 *Stanley, William R. '94 *Tran, P.E., Tan Dai '87 Turner, William D. '61 Wazzecha, Ladislav W. '48 Winsauer, Weldon O. '44 TX B *Bourdon III, Lynn L. '84 Darby, Mark L. '79 *Ellisen, Arthur R. '62 Gilmer, Tracy P. '64 Holberg, John A. '64 *Lewis, B. '47 Uher, Edward L. '65 TX Γ Altman, Thomas C. '70 Burns, Jack F. '49 *Dobbins, James R. '74 *Friedl, E. Mack '42 *Hagler, Marion O. '63 *Jennings, Edwin J. '48 *Jones Jr., Kenneth H. '58 Lodal, Jan M. '65 *Money, Lloyd J. '42 Turvey, Harry D. '73 Wiprud, Robin Gail Gifford '85 TX Δ *Ash Jr., Henry G. '59 Barger, David C. '71 *Baumgartner, Yoanna '84 *Birdwell, John R. '53 *Cloud, Eugene H. '67 Dement, James R. '74 Embury, Dale I. '77 *Gent, Miehchel R. '63 Glasscock, Melbern G. '59 *Goodson Jr., Alfred W. '70 Harlin Jr., Curtis C. '50 Hughes, James M. '54 *Johnson, Dennis R. '47 *Kaminski, Bryan J. '84 Kasch, Vernon R. '73 *Mason Jr., P.E., John M. '81 *Porter Jr., James W. '51 *Porter, Larry G. '64 *Strait, William L. '49 Zimmerman, Keith D. '89 TX E Hilligeist, Reynold B. '63 Hon, Wai-Leung '67 Power, L. Douglas '66 TX Z Johlke, Roy A. '59 *Lee, Stephen P. '83 Manning Jr., Thomas A. '57 *Tran, Bao Tan '84 TX H *Fairchild, Jack E. '53 Falk, Nathan M. '75 Hoffman, Heather Brunn '92 Nichols, Robert L. '47 *Worden, Ph.D., Sue Janine '78 TX Θ Alvarado, Ruben A. '72 *Havo, Karen P. '86 Putnam, Judd L. '73 *Stokes, F. Xavier '78 TX K Daniels, Jerry D. '79 TX A Alsop, Albert W. '80 UT A *Endo, Thomas M. '62 *Lamph, Jane Ann '80 *Lyman, George R. '79 *Ong Jr., John N. '52 UT Γ Peterson, Charles C. '68 Friedman, Steven Michael '91 VT A Scribner, Charles F. '70 VT B Cobb, Eben C. '77 *Salazar, Marcos E. '82 *Urciuoli, Joseph C. '68 VA A *Anderson, Robert S. '80 *Conway Jr., George F. '70 Denoho, Thomas E. '59 *Garner, Patrick L. '72 *Hardy Jr., Edward L. '69 *Harpel, Barbara M. '96 *Harris, Wesley L. '64 Hayes Jr., John R. '75 *Johnson, W. Reed '63 *Morgan III, Edward '48 Paul, Edward L. '52 *Wood, Sharon L. '82 VA B *Anderson, Mark E. '76 *Brailsford, Jeffrey Allen '95 *Brownley, USA Ret. R.H. '44 Bucklen, Okeley E. '59 *Dirling Jr., Raymond B. '64 *Fetter, Robert B. '47 Jones, Harry N. '71 *Mann, Richard J. '75 Marcus, Larry A. '72 *Parr, Arthur Coleman '96 Savage Jr., Thomas J. '61 *Shearer, Richard L. '70 *Tolson, Robert H. '58 VA Γ Abbott, Terence S. '75 Labelle Jr., William M. '89 *Wood, Travis B. '83 VA Δ *Browder, James G. '66 *Confer, Peggy J. '81 Hulsizer, Stephen A. '69 *Kerkam, Keven Franklin '90 *MacDougall, Donald G. '61 Matteson, James H. '96 McCalla, William T. '59 *McDonald, Bruce G. '91 O'Byrne Jr., Michael E. '61 Reichel, Jerel D. '66 *Ross, Robert B. '61 Shanfield, Robert E. '67 *Speece, Raymond R. '54 *Walker, James R. '55 Wells, Bryan D. '87 Williams, Donald S. '66 WAB Anderson, Warren L. '66 *McClellan, Robert L. '59 *Schmidt, W. Hugo '51 Spencer, Paul N. '83 Thomas, David W. '55 WVA *Costanza, Russell V. '62 Gould, Marvin B. '63 Horvath, David A. '72 *Lengyel, Nicholas M. '70 Martinez, Louis J. '75 *Meikle, Philip G. '61 Morgan, Kim W. '87 Rockenstein, Richard C. '63 Skujins, Ojars '88 Spence, Peter L. '80 WVB Ashman, Michael D. '84 *Hughes II, Paul K. '71 Sault, James S. '50 Spencer, Michael R. '80 *Teti Jr., John J. '71 Young, Jeffrey L. '72 WI A Bruehr, Betty Lezara '48 Breuer, Ned W. '52 Buehring, William A. '67 Crooker, Thomas W. '60 *Debbink, John D. '49 *Derusha, James R. '55 *Forkner, Stacey L. '86 *Guelker, Eric James '90 Johnson, Joseph W. '79 *Klanderman, Kent A. '58 Knoke, Calvin A. '45 Larkin, P.E., Nils I. '58 Schultz, Carolyn A. '78 *Stokes, Kenneth B. '67 Tellijer, Ronald R. '73 *Ver Hagen, Jan '61 Voelz, Richard T. '50 Wang, Chu-Kia '38 *Wolff, James F. '59 *Zemke, Ph.D., Everett A. '65 WI B *Dschida, Linda M. '82 *Hayes, John J. '81 *Landgren, Dale A. '71 Murawski, Steven L. '80 Whittington, Laura Lee '88 WI Γ *Formella, Rose '81 *Klos, Timothy A. '88 *Perch, Stephen James '89 WI Δ *Whalen, David Alan '91 CA A Ball, John W. '52 Berger, Augustus B. '48 Cocotis, Paul Alexander '90 Dietsche, Laura E. '81 *Feldsher, Theodore B. '85 Gilbert, Paul H. '59 W K Gourdin, William H. '72 Hassur, Karl R. '82 Lammers, Thomas R. '50 Leung, Charles W. '82 Magray, Andrew '65 Mar, Wing Jong '79 Pister, Karl S. '45 Pocha, Michael D. '68 Rae, James W. '52 Reynolds, Barry D. '84 Serr, Eugene F. '46 Sheridan, Earl A. '59 Silverstone, Michael S. '66 Trezek, George J. '61 Webb, Douglas G. '49 CA B Burke, James D. '45 Capowski, Anthony J. '83 Lalli, Stephen J. '86 MacDougall, Donald D. '45 Reard, Constance S. '80 Young, Lawrence R. '71 CA Γ Austin, Lyman D. '61 Barnum, James R. '65 Burris, Betty Lezara '48 Elliott, Dennis M. '62 Frantz, Paul J. '78 Geary, Richard '56 Glasser, Robert L. '48 Gordon, Matthew H. '86 *Hamilton, William R. '48 Holsinger, Kevin K. '84 Holton, David S. '53 Lake, Carter R. '77 Landers, Carl F. '88 Likins, Peter W. '57 Lindsay, Franklin A. '38 Mapel, William J. '43 CA E *Curry, Robert S. '94 *McClelland, Scott '60 McDonald, John C. '59 Mendel, John T. '48 Muscha, Leslie Catherine '95 Nelson, Maren L. '82 *Patterson, James R. '65 CA O Putt, Brian H. '72 Reneau, Leon R. '58 Riggs, Henry E. '58 Sutherland, Kenneth H. '78 Thompson, Sylvia A. '84 Wang, Glen H. '84 CA A Agajanian, Shoshanig D. '79 Bovich, Emil J. '57 Brooks, James R. '72 Fernandez, Ferdinand F. '58 Froehlich, Carl H. '74 Johnson, Norman P. '58 Grant, John G. '65 Harrison, Vida N. '94 Hedin, Richard A. '69 Herzberg, Donald E. '79 *Horton, William D. '53 Johnson, Wesley W. '66 Judson, Paul A. '78 Kester, Larry A. '78 Mallis, Richard K. '52 Nakatani, David T. '63 *Nodduffe, Philip L. '78 *Rooft Sr., Dwight E. '57 Shields, Linda Miller H. '48 Stanton, Edward L. '60 White, John G. '50 CA E *Zaatar, Mohammed Omar '88 Whitley III, Howard G. '63 AL B Bryan, William T. '51 Caracoli, Philip M. '59 Clark, Robert R. '47 *Cooper, Mark E. '83 Evers, James L. '59 Gray, David A. '80 Haynes, P.E., Charles D. '62 *Hopkins III, P.E., Walter G. '64 Lopper, Jeffrey C. '78 Moore, Robert A. '54 Nicholson, William R. '73 *Quackenbush Jr., Arthur D. '33 Runkle, Timothy A. '88 Slaughter, Charles J. '82 *Spark, Dina Brookfield '80 Vickers, William T. '63 *Watte, Jack H. '51 *Wallace, Ronald S. '75 *Williams, Bertram L. '56 AL Γ Haggard, Warren O. '94 Hamilton, George S. '89 Parker, Henry B. '63 AL A Appleton, Robert Scott '90 AK A Davis II, Charles W. '75 Hamer, Brendan T. '83 *McClellan, John D. '74 AZ A *Acorn, William K. '71 Attaway, Michael P. '59 Berg, Jeffrey R. '93 Brook, Steven B. '66 de Shazo Jr., Thomas E. '62 Durr, Robert W. '87 *Erickson, Kenneth L. '68 *Fronder, U. George '69 Kennedy Jr., Thomas W. '59 Randolph, James C. '55 *Redfern, Julie Jackie '83 Schade, Karl W. '68 Smith, William G. '78 Womack, Donald E. '50 Young, James R. '75 AZ B Barnett, J. Matthew '90 Garnot, Ira W. '68 Latta, David Raymond '89 Leach, David R. '76 Orday, William A. '49 Sirkis, Michael B. '75 Whitlow, Jeffrey D. '83 Wong, Jack O. '81 AZ Γ *Dickson, Eric K. '81 AR A Gundersman, Stacy L. '88 Jones, Michael D. '67 Kooker, Stephen L. '63 Nixon, Dale B. '77 Perciful, Jerry C. '60 *Peters, Brett A. '87 Reed, John L. '68 Sharp, Steven H. '76 Smith, Byron D. '85 Zaleski, Michael E. '63 Ziegler, Norval F. '52 CA A Ball, John W. '52 Berger, Augustus B. '48 Cocotis, Paul Alexander '90 Dietsche, Laura E. '81 *Feldsher, Theodore B. '85 Gilbert, Paul H. '59 W K Gourdin, William H. '72 Hassur, Karl R. '82 Lammers, Thomas R. '50 Leung, Charles W. '82 Magray, Andrew '65 Mar, Wing Jong '79 Pister, Karl S. '45 Pocha, Michael D. '68 Rae, James W. '52 Reynolds, Barry D. '84 Serr, Eugene F. '46 Sheridan, Earl A. '59 Silverstone, Michael S. '66 Trezek, George J. '61 Webb, Douglas G. '49 CA B Burke, James D. '45 Capowski, Anthony J. '83 Lalli, Stephen J. '86 MacDougall, Donald D. '45 Reard, Constance S. '80 Young, Lawrence R. '71 CA Γ Austin, Lyman D. '61 Barnum, James R. '65 Burris, Betty Lezara '48 Elliott, Dennis M. '62 Frantz, Paul J. '78 Geary, Richard '56 Glasser, Robert L. '48 Gordon, Matthew H. '86 *Hamilton, William R. '48 Holsinger, Kevin K. '84 Holton, David S. '53 Lake, Carter R. '77 Landers, Carl F. '88 Likins, Peter W. '57 Lindsay, Franklin A. '38 Mapel, William J. '43 CA E *Curry, Robert S. '94 *McClelland, Scott '60 McDonald, John C. '59 Mendel, John T. '48 Muscha, Leslie Catherine '95 Nelson, Maren L. '82 *Patterson, James R. '65 CA O Putt, Brian H. '72 Reneau, Leon R. '58 Riggs, Henry E. '58 Sutherland, Kenneth H. '78 Thompson, Sylvia A. '84 Wang, Glen H. '84 CA A Agajanian, Shoshanig D. '79 Bovich, Emil J. '57 Brooks, James R. '72 Fernandez, Ferdinand F. '58 Froehlich, Carl H. '74 Johnson, Norman P. '58 Grant, John G. '65 Harrison, Vida N. '94 Hedin, Richard A. '69 Herzberg, Donald E. '79 *Horton, William D. '53 Johnson, Wesley W. '66 Judson, Paul A. '78 Kester, Larry A. '78 Mallis, Richard K. '52 Nakatani, David T. '63 *Nodduffe, Philip L. '78 *Rooft Sr., Dwight E. '57 Shields, Linda Miller H. '48 Stanton, Edward L. '60 White, John G. '50 CA E *Zaatar, Mohammed Omar '88 Whitley III, Howard G. '63 AL B Bryan, William T. '51 Caracoli, Philip M. '59 Clark, Robert R. '47 *Cooper, Mark E. '83 Evers, James L. '59 Gray, David A. '80 Haynes, P.E., Charles D. '62 *Hopkins III, P.E., Walter G. '64 Lopper, Jeffrey C. '78 Moore, Robert A. '54 Nicholson, William R. '73 *Quackenbush Jr., Arthur D. '33 Runkle, Timothy A. '88 Slaughter, Charles J. '82 *Spark, Dina Brookfield '80 Vickers, William T. '63 *Watte, Jack H. '51 *Wallace, Ronald S. '75 *Williams, Bertram L. '56 AL Γ Haggard, Warren O. '94 Hamilton, George S. '89 Parker, Henry B. '63 AL A Appleton, Robert Scott '90 AK A Davis II, Charles W. '75 Hamer, Brendan T. '83 *McClellan, John D. '74 AZ A *Acorn, William K. '71 Attaway, Michael P. '59 Berg, Jeffrey R. '93 Brook, Steven B. '66 de Shazo Jr., Thomas E. '62 Durr, Robert W. '87 *Erickson, Kenneth L. '68 *Fronder, U. George '69 Kennedy Jr., Thomas W. '59 Randolph, James C. '55 *Redfern, Julie Jackie '83 Schade, Karl W. '68 Smith, William G. '78 Womack, Donald E. '50 Young, James R. '75 AZ B Barnett, J. Matthew '90 Garnot, Ira W. '68 Latta, David Raymond '89 Leach, David R. '76 Orday, William A. '49 Sirkis, Michael B. '75 Whitlow, Jeffrey D. '83 Wong, Jack O. '81 AZ Γ *Dickson, Eric K. '81 AR A Gundersman, Stacy L. '88 Jones, Michael D. '67 Kooker, Stephen L. '63 Nixon, Dale B. '77 Perciful, Jerry C. '60 *Peters, Brett A. '87 Reed, John L. '68 Sharp, Steven H. '76 Smith, Byron D. '85 Zaleski, Michael E. '63 Ziegler, Norval F. '52 CA A Oei, Paul C. '87 Schmeringer, Paul '65 Tam, Clement '73 Thomsen, Jonathan W. '69 *Wong, John E. '05 W K *Bumthum, Edwin M. '84 Humphreys, Evan '75 Lawrence, Oscar W. '75 Oliver, Carmen D. '91 Ramirez, Marjorie E. '82 Taylor, Robert D. '83 *Treinen, Donald J. '83 Fong, Rodney S. '82 CA A Johnson, Lowell H. '65 Kiss, Robert D. '85 *Lieu, Tom '94 Okpiza, Alexander E. '91 Rizzardo, John Joseph '91 Schmitz, James A. '83 Smith, Robert P. '75 Sturgeon, William R. '70 *Veerkamp, Gary R. '74 Verbruggen, John A. '77 Young, Jeffrey W. '69 CA M Beard, David Charles '91 Freeman, Karl Allen '89 Johnson, Bruce W. '78 Lee, Steven Y. '86 Yoshida, Todd '84 CA N Mayer, Robert A. '82 Armstrong, Robert A. '84 Beardsley, Robert F. '71 Bonomani, James G. '70 Howard, James S. '84 *Chew, Robert S. '80 Meyer, Robert L. '86 *Mektarakun, Wichian '86 Rheinhardt, Brian J. '83 Shannon, James D. '62 Vandegriff, Don G. '67 Veit, Brian Richard '88 Curry, Monica G. '82 *Curry, Robert S. '94 Doering, Brian J. '81 Greco, Anna Maria E. '81 Patterson, Richard H. '74 St Clair, Christine M. '81 Stewart, Diana F. '83 Turner, Leslie A. '84 CA O Elliott, Pamela Ann '88 Kusters, John A. '64 Maulhardt, Alan L. '81 CA II Barchait, Emilie N. '79 Davis, Clifford H. '66 Lockwood, P.E., Robert W. '49 Mullen, Merritt D. '70 Pate, Walter H. '70 Steinberg, Dennis P. '72 Hoffmann, Kevin V. '80 Kraft, Lyle D. '87 Johnson, Douglas K. '92 CA S *Radasky, William A. '81 CA T Breneman, Kenneth Philip '89 Lee, Chin C. '70 Lotocky, Daniel A. '84 *Shen, P.E., Eric Chi-Chun '93 Oatman, Brian Andrew '91 Ainton, Christopher W. '73 Coehran, Noelle R. '86 Corlick, David W. '82 Deluca, Frank A. '80 *Enger, Steven R. '81 Harpham, Stephen T. '83 Haycraft, Thomas W. '73 Hollberg, Kurt F. '85 Kidway Jr., Arthur J. '56 Maurer, Mike A. '87 Pinkham, Joe N. '62 Tremblay, Steven Alan '93 Arnett, Robert W. '47 Austin, Christopher F. '50 Beck, Niels J. '45 Brennand, John R. '57 Brooks Jr., Lowell W. '62 Clement Jr., George W. '59 Cole, Charles O. '61 *Cormack, Christopher W. '82 Englund, James S. '41 Erickson II, Thurston G. '74 Farmer, Brian K. '78 *Franchino, Michael A. '60 Furman, Robert L. '80 Graham, Leroy B. '67 Hanna, William J. '43 Herd, Harold Mark K. '80 Horrell, Robin S. '85 *Hower, Gene K. '55 Joselyn, Jo Ann '65 Luppens, John C. '76 Massaro, Robert L. '45 Moore, William J. '57 *Pitzak, Sandra Beth '00 Potochnik, Frank S. '50 Ramsley Jr., Robert B. '42 Salvyards, Donald G. '52 Solomon, David '49 Talcott Jr., Noel A. '73 Watry, Michael O. '86 Wrightman, Michael Paul '90 CO A Barber-Philside, Lynda L. '79 CO E *Clark, Ph.D., John R. '92 CO F Montgomery, Jeffrey J. '90 CT A Baubitz, John E. '66 Bennett, Beth A. '91 Bugel, Robert H. '45 *Carraway, Cassandra B. '87 Eastman III, Frank H. '63 Jackson, David W. '43 Johnson, Edwin L. '57 King, C. Judson '56 Kucera, Daniel J. '61 Merritt, Richard G. '50 Shank, Richard R. '48 Smith, Palmer B. '50 White Jr., Erskine W. '45 Wright, Thomas W. '50 Zydney, Andrew L. '80 CT B Assard, Gerald L. '59 Barnsbee, Clive D. '66 Dembiezak, Gerald J. '74 Devin, Maurice R. '73 Ezzio, Luis A. '87 Fappiano, Michael D. '87 Hawkins, John E. '38 Hill, Dorian E. '69 Leib, David B. '61 Pollitt, Julie Anne '87 Schmitz, Lisabeth M. '73 Sobol III, Anthony J. '70
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### SECOND CENTURY CLUB

AL A	Cammack, Norphet G. '49 Colberg, Richard D. '80 Colburn, Bruce K. '49 Farlow, James C. '71 Finrock, M. Frank '51 Glover, Martin G. '70 Goodwin, James J. '58 Grantham, Ronald J. '77 Malseed, Robert A. '77 McDuffie, Philip L. '78 Miller III, Edwin H. '84 Reed III, William H. '48 Reynolds, Edgar L. '70 Roberts, Yvonne Renee '95 *Wear, A. Wesley '92 Whitley III, Howard G. '63 AL B Bryan, William T. '51 Caracoli, Philip M. '59 Clark, Robert R. '47 *Cooper, Mark E. '83 Evers, James L. '59 Gray, David A. '80 Haynes, P.E., Charles D. '62 *Hopkins III, P.E., Walter G. '64 Lopper, Jeffrey C. '78 Moore, Robert A. '54 Nicholson, William R. '73 *Quackenbush Jr., Arthur D. '33 Runkle, Timothy A. '88 Slaughter, Charles J. '82 *Spark, Dina Brookfield '80 Vickers, William T. '63 *Watte, Jack H. '51 *Wallace, Ronald S. '75 *Williams, Bertram L. '56 AL Γ Haggard, Warren O. '94 Hamilton, George S. '89 Parker, Henry B. '63 AL A Appleton, Robert Scott '90 AK A Davis II, Charles W. '75 Hamer, Brendan T. '83 *McClellan, John D. '74 AZ A *Acorn, William K. '71 Attaway, Michael P. '59 Berg, Jeffrey R. '93 Brook, Steven B. '66 de Shazo Jr., Thomas E. '62 Durr, Robert W. '87 *Erickson, Kenneth L. '68 *Fronder, U. George '69 Kennedy Jr., Thomas W. '59 Randolph, James C. '55 *Redfern, Julie Jackie '83 Schade, Karl W. '68 Smith, William G. '78 Womack, Donald E. '50 Young, James R. '75 AZ B Barnett, J. Matthew '90 Garnot, Ira W. '68 Latta, David Raymond '89 Leach, David R. '76 Orday, William A. '49 Sirkis, Michael B. '75 Whitlow, Jeffrey D. '83 Wong, Jack O. '81 AZ Γ *Dickson, Eric K. '81 AR A Gundersman, Stacy L. '88 Jones, Michael D. '67 Kooker, Stephen L. '63 Nixon, Dale B. '77 Perciful, Jerry C. '60 *Peters, Brett A. '87 Reed, John L. '68 Sharp, Steven H. '76 Smith, Byron D. '85 Zaleski, Michael E. '63 Ziegler, Norval F. '52
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SECOND CENTURY CLUB, CONTINUED

	Rogne, Timothy J. '78		Clemence, Samuel P. '62		*Peace, Jeffrey H. '76		Crompton, Kenneth H. '67		ND A	Dahlin, Earl C. '58		
	*Roof, Richard R. '51		Derbak, Charles B. '84		Rockwell, David M. '80		Dec, Eugene B. '72		OH A	Egnrecht, James R. '59		
	*Rooke, Paul A. '80		*Eldred, Benjamin Todd '96	NMB	*Andrews, Mark Jay '81		Donaher, Thomas P. '56			Ganfied, Paul A. '56		
	Schroth, James L. '72		Ferrell, C. Stuart '64		*Farber, Charles J. '75		*Paige, Gary V. '78			Mittelstaedt, Steven J. '81		
	Simons, Janet L. '82		*Feurer, John A. '70		Menako, Jack A. '84		Gray, George A. '43			Sack, Larry E. '59		
	*Smith, Thomas A. '89		*Forrester, Ray K. '72		Salas, Thomas M. '85		Gronosky, Clifford F. '58			Sauvageau, Donald R. '70		
	Snyder, Robert J. '77		Frankenberger, Richard B. '93		Stief, Robert D. '50		Grubb, Michael A. '78			Wiechmann, David P. '85		
	Stewart, David M. '76		Hacker, Alden G. '41		*Williams, P.E., James C. '76		Hamm, Jeffrey H. '74			*Osiniski, Sheldon Bradley '02		
	Stinchcombe, James D. '49		Hahn, Gail L. '82		*Perma, Trina '84		Johnson, Cortlandt E. '78			OH A	*Amnar, Gregory S. '81	
	Stoddard, Frank J. '60		*Humphrey, Richard L. '57	NMI	Rocco, Bin R. '85		Jumps, Carl F. '56			OH B	Beach, Robert C. '56	
	Tomlinson, Charles L. '55		Letterman, Dennis W. '76		*Lu, Peter Yik Tak '93		Lawrence, Thomas F. '66				Brightford, Thomas K. '55	
	*Tooker, David W. '73		McLimsey, Edward C. '71		Blomberg, Richard D. '67		McKenney, John L. '62				Cassidy, Robert Blair '94	
	Travers, Arthur '59		Myers, Kenneth R. '72		Breckenridge, John Robert '99		Meyer, Bruce G. '69				*Green, Richard A. '65	
	Trojan, Paul K. '55		Patterson, Michael A. '77		*Epling Jr., William Y. '83		Newman, Mitchell J. '81				*Gropp, William D. '77	
	Washburn, John R. '69		Rizer, Gene C. '60		Franco, Peter F. '76		Thomas, John A. '86				Hecker, Ph.D., Siegfried S. '65	
	Wentzell, Richard D. '60		Scherrer, Paul K. '71		Low, David '81		Tracey, Michael S. '86				Hoh, Ka-Pi '84	
	Williamson H.I. Warren P. '53		Stevens H. Oramel D. '72		Morgan, Thomas A. '78	NY I	Agrestia, Joseph '50				Kitinoja, Elmer A. '53	
	Yagle, Andrew E. '78		Strohbeck, Eugene E. '53		Philippson, William C. '69		Berger, Jack S. '61				Kownacki, Edward J. '67	
	Young, John G. '39		Unnerstall, James A. '56		Schreiner, Richard J. '48		Boehm, Robert A. '79				Maneri, Remo R. '50	
MI A	Arjeski, Eugene H. '51		*Voss, Thomas R. '69		Seckler, Howard N. '48		Deutsch, Sid '41				Mergler, Harry W. '48	
	Brining, Dennis W. '68		*Weber, Albert L. '53		Sternlicht, Beno '51		Fischer, George A. '54				Oblick, John M. '62	
	Cairns, J. Robert '54		Willoughby, P.E., Ronald D. '73	NY B	Chaleno, Anthony P. '66		Hartmann, Hans G. '70				Reilly, James A. '39	
	*Conti, Mark '78	MO I	Brandal, Erwin F. '43		Bolstad, Richard L. '80		*Jessitis, Ph.D., Raymond '63				Olt, Richard A. '58	
	Culver, Walter '60		Diboll, Wallace B. '44		Baleno, George D. '70		Jovanovic, Adrian Burton '89				Rodriguez, Ferdinand '75	
	Di Cicco, Dominic A. '61		Dyson, Peter B. '80		Davidson, Fred T. '58		Kalian, P.E., Arianna '88				Schurager, Thomas R. '50	
	Elward, Robert M. '75		Eberle, Charles E. '49		Despirito, James '83		Koza, Henrique '74				Skaras, John '73	
	Smith, Charles O. '41		Feldman, Arthur '52		Doyle, Frederick J. '51		Levine, Abraham '50				Smialek, Jim L. '68	
	Zack, Chester V. '50		Fisher, P.E., John W. '56		Eisaman, L. Coburn '45		Millman, David S. '72				Strawbridge, Charles E. '81	
MI E	Capraro, Michael A. '70		Gately, William S. '56		Gorey, Anthony G. '84		Roos, Gregory J. '79				Strawbridge, Joy W. '83	
	Coleman, Robert E. '57		Golding, Stanley '64		Kaczmar, Michael '72		Sandler, Ivan '83				OH B	Carli, Ronald '76
	*Hong, Albert E. '80		Klein, Milton '44		Landau, Louis H. '49		Selinger, Carl S. '67				OH B	Allsappach, Eugene R. '70
	McCarty Jr., James C. '51		Martin, Oscar J. '41		*Lee, Chung M. '85		Teitelbaum, Howard A. '79				Bach, Wayne S. '72	
	Renton, George W. '63		Rehg, Larry M. '59		Monson, John A. '58		Trentacosta, Joseph '69				Bobinger, Robert O. '69	
	Rodgers, John J. '52		Rosenkoetter, Elwood A. '49		Nicholas, Thomas P. '80		Ulrich, James W. '70				Bodenstein, Abraham '50	
	Waldrop, Mark Wayne '90		Salman, Naif D. '56		Perkins, Richard W. '54		Warren, P.E., Willard L. '50				Burger III, George D. '68	
MI Z	Forsaker, Robert E. '58		Saunauer H.I. John '61		Plehn, James G. '67	NY K	Ablow, Joseph D. '67				Dobashi, Harry H. '68	
	Gillham, Gregory V. '83		Shomber, Henry R. '78		*Prach, Edwin F. '50		*Allyn, Elwyn G. '61				Fazzoni, Gregory F. '76	
	Gomez, Lloyd E. '55	MO A	*Campbell, Newton A. '49		Ragones, Louis J. '56		Casper, David A. '88				Hersman, Jill Ann '52	
	Grubbs, Ronald D. '73	MT A	Andersen, Viggo '51		Rogers, Charles E. '56		*Coleman, Thomas G. '62				Lee, David G. '66	
	Halvin, Robert C. '48		Courville, George E. '59		Tobin, Michael R. '87		Curtis, Johnson O. '66				Lyon, Bruce V. '70	
	Kirsch, Gary A. '76		Erickson, Peter E. '56		Walsh Jr., Gerald W. '44		Dennis, William J. '74				McCarthy, Martin D. '70	
	Kovacs, Robert E. '55		Journour, Frithiof V. '90	NY I	Zastrow, Kenneth D. '52		Moskowitz, Irz '78				OH I	Old, Richard A. '58
	McGary, Michael R. '77		Kolb, Robert C. '61		Antelman, Robert W. '73		*Schlosser, Paul M. '82				OH I	Pick, Gregory A. '84
	Morel Jr., Lawrence J. '76	MT B	Malsam, Allison Arlene H. '95		*Brand, Terrance Alan '90		Shebert Jr., Leonard L. '84				OH I	Steinoklik, Richard B. '55
	Morman, Kenneth E. '78	NE A	Brackhan, Douglas G. '76		Breneman, Scott A. '83		*Warner, Donald G. '44				OH I	Thompson Jr., John R. '60
	Nicosia, Peter J. '77		Clair, Stephen B. '73		Buck, Frederick A. '76		Di Miceli, Angelo A. '82				OH I	Armstrong, Robert J. '51
	Reardon, Robert W. '74		Fuchser, Fay E. '51		Dobson, John F. '52		Ganetis, George L. '78				OH I	Beitler, Richard S. '50
	Roth, Maureen Lynn '91		*Fuerst, John M. '82		Dowgwillio, Robert M. '75		Miller, Vicky C. '83				OH I	Breitman, David A. '72
	Sadlo, Thomas '67		Gilbreath, Donald R. '85		Dupier, Dennis '82		Monroe, Charles W. '53				OH I	Brooker, Stephen J. '68
	Smith, Robert S. '50		Nelson, Stuart O. '50		Feldman, Max '50		Rigert, John A. '78				OH I	Brossus, Allen D. '42
	*Tarricone, Louis G. '82		Schaufelberger, Don E. '49		Fox, Ervin A. '51		Swift, James L. '43				OH I	Carr, Stephen J. '70
MI H	Allmendinger, Paul F. '44		Shannugam, Alagappan '83		Schaufelberger, Don E. '49		Fredericks, Robert J. '48				OH I	Case, William F. '64
	Fawcett, John R. '43		Stransky, David Wayne '92		Watson, Gene D. '59		Goldschmidt, David Joel '91				OH I	Cowan II, Robert L. '66
	Lundstrom, Richard R. '64		Putman, Stanley K. '83	NY V	Putman, Stanley K. '83		Jordan, William E. '64				OH I	Davis III, Curtis W. '73
	*Nelson, David J. '59	NV A	Bohdanowicz, Edward R. '50	NV B	Locher, John P. '56		Kaufman, Arthur H. '50				OH I	Dyer Jr., C. James '54
	Polkinghorne, Bruce R. '50	NV B	Chreston, Kevin J. '82	NH A	Amazeen, Bruce E. '65		Law, E. Harry '62				OH I	Edwards, Dale C. '61
	Bohdanowicz, Edward R. '50		Kanfer, Marvin E. '71		Bailey, Joseph G. '86		Locher, John P. '56				OH I	Edwards, William R. '71
	MI K		Sikkenga, Chad Douglas '98		Corrigan, Leo A. '48		Lynch, Karen Allen '86				OH I	Fell, William K. '47
MNA	Amerson, Charles A. '46		*Anderson, Walter L. '44		Greene, Prescott '57		Lynch, Michael P. '87				OH I	Filimon, V. Dan '41
	Anthes, John A. '34		Ignaszewski Jr., Clyde J. '49		Miller, John H. '85		McKersie, Alan D. '46				OH I	*George, Kingston A. '59
	Avery, Carlos P. '61		*Jarvis, John E. '79		Miller, Rollin T. '52		Miller, Rollin T. '52				OH I	Grandey, Louis '40
	Ball, William L. '70		Major, Alfred N. '50		Niederer, Melvin M. '82		Barnes, Robert Edward '84				OH I	Hawk, Ellis L. '50
	*Benjamin, Harrison R. '57		Noyes Jr., Bertram S. '66		*Pennis, Joseph Michael '89		Darroch, Michael E. '84				OH I	Hollenbach, Roger E. '71
	Caswell, Richard F. '58		Stephens, Jay E. '73		Place, Harry G. '51		Davis, James S. '70				OH I	Kirby, Neil A. '82
	Clarke, Richard L. '59		Wrisley, Peter L. '77		Schultz, Stephen P. '70		Frick, James A. '83				OH I	Kovach, Karl D. '85
	Fitch, John N. '66		Allen, Samuel M. '70	NJ A	Spengler, Stewart R. '52		Gallwey, Timothy J. '80				OH I	Kroncke, Edward A. '48
	*Goodwin, Robert W. '62		Braxton, James S. '37		*Staudinger, James P. '77		Gough, John W. '50				OH I	Magee, John V. '81
	Halladay, Henry E. '64		Carow, Walter M. '50		Veldman, John P. '70		Hammond, Paul G. '72				OH I	Mendelsohn, Harold H. '71
	*Hanson, Henry A. '66		Carucci, Vincent A. '69		Wadsworth Jr., Winthrop '76		Hennesen, Roger C. '70				OH I	Mercer, Kenneth K. '78
	Holm, John D. '62		Compton, Joanne B. '79		Weigle, Robert E. '51		Humphrey, David K. '67				OH I	Meredith, David B. '72
	Hrycak, Peter '55		Forslund, Donald C. '60		Wild, Donald S. '57		Koche, Lawrence '67				OH I	Milligan, George C. '50
	Johnson, John L. '50		Holzenthaler, Lawrence J. '66		Yoon, Steven F. '63	NY A	Kuberka, Gregory '80				OH I	Moeilman, Gordon K. '48
	Kaiser, Gary L. '70		*Kimmich, Herbert L. '57		Emrozek, Leon A. '78		MacLager Jr., Robert C. '73				OH I	Pass, Brian C. '86
	Lapacko, Kim A. '76		Lipton, Sydney '50		Broadhead, James L. '58		MacNeill, Randall L. '69				OH I	Madars, Velta '61
	Magney, Mark C. '79		Meyer, Alfred P. '60		Carno, Nicholas J. '68		Pardini, Thomas J. '77				OH I	Risch, Gary A. '76
	Mats, Brian W. '81		Reinhardt, Gregory C. '65		Frederick, Thomas R. '87		Weber, Thomas W. '53				OH I	Rose, Ralph '42
	O'Leary, Stephen H. '62		Ricco, Robert P. '70		Funke, Richard H. '71		Zarehy, Andrew S. '73				OH I	Shadey, Willard N. '70
	Petrich, Gale S. '86		Tirado, Daphne C. '82		Goldstein, Steven M. '81		Boyle, Charles J. '76				OH I	Shelly, William R. '74
	Pfender, Emil '53		Harris, Dennis G. '77	NJ B	Goltz, Mark N. '73		Byrnes, Richard D. '77				OH I	Spitzer, John Paul '76
	Polacek, James H. '52		Heineman, Duane T. '58		Harris, Dennis G. '77		Defelice, Nicholas J. '83				OH I	Stephens, Mark S. '99
	Shaw, John R. '59		Berical, William M. '77		Hodgson Jr., Edward W. '68		Kiefly, Robert John '51				OH I	Stumbaugh, Gary A. '66
	Silberman, Edward '35		Bond, Charles B. '80		Holmes, D. Brainerd '43		Machuca, Luis A. '69				OH I	Ashley, Thomas S. '84
	Torgerson, Brian C. '72		Bubenick, David V. '73		King, William J. '50		*O'Keefe, Luke F. '80				OH I	Verner, William J. '58
	Tran, Binh Van '89		Colarusso, Remo J. '83		De Witt, Russell '58		Raczko, Robert F. '79				OH I	Sanderson, Ellen I. '81
	*Backus, Patricia M. '78		De Witt, Russell '58		*Klepis, John E. '85		Snyder, William J. '81				OH I	Kendall, Harold B. '48
	Barnett, Kerney L. '71		King, David Q. '76		Kneen, Philip H. '53		Tamano, George John '59				OH I	Lytlic, James B. '51
	*Boozer, Dyanthan D. '66		McCORD, William F. '64		Kuehe, Donald L. '87		Triano, Salvatore J. '85				OH I	Miller, Trussell C. '64
	Bui, Tray Thong '90		*Shelestak, Larry J. '75		Matyas, Robert M. '52		Doynow, Donald '75				OH I	Nussbaum, Lael E. '68
	*Cargile, James J. '73		Skocypoc, Ronald J. '68		Reynolds, David A. '71		Farrell, Timothy M. '82				OH I	Penko, Paul F. '67
	Carman Jr., Jack B. '62		Starr, James W. '73		Schilke, Neil A. '63		Jankowski, Cecelia '81				OH I	Zajac, Theodore S. '52
	*Freeman, L. Michael '71		Tanner, Robert B. '64		Schwener, David W. '67		Barber, R. Todd '87				OH I	Bairdt, Janice L. '78
	Gelman, Stephen '73		Wasiewicz, Richard A. '69		Van Arsdale, George D. '62		Nevil, Mark W. '89				OH I	Bathen, Robert W. '89
	*Hatmaker Jr., P.E., John W. '79	NJ I	Wollmann, Norman P. '81		Winkler, Roger A. '67		Hanzlik, Jeffrey Patrick '89				OH I	Evans, John A. '59
	Hilkert, P.E., James M. '71		Albanese, Damian F. '52		*Zises, Matthew Scott '96		Hoelscher, James R. '71				OH I	Konewick, Walter J. '53
	Hodge, B. Keith '65		Amos, Douglas R. '55		Bernstein, Joseph H. '50	NY E	Abreo, Leslie Anthony '97				OH I	Pryatel, Thomas R. '88
	Holeman, James M. W. '81		Anderson, Harry '60		D'Agati, P.E., Ignazio J. '50		Lubrano, Michael '80				OH I	*Rutledge, Sharon K. '84
	Jones, Donald R. '61		Castaldi, Frank J. '69		Feldman, Robert E. '59		McBrien, William J. '87				OH I	*Armstrong, Ellis Rebecca '01
	Lee Jr., Abner W. '65		Cohen, David S. '47		Frank, John T. '55		Wong, Wai Kin '75				OH I	Armstrong, Christopher J. '75
	Matthews, Gerald A. '59		Constantino, Stephen J. '79		Loffmann, Donald H. '62		Castor, Rodney Gordon '95				OH I	Dehlaste, Michael L. '78
	McKay Jr., Frank F. '60		Cordes, Robert G. '48		Kuhn, Alfred '57		Hughes, Michael Kevin '97				OH I	Prohler, Margaret P. '82
	*Robley Jr., Ray C. '49		De Waal, Johannes '70		Lavin, Joseph M. '73		Alex					

SECOND CENTURY CLUB, CONTINUED

	Ulesman, Robert T. '71	Rodite, Robert R.R. '64	*Knotts, Travis J. '98	Lucas, Raymond D. '60	Otteman, Lloyd G. '54
	Wilder, Jesse H. '47	Roth Jr, David W. '51	*Massie, Larry W. '82	Mohr, David N. '72	Purdy, Catherine P. '72
OH I	Barth, Herbert G. '61	Ryan, Richard E. '86	Rabenberg, Liewellun K. '78	Poppewell, Thomas R. '74	Rising, Jerry J. '61
	Talbert, Leonard Connor '55	*Steel, Henry W. '58	*Voska, Janice '81	*Shipley, Marcus '59	Sakian, Zareem '81
OH K	Bennett, Ronald Q. '76	Stratton, Carl W. '81	*Ufford, Donald A. '87	Smith, Fred L. '62	Searing, John E. '68
	Brattoli, Mark A. '79	Wetzel, Edward D. '74	SD B *Bowers, Robert W. '68,	*Sterling Jr, Albert A. '39	Simpson, David P. '76
	Duffy, Stephen F. '78	Yoder, Paul E. '49	TN A *Brewington Jr, P.E., Percy '54	Williams, Douglas B. '84	Stehbauer, Loren C. '66
	Morrison, Donald Paul '89	Ziegler, Donald A. '52	*Burnett, William A. '71	Anderson, Byron H. '54	Stiegler, Joseph E. '58
	Pardoun, Charles A. '81	Arehart, Robert F. '51	Davis, Jack L. '59	Bahusek, David K. '82	WAB Aaserude, Robert G. '84
	*Simler, William E. '83	Boron, John F. '53	Dodge, Franklin T. '62	Bolman, Jr., Billy F. '50	Ambrosio, William D. '51
OH A	Eckhardt, Robert R. '79	*Buchler, Robert Hans '92	Drake, Margaret S. '57	Boertz, Marjelle '77	Archer, Michael E. '57
	Oakley, Andrew R. '77	Chatman, William C. '52	Eby, Robert S. '75	*Boyd, Roger S. '59	*Barlow, Thomas M. '59
	Suhar, P.E., Richard A. '83	*De Maio, Joseph A. '75	Ellis, Jeffrey Thomas '93	*Bradford, Craig Allen '93	*Bowers, Jack W. '80
	*Tirpack, Mark A. '81	Diener Jr., Henry C. '51	Fee, Gordon G. '56	Brittan, Charles L. '65	Campbell, Ralph H. '51
OH M	Montgomery Jr., William Lee '86	Eisenberg, Eric Jay '88	Garber, Joel W. '61	Coman, Paul Daniel '03	Hammill, Leonard W. '50
OK A	Bert, Charles W. '51	Hodson, William R. '67	Gonzalez, Rafael C. '65	*Dokos, Nick G. '51	Finnick, Douglas Gordon '90
	Barton, Donald O. '71	Hudak, Joseph D. '79	Gouge, Anthony P. '81	Fox Jr., Milden J. '49	Hartup Jr., John D. '50
	Dunn Jr., Robert O. '82	Kirsch, Paul A. '75	† Hagler, Thomas '43	Gray, Foster L. '53	Large, Robert W. '60
	Griffin, James P. '75	*Leidigh, Thomas J. '49	Heathington, Kenneth W. '61	Hanover, Joe G. '40	Meyer, Richard M. '80
	Hardy, William C. '53	Morris, Richard L. '70	Henson, Joe M. '58	Herring, Robert L. '65	Nemitz, Rodney E. '86
	*Kerr, Clayton P. '61	Morris, Robert L. '55	Hickman, Charles E. '57	Hudson, Steven M. '77	Opfer, Neill D. '76
	*Lampf, Maurice B. '89	Poplawski, Edward G. '80	Hinsdale, James G. '41	Kasprovicek, Daniel E. '61	Trippel, Robert C. '57
	*Leaman Jr., Gordon J. '73	Rakala, Dierk H. '55	Hunt, Roy J. '67	Kramm, Robert C. '81	*Washburn, Arthur K. '67
	Shick Jr., Robert L. '65	Rice, Anthony G. '60	Kunze, Karen E. '81	*Kunze, Glenn R. '77	WVA Healy, Timothy J. '58
	*Spangler, Jon A. '90	Shaffer, David E. '78	Jennings-King, Sherry D. '93	*Lam, Carroll F. '58	WVA *Bibbee, Dennis E. '75
	*Streitmatter, Randy '92	Silvasi, John J. '70	Johnson, Marshall Allen '90	Malone, William '59	Boggs, Mark S. '80
	Webb, Jack S. '54	Thomas, Jeffrey R. '65	Kee, Bonnie F. '71	McGinnis, Charles I. '49	Campbell, Donald F. '78
OK B	*Wustenberg, John W. '84	Weggel, John R. '64	King, Gregory T. '93	Mitchell, Melvin M. '52	Deakins, Ralph R. '58
	*Blais, Roger N. '66	Bessehevre, William C. '63	*Lillard, James D. '75	*Multrow, Grady M. '89	*Dean, Robert A. '85
	Butler, Robert R. '71	Brouse, James E. '67	Greene, L. '71	*Newton, Paul R. '85	Engle, Geoffrey S. '94
	Davis, Linda R. '77	Gordon, A. '57	Miller, Freddy M. '79	Paul, Thomas C. '62	Griffith, Robert R. '49
	Elliott III, William E. '83	*Hills, Frederick J. '61	Moore, Robert M. '66	Peurifoy Jr., Robert L. '52	*Koval, John S. '78
	Hand, Ronald W. '72	Hoves, Michael L. '75	Mynatt Jr., Roy L. '58	Pickett, Dennis G. '72	*LeMasters, Jerry R. '63
	*Robinson, Rachel Michelle '09	Keil, Alan J. '72	Newton, Louis M. '49	Pullej, Paul W. '87	Pennline, Dennis E. '73
	Schmude, Donald J. '86	Noble, John W. '72	Osborne, Bernie B. '89	Rollins, Albert W. '51	*Ramsey, Walter E. '74
	*Weston, Kenneth D. '55	Pace, Russell W. '72	Pawl, Richard E. '59	*Simpson, Stanley A. '79	*Rowe Jr., Eldridge E. '68
OK G	Dean, Philip M. '74	Woodford, Paul Whitman '89	Purcell, Homer W. '73	Stock, Arthur J. '49	Schuler, Arthur K. '71
	Diggs, Robert A. '74	Caggiano, Nicholas J. '78	Reedy, Joe P. '55	Swink II, Marvin N. '80	*Tompkins, Joseph A. '76
	Morgan, Johnny J. '88	*Coyle, Todd F. '77	*Riggs, P.E., Donna R.H. '90	Williams, Walter L. '49	Weekley Jr., Gene R. '63
	Pratt, David B. '77	Dever, Patrick Brian '94	Rosenberg, David '53	Wuensche, Ronny W. '83	Whipp, Roy H. '70
	*Rogers, Brian Keith '89	*Dugandick, Joseph P. '83	Sarmaik, Jagadishchandra '81	*Boone, Marceyn '79	WVB Barkley, Kenneth J. '65
	Sneed Jr., Edward '79	Fozo, Geza '63	Shane, Richard E. '82	Douglas, William J. '72	*Torre, Linda R. '85
OR A	*Anderson, Joseph R. '66	Gabriel, Andrew '64	Sheffer, David W. '66	Martin, Samuel R. '83	WI A Bernstein, Theodore '49
	Beals, Ethan L. '50	Girono, Dominic P. '70	Stewart, John W. '65	Palavan, Jim A. '82	Collins, David Y. '48
	Bishop, Donald L. '65	Kneidinger, Carl F. '70	Taylor, David R. '69	Smith, Nancy C. '74	Dodd, Richard A. '44
	Brooks, James S. '51	Lacz, Walter '69	Whitehead, John C. '61	Taylor, Mark E. '83	*Goehring, Henry G. '57
	Cantwell, Gary K. '80	Lombardi, Charles G. '65	Baker, Bonnie B. '71	Taylor, Shayla E. '83	Hoffman, Carl '85
	*Laos, Oscar J. '51	McLaughlin Jr., Philip V.D. '61	Brown, Kevin G. '85	*Triola, Larry C. '70	Kelly, Mark C. '88
	Leonard, James P. '77	*Naccarato, Anthony P. '88	Gray, William E. '77	Turnung, Brian E. '87	Kiesling, Dean A. '69
	*Loughmiller, Bert E. '64	Norris, Clinton J. '61	Hauenstein, Stephen F. '77	Hambbrick, Joanna R. '86	McNamara, Robert T. '62
	*McCormick, Gary A. '74	Russo, Richard A. '68	Keaton, Kathryn M. '76	McCaleb, Jesse E. '64	Mullins, Brian W. '77
	*Pengelly, David D. '78	Threston, Joseph T. '57	Keaton, Lawrence T. '71	Norwood, Larry D. '73	Rozek, John S. '52
	Shaw, James W. '70	Volkay-Hilditch, Christine M. '83	Nicolas, Michael P. '82	*Storey Jr., Arthur L. '65	Schuler, Peter O. '62
	Sigworth Jr., Harrison W. '68	Warczygłowa, Clarence A. '76	Paxson, Daniel E. '84	Benson, P.E., Marvin D. '79	Shink, James A. '60
OR B	White, David G. '46	Woods Jr., Howard J. '77	Philly, Debra D. '85	*Bishop, Neil E. '66	Simko, Darl V. '79
PA A	*Buchanan, Marlowe J. '92	Cristaldi, Lucian M. '72	Scherer, Paul J. '89	Collins, Clyde W. '69	† Decker, Donald A. '63
	Altman, Frances B. '80	Dehoff, Gregg A. '86	*Skoglund, Paul A. '89	† Keck, John C. '95	*Wymelengberg, Richard J. '77
	*Bradley, Gordon H. '62	Haigh, Bruce W. '71	Atchison Jr., Paul C. '66	Norwood Jr., Edwin B. '67	WBA Baker, Kurt W. '51
	Clegg Jr., Lee M. '59	Ressler, Stephen Daniel '89	Axley, Robert S. '89	*Pocwin, Alfred E. '43	Cockayne, John E. '65
	De Moyer Jr., Robert '66	Schoenberger, Lewis R. '84	*Darling, James P. '59	Schaeper, Wilfred H. '76	Delgado, Jose M. '69
	Domhaus, Arthur J. '61	Smith Jr, Donald Benedict '91	Denny, Hugh R. '68	*Williams, Larry D. '80	Derra, Kenneth William '90
	Goldsbrough, John P. '56	Beseler, Jan W. '83	Devaney, Harold E. '62	Fong, Keith Batchelor '88	Donovan, D. Michael '67
	Granville, Richard W. '55	Shield, Carol K. '84	Harvey, James B. '63	Fong, Maria D. Chee '91	Ellis, Thomas E. '84
	Greener, Alan E. '55	Greene, Barry E. '86	Pedigo, Donald B. '83	*Garcia, Robert L. '79	*Graef, P.E., Luther W. '52
	Haas, Joseph William '90	Janocko, David J. '81	Smith, Benjamin L. '68	*Van Landingham, David J. '74	*Hughes, Philip R. '69
	Hittinger, William Charles '44	Kulik, David B. '83	Thompson Jr, W. William '68	Shepherd, Glen C. '87	*Hutton, Teresa Jean '91
	Horger, Theodore V. '61	Musseelman, Thomas A. '73	Luttman, Mark J. '82	*Davis Jr, Hulien M. '80	Kane, Padraic F. '50
	Jones, Donald J. '75	Rath, Dean J. '78	Marcinkowski, Anthony R. '75	*Carter, Jason O. '87	Kleinvehn, Lynn A. '65
	Kankelborg, Carol C. '86	Taylor, Thomas R. '73	*Miles, Thomas O. '81	*Carter, Norhanani B. '87	Kormanik Jr., Nicholas J. '62
	Knorr, David B. '74	*Blasini, Francois R. '82	Funderburk, Rodger Miles '89	*Hertzig, Marie Pauline '04	Kriofsky, Thomas A. '60
	Koppes, Alan W. '53	*Hilerio-Sanchez, Josuan '07	Noite, Jennifer Vanderjagt '77	Magee, Don A. '84	Laidig, William R. '69
	*Labovitz, Judith Ann Y. '86	*Irizarry, Arceilo '86	Noite, Paul A. '77	*Rosenwald Jr, John Andrew '88	Lugthart, Corniel W. '51
	*Labovitz, Stuart L. '85	Rodriguez-Perazza, Jose R. '64	Smith, P.E., C. Craig '80	Saenz, Ida F. '84	Marcoulier, Roger A. '60
	Leach, Jeffrey D. '77	Rodriguez-Perazza, Manuel F. '65	*Abad-Fits, Peter B. '80	Casada, Jerry J. '62	Noelle, Wayne E. '67
	*Lynch, Sarah Hayward '89	Dicamillo, Peter J. '75	Anderson, John E. '57	*Jackson, Robert B. '54	Penney, Richard J. '73
	Malkemes, Kenneth L. '83	Foster, Nigel J. '81	Belknap Jr, Ralph A. '44	Malmquist, David A. '62	*Raasch, William G. '81
	Marshall, Steven J. '82	Townsend, James C. '60	Boatright, Mody K. '56	Olson, Kent G. '65	Simon, James B. '65
	Midkiff, Alan H. '85	Waibel, Brian J. '87	Cardwell, John W. '68	Patrick, William M. '74	Sprang, James R. '57
	Newhard Jr., Fred J. '50	James, Charles F. '58	Chiang, Raymond W. '86	Spong, Robert N. '58	Trautman, Robert S. '53
	Orthlieb, John R. '53	Kolb, Robert A. '66	Courtney Jr., Lonzo C. '56	*Kelley, Scott W. '79	*Hanson, David L. '86
	Pond, Fredric D. '77	Lamoureux, Suzanne M. '82	Dodge, Nathan P. '68	Cleave, Mary L. '79	Jendrzek, Gary S. '75
	Renshaw, Daniel T. '81	Lebeau, Andrew J. '79	Dolezalek, Donald R. '65	*Panatier, Michael J. '71	Jenn, David C. '75
	Toikka, William E. '62	Lieberman, James '67	*Dria, Myra Ann '86	Torgesen, Greg L. '80	*Kaczynski, Wayne J. '83
	Vosseller, Kenneth F. '62	Oliva, Ph.D., Stephen A. '67	Foerster, Paul A. '57	*Cook, Barbara K. '84	Stachowicz, Robert W. '70
	Wentzel, Alan R. '75	Post Jr., Arthur H. '57	Hagenmeier, Hal E. '72	Goddard, Eric H. '86	WI A Riggs, Paul Arthur '92
PA B	Booser Jr., John C. '56	Silva, Ronald E. '74	Henry, Wesley B. '51	Graham, David A. '82	WI E Kellogg, David H. '62
	Brandt, David L. '74	Spink, Sydney A. '38	Horton, Larry E. '83	Kellogg, David H. '62	WYA Shtatz, Jonathan A. '82
	Carretti, Katherine G.S. '84	Verrier, Donald C. '54	Howerton, Lloyd F. '51	Sheldon-Dean, James P. '79	AS B Ashton, Thomas G. '69
	Cashdollar, Barron H. '57	Withdraw, Gregory L. '80	Huang, Lawrence P. '81	Banning, Pamela D. '85	Riley, Robert H. '82
	*Ciota, Marcie D. '95	Bethea, Thomas J. '58	Jensen Jr., Soren C. '52	Barnes, Lowell P. '67	Rodriguez, Derrick R. '97
	Creecraft, Harold E. '60	Brown Jr., Bevan W. '49	Kassler, Harlan Larry '91	Barrell, Charles D. '70	Rodriguez, Janet L. '95
	Ferenci, Jack E. '75	*Corney, Joseph B. '72	Koppey, Johnny A. '65	Capon, Robert S. '80	Schoenborn, P.E., Renee M. '85
	Gasda, David O. '70	Curlee III, Thomas O. '84	Kothmann, Richard E. '59	Dye, Michael L. '87	Scott, Barbara J. '73
	Gibson, John P. '64	*Di Lapi, Christine M. '87	Malins, Chester J. '76	Hopson, Robert C. '69	Simon, Joseph R. '81
	Hessemer, Fritz M. '48	Drennan Jr., Robert F. '70	*Martin, Wallace W. '48	Kiss, Linda D.B. '85	*Welch III, Thaddeus B. '79
	Jammal, Joseph N. '50	Fowler, John W. '48	Matlock, John H. '67	Lanford Jr., Stanard F. '55	
	Kardos, John L. '61	Gray Jr., Blaine E. '72	Nix Jr., Cecil A. '57	Powell, Joseph B. '78	
	*Kollivosky Jr., John E. '92	Johnson III, Wilson U. '82	*Peterson, Brian W. '90	*Williams, John R. '33	
	Matthias, Tracey D. '89	Marley, Brian Lee '89	Peterson, Robert A. '80	Candiff, Lester B. '42	FOUNDER'S CLUB
	*McGivern, Patrick John '90	Martin, J. Campbell '48	Reese, Francis C. '75	Dawson, Herbert M. '61	AL A Andrews, Gary Dean '89
	Nixon, Dean W. '89	McCormac, Jack C. '48	*Schrade, James L. '85	Gibbins, Martin N. '78	Bailey, Charles '77
	Pasko, Thomas J. '53	Mims, Paul W. '71	Setliff, Jerry L. '67	Keckler, Claude R. '63	Cobb IV, Henry C. '71
	Polleck, Richard E. '53	Paskel, Sheila Ann '86	Setliff, Sanford R. '69	Lechner, Richard A. '59	Eddy, John E. '67
	Replogle, Joe O. '52	Peters, William J. '70	Sorber, Charles A. '61	*Lovell, Lale Gokbudak '96	Hardy, Robert F. '74
	Smith, Donald D. '48	*Pitts, Thomas E. '78	*Thompson Jr., Chance O. '53	*Lovell, Matthew Bruce '96	Hartley Jr., John T. '55
	Smith, Edward L. '64	Prothro, Joseph E. '63	Truina, William R. '73	Maloney, Melissa M. '63	Hawkins, Lawrence A. '81
	*Solar, Ronald J. '72	Snider, Eric H. '75	Whitesides Jr, John L. '65	Nay Jr., Marshall W. '90	Hiller, William R. '69
	*Chang, Yue Cathy '00	Wallace, Winston E. '74	*Wolff, Catherine L. '88	Osborne, John M. '53	Phinney Jr., Thomas W. '66
	*Chong, Jike '00	*Ward, Robert M. '86	Younger Jr., Dewey G. '49	Ray II, Robert E. L. '74	Phinney Jr., Cecil A. '61
	Hudson, Robert H. '77	Crews Jr, Esca Holmes '43	Zvernemann, Gregory R. '76	Scott, Robert H. '75	Rutledge, Walter H. '78
	Husak, Alan D. '65	*Ender, Elizabeth Elaine '98	*Cummings, Ronald A. '75	Shivers, Charles H. '75	Scharton, Craig A. '85
	Kornuta, Nick J. '81	*Fischer, Belinda Ann '94	*Dillman, Robert D. '75	Shively, John C. '73	Schoenborn, P.E., Renee M. '85
	Kromer, Robert P. '82	Haggerty, N. Kent '72	Easterday, Mark L. '84	Singler, Joseph R. '90	Scott, Barbara J. '73
	Laynor, John E. '54	Lang, Christine P. '80	Evans III, Peter '80	Bannach, Robert J. '72	Simon, Joseph R. '81
	Marcus, M.D., Robert L. '45	Mann Jr., Willie F. '60	Green, Carl W. '55	Brazil III, C. Ellis '83	*Welch III, Thaddeus B. '79
	Rouleau, Wilfred T. '51	*Prunty Jr., Robert W. '71	Hood, David L. '73	Doughty, Ralph O. '61	
	Rudolph, Anna B. '79	*Shull Jr., Daniel S. '51	Kunkel, Larry D. '71	Gaicher, Kelly V. '58	
PA A	Banks, Daniel '54	Walden, Gary R. '81	Kimmel, George C. '54	*Mason, William Warren '89	
	Black, David L. '83	*Atkins, Jr., Henry G. '66	Landwermyer, Thomas G. '50	Raymer, Robert E. '65	
	Lepore, John A. '57	Baggett, Charlie C. '63	Marasco, David F. '87	Pai, David H. '58	
	Lewis, Timothy '64	Cochrane, Jerry W. '55	McPherson, Darryl J. '80	*Bullock, Dennis E. '76	
	Mclvain, Donald R. '52	Draper, William C. '56	*Nall, Albert A. '81	Chandler, Alan S. '77	
	Means, Richard T. '68	Fletcher, Robert H. '64	Newkirk, Todd L. '87	D'Amato, J. Mark '77	
	Nackoney, Ogden G. '63	Gustafson, Richard A. '63	Osborne, David C. '61	Dean, Kenneth R. '49	
	Sera, Stacy D. '86	Jones Jr., Howard Carlisle '50	Palmer, Jim B. '64	Hage, Robert E. '39	
PA E	Amman, Richard W. '64	Kelly, Robert T. '84	Smith, David L. '71	Hammersmith, J. G. '49	
	Boyles, Bruce W. '76	Lightle, Jack T. '58	Soules, P.E., S.E., James G. '79	Hatter Jr., Wayne E. '70	
	Cavanaugh, William J. '54	Manzione, Charles W. '80	Upchurch, James A. '76	Jabusch, Donald A. '60	
	Clark, Gordon B. '51	Marbois, Matthew C. '81	Valusek, John R. '70	Larkin, Robert S. '61	
	Clark Jr., Eugene M. '58	*Mello, William James '97	Williams, David C. '47	Miller, Stefan J. '63	
	Donofrio, Robert A. '71	Smith Jr, Isaac D. '90	Capshaw, David M. '80	Moore, David M. '54	
	†Euest, Frederick C. '59	Wertheim, Robert Halley '45	*Cox, William C. '84	Ogg, Daniel G. '85	
	Hagadorn, Hubert W. '59	Berggren, Mark H. '76	Dobbers, Porter K. '56	Olye, Martin Y. '76	
	Huston, E. Lee '62	Brass, Lorin L. '75	*Herring, Robert B. '63		
	Matsumoto, Tadashi C. '60	Case, Robert H. '75	Horn, Kenneth P. '61		
	*McGeady, Leon J. '43	Eisenbraun, Daniel D. '63	Kobayashi, Riki '44		
	Murgas, William J. '53	Gerlach, Darwin Ronald '96	Koonce, Kenneth T. '30		
	*Nolan, Christoper C. '86	Jenkins, Robert Creties D. '83	Larkins, Robert P. '56		
	Pessina, Michael W. '76	*Johnson, Jerry Allen '92	Lesser, Herbert A. '60		

FOUNDER'S CLUB

AL A	Andrews, Gary Dean '89
	Bailey, Charles '77
	Cobb IV, Henry C. '71
	Eddy, John E. '67
	Hardy, Robert F. '74
	Hartley Jr., John T. '55
	Hawkins, Lawrence A. '81
	Hiller, William R. '69
	Phinney Jr., Thomas W. '66
	Phinney Jr., Cecil A. '61
	Rutledge, Walter H. '78
	Shivers, Charles H. '75
	Scharton, Craig A. '85
	Schoenborn, P.E., Renee M. '85
	Scott, Barbara J. '73
	Simon, Joseph R. '81
	*Welch III, Thaddeus B. '79
AL B	Anderson, James R. '87
	Andrzejewski, Joseph R. '90
	Bannach, Robert J. '72
	Brazil III, C. Ellis '83
	Doughty, Ralph O. '61
	Gaicher, Kelly V. '58
	*Mason, William Warren '89
	Raymer, Robert E. '65
	Naughton, Joseph D. '60
	Pearson, Marcus L. '63
	Sims, Kenneth L. '71
	Vann, Robert W. '49
AL G	*Foust, Earl Richard '71
	Guest, James Mark '89
	*Wood, Sandra '82
AL D	Fortune, Ph.D., P.E., Juliana L. '01
	Jett, Daniel X. '85
	Leach, Curtis Edward '91
AK A	McPadden, Terry T. '60
AZ A	*Best, Robert W. '77
	*Blake, Robert D. '83
	Daman, Arthur C. '72

FOUNDER'S CLUB, CONTINUED

		Flanagan, Joseph E. '63		Zohns, Mark A. '81		Van Horn, USA Ret, William A. '82		Ballard, Bruce '58		Pack, Garrett E. '60
		Howard, R. Stanley '51	CA N	Batelaan, Paul D. '64		Vermatson, William G. '72		Banks, William B. '50		Peters, Paul E. '57
		Leonardi, Suryanto P. '86		Caballero, Luis A. '85		Wabbersen Jr., William G. '90		Belter, Terry R. '77		Sheridan, Edward J. '69
		Mahr, Eric Milton '67		Darlington, William E. '66		Zegel, William E. '76	FL B	Bilman, Patricia M. '76		Sheridan, Margaret A. '96
		Mark, Trevor Howard '97		Eaton, Patrick L. '95		Hernandez, Albert A. '86		Billian, Mark Wayne '93		Stroble, Philip W. '79
AZ B		*Svensson, Arthur '66		Harenberg, Donald D. '61		Nunez, Ramon L. '75		Bobeck, Andrew H. '48		Wuehl, Darrell W. '71
		*Anderson, Craig T. '85		Johnson, Michael R. '86		Stambolian, Damon Burns '98		Buechler, Ralph M. '39		Jaeger, Robert G. '70
		*Forster, Karl D. '86		Ortiz, Janet M. '82	FL I	Brown, Harold J. '77		Burch, Harry C. '75	KS B	Shields, Suzanne L. '83
		*Garrell, Carroll B. '49		Rheinhardt, Mark E. '84		Bredem Jr., John P. '67		Carbon, Max W. '43		Drum, Robert C. '70
		*Gayle, William R. '79		Robertson, Alvin A. '83		*Copeland Jr., Charles E. '73		Carson, William D. '60	KS I	Johanna, Kerrod W. '95
		Harary, P.E., Robert M. '82		Uphold, Donald Dale '91	CA E	Miller, Joseph E. '73		Chatto, Kenneth A. '50		Marietta, Kala J. '75
		*Nucci Jr., Joseph E. '86		Anderson, Clayton Jerome '95		Nixon, William Brent '95		Cunry, Robert W. '46		Neely, Steven L. '94
		Sykes, William C. '82		Ashbaugh, Bradley K. '91		*O'Brien, P.E., Christine E. '91		*Davis, Perry N. '72		*Roberts, P.E., Thomas C. '70
		Takinen, Scott A. '79		Baxley, Paul A. '81	FL A	Phares, Harold P. '80		Dillard, James O. '77		Walker Jr., Hugh S. '87
AZ I		Wikes, Alan D. '85		Gee, Warren A. '84		*Becker, Gerald L. '80		Dyer, Richard W. '60	KY A	Baker, P.E., Meri '45
AR A		*Chedister, Ret., Robert W. '72		*Harron, Michael G. '88		Dobbins, Kathy Lynn '93		Foster III, John L. '74		Bevin, Parker R. '64
		*Hensley, Edward K. '52		Hawkins II, John C. '79		Gladwell, John R. '81		Garthe, Philip J. '56		Cates, Terry D. '83
		Jackson, John R. '38		Onell, Patrick M. '82		Sieck, Robert R. '60		Gearan, USA Ret, William K. '58		Goff, Joe S. '51
		Lehnen, Robert Anthony '90		Schroeder, Steven A. '78		Tiedtke, Sigrid K. '80		Haworth, Donald R. '52		Heintz, David J. '83
		*Ogden, Charles R. '54		Smith, Martha A. '83	FL E	*Vargas, Christina Marie '07		White, Charles J. '75		Hibbard, Robert L. '65
		Raymer, Harold G. '68		Steckel, David Edward '89		Grushka, Jon L. '85		Hansell, Shelley Ann '92		Holwager, Thomas '57
		Slee, James E. '68	CA II	Gordon, Albert P. '84		Hansen, Christian Michael '88		Ware, Mark A. '85	FL Z	*Fricke, Steven Allen '93
		Tait, George R. '52		Spinney, Van W. '67		Wares, Mark A. '85		Jackson, David W. '51		Seip, Ralf '90
		Tissi, Mark S. '82	CA P	Alexander, Dean L. '80		Horne, Carey J. '70		Jesens, Eric R. '80		Karrenberg, Hans K. '54
CA A		Williams, Curtis R. '63		Hall, Mark Corwin '88		Hicks, John P. '81	GA A	Karweguchi, Ray S. '69		Lin, Jeffrey Eugene '97
		Chan, Sunney I. '57		Hurst, Brad M. '88		Stewart, Robert G. '84		Mansmann, Robert '49		Masselli, Stephen A. '68
		Flertzhelm Jr., H. A. '53		Mandrell, Nathan Keith '92		Batts, Jiles L. '48		Mathews, Patricia A. '78	KY B	Maurer, Harold E. '50
		Gourdin, Hugh O. '41		Sullivan, C. Bart '86		Bodner, Douglas A. '87		Meyer, David G. '73		Mimitti Jr., Robert J. '70
		Hong, Wilbur E. '80	CA S	*Kakachuku, Okeshukuru N. '99		Burzi, Rudolph J. '49		Monical, R. D. '83		Morgan, Rachel Diane '90
		Humphreys, George B. '51		Lawrance, Charles H. '42		Burchett, Chabert W. '54		Duggan Jr., Robert S. '51		Faulkberry, David L. '77
		Lieu, Dale K. '78	CA T	Shetler, Joy Susan '90		Chenoweth, Robert G. '53		Geiger, Jonathan G. '72		Glover, Edmund C. '60
		Morihiro, Steve '79	CA Y	Buttacaovoli, Kara A. '97		Cox, James M. '47		Guiley, John Q. '67		Gumm, Milton S. '87
		Sherby, Oleg D. '45		Christian, Matthew P. '83		Curry Jr., John C. '58		Hedrick, A. Fred '69		Porter, Clarence W. '46
		Shohara, Sei '82		Davis, Sean T. '94	CA X	Davidson, James Narl '63		Hicks, John P. '81		Rentz, Peter E. '55
		Andrews, W. W. '44		Lindauer, John Arthur '90	CA AA	Dockett, Kenneth B. '58		Horne, Carey J. '70		Rietter, Robert F. '65
		Hearn, David R. '64		*Lopez, Victoria Medina '03	CA AB	Duggan Jr., Robert S. '51		Jones, Christopher T. '86		Rogers, Michael L. '74
		Jensen, Louis K. '66		Taylor, Roderick K. '87		Faulkberry, David L. '77	GA B	Jory, Virginia V. '71		Seefeldt, Waldemar B. '47
		Kaplan, Daniel Dmitry '99	CA F	Bobbitt, Kelle Allen '92		Geiger, Jonathan G. '72		Moffett, John W. '72		Seely, Richard E. '39
		Knemeyer, Franklin H. '44		Jay-Sherrill, Jeannette K. '86		Geiger, Jonathan G. '72		Ogilvie, John C. '74		Siminick, James J. '74
		Sabersky, Rolf H. '42	CA X	Michaels, Philip George '91		Glover, Edmund C. '60		Perkins, Frank A. '52		Stimson, Jon R. '60
		Ainsworth, Gerald L. '56	CA A	Danson, Kristi Lee '61		Guiley, John Q. '67		Pipkins, Daniel Scott '88		Schreiber, Don C. '91
		Bankevitch, Walter J. '87	CA AB	Stuber, Michael T. '02		Gunn, Stuart S. '67		Schurbutt, James S. '75		Stelson, Arthur W. '76
		Beyer, Rodney B. '56	CO A	Bonham, Lyle V. '71		Hedrick, A. Fred '69		Stuber, Donald R. '71		Tundermann, John H. '63
		Ezekiel, Alan W. '90		Burch, William L. '44		Hicks, John P. '81		Taylor, Roderick K. '87	GA B	*Davis, Chad Allen '01
		Ma, Conlan Liang '99		Burford, Dwight A. '82		Horne, Carey J. '70		Castleman, Curtis H. '62		Jones, David Neal '92
		Mark, Hans M. '51		Crisi, Peter A. '86		Jones, Christopher T. '86		Clark Jr., Albert F. '52	ID A	*Ahlsgager, Alan D. '87
		McCloskey, David J. '58		Devoe, Tracie K. '82		Jory, Virginia V. '71		Clark, Philip C. '57		Carpenter, Scott E. '88
		Miller, William C. '84		Gibbs, Frank E. '84		Moffett, John W. '72		Harris, Walter A. '83	IN B	*Carpenter, Stanley R. '56
		Tedrow, James A. '70		Gibbs, Julie F. '80		Ogilvie, John C. '74		Ketchum, Steven L. '85		Cook, Steven R. '73
		Warner, Richard H. '82		*McNeil, Charles S. '71		Perkins, Frank A. '52		Landua, John Oliver '93	IN I	Adams, Gerald J. '65
		Young, Frank S. '55	CA A	Peterson, Steven D. '72		Pipkins, Daniel Scott '88		Spangrude, Gene R. '73		Crowley Jr., Richard D. '56
		Braxton, Eugene G. '58		Stratton, Joan V. '74		Schreiber, Don C. '91		Spangrude, Gene R. '73	LA A	Walterman, Richard E. '62
		Burks, Robert A. '56		Wade, Jonathan F. '84		Shurbutt, James S. '75		Stelson, Arthur W. '76		Weakley, Thomas L. '55
		Delvin, Sandra L. '76	CO B	Akers, David A. '78		Stuber, Donald R. '71		Waterman, Joseph R. '52	LA B	Williams, Carl L. '49
		Petterolf-Klein, Shelley M. '82		*Anderson, John A. '39		Tundermann, John H. '63		Weakley, Thomas L. '55		Willson, James K. '65
		Fielding, Robert M. '65		Burcham, Jay F. '55		Taylor, Roderick K. '87		Williams, Carl L. '49	LA I	*Willson, James K. '65
		Goodin, James D. '57		Castleman, Curtis H. '62		Clark Jr., Albert F. '52		Williams, Carl L. '49		Wisthuff, Scott D. '78
		Griffith, Glen A. '72		Clark Jr., Albert F. '52		Clark, Philip C. '57		Zabinski, Arthur A. '78		*Carpenter, Stanley R. '56
		Knopp, Gordon L. '55		Ferna, Scott A. '83		Harris, Walter A. '83		Ketchum, Steven L. '85		Cook, Steven R. '73
		Lawson, William E. '62		Johnson, Mark '91		Jolley, Malcolm C. '74		Spangrude, Gene R. '73	IL A	Ackmann, Lowell E. '44
		Mareu, Bogdan '66		Johnson, Mark '91		Klinker, Robert J. '50		Spangrude, Gene R. '73		Allan, Charles H. '66
		Moretti, Vincent C. '62		Lafollette, Jack '59		Lafollette, Jack '59		Timmerhaus, Klaus D. '48		Barton, Henry O. '49
		Purves, Robert R. '49		Primeaux, Paul R. '67		Primeaux, Paul R. '67		Trimbell, Thomas S. '70		Baumgartner, Richard A. '69
		Rey, Daniel '66		Rouin, James H. '80		Rouin, James H. '80		Velezquez, Jose F. '78		Beach, Edward J. '68
		Salin, Irwin '48		Salin, Irwin '48		Salin, Irwin '48		Watson, Donald E. '49	IL A	Beckett, Royce E. '44
		Stokes, Raymond W. '50		*Tan, Lim P. '75		*Tan, Lim P. '75		Weber, Douglas C. '70		Bond, Thomas L. '76
		Winn, Boyd E. '50		Winn, Boyd E. '50		Winn, Boyd E. '50		Weiss, L. Warner '65	CO I	Bryant, Howard H. '50
		Yamashiro, Keith K. '79		Yamashiro, Keith K. '79		Yamashiro, Keith K. '79		White, William R. '65	CO A	Baldwin, Lionel W. '54
CA E		Coleman, Edward P. '35		Coleman, Edward P. '35		Coleman, Edward P. '35		White, William R. '65		Jones, Donald E. '77
		Forman, Barry J. '60		Forman, Barry J. '60		Forman, Barry J. '60		White, William R. '65		Longino, Barbara D. '80
		Lee, John M. '75		Lee, John M. '75		Lee, John M. '75		White, William R. '65		Longino, James L. '81
		Lepore, Robert G. '76		Lepore, Robert G. '76		Lepore, Robert G. '76		White, William R. '65	CO E	O'Fallon, Sean Emmett '95
		Miller, Richard E. '87		Miller, Richard E. '87		Miller, Richard E. '87		White, William R. '65		Thompson, Gregory O. '01
		Slutzkin, Charles H. '57		Slutzkin, Charles H. '57		Slutzkin, Charles H. '57		White, William R. '65	CO Z	Bridges Jr., Roy D. '65
		Ssutu, Louis '65		Ssutu, Louis '65		Ssutu, Louis '65		White, William R. '65		Crews, Conrad '82
		Venhencamp, John E. '50		Venhencamp, John E. '50		Venhencamp, John E. '50		White, William R. '65		Euler, Peter Scott '03
		Walker, David A. '78		Walker, David A. '78		Walker, David A. '78		White, William R. '65	CT A	*Berger, Toby '62
		Washburn, Dale F. '57		Washburn, Dale F. '57		Washburn, Dale F. '57		White, William R. '65		Cohn, Seymour B. '42
		Zarin, Oren '95		Zarin, Oren '95		Zarin, Oren '95		White, William R. '65		Freedman, Raymond J. '52
CA Z		Blaney, Timothy J. '86		Blaney, Timothy J. '86		Blaney, Timothy J. '86		White, William R. '65		Fullerton, John H. '44
		Davidson, Orren G. '78		Davidson, Orren G. '78		Davidson, Orren G. '78		White, William R. '65		Gerson, Gordon '58
		Grau, Judith M. L. '83		Grau, Judith M. L. '83		Grau, Judith M. L. '83		White, William R. '65		Kaufman, Earle B. '42
		Knowles, Michael W. '82		Knowles, Michael W. '82		Knowles, Michael W. '82		White, William R. '65		MacDonald, Verne H. '64
		Masuda, Dante A. '75		Masuda, Dante A. '75		Masuda, Dante A. '75		White, William R. '65		McElligot, Donald M. '52
		McGuire, John P. '58		McGuire, John P. '58		McGuire, John P. '58		White, William R. '65		*Parker, Gordon C. '49
CA H		Asgari, Ramak '99		Asgari, Ramak '99		Asgari, Ramak '99		White, William R. '65		Terry, Elene Sharon '01
		Bautista, Anthony H. '94		Bautista, Anthony H. '94		Bautista, Anthony H. '94		White, William R. '65		Watson Jr., Richard P. '78
		Costa, Michael '88		Costa, Michael '88		Costa, Michael '88		White, William R. '65		Weber, P.E., John W. '33
		Daniels, Ramon '91		Daniels, Ramon '91		Daniels, Ramon '91		White, William R. '65	CT B	Berson, P.E., Bernard R. '57
		Eaton, Sherman J. '65		Eaton, Sherman J. '65		Eaton, Sherman J. '65		White, William R. '65		Brenna, Patricia M. '81
		Elkins, Perry E. '60		Elkins, Perry E. '60		Elkins, Perry E. '60		White, William R. '65		Cole, Edward F. '50
		Lima, James A. '61		Lima, James A. '61		Lima, James A. '61		White, William R. '65		Conaty, Gerald F. '56
		Nelson, Richard B. '63		Nelson, Richard B. '63		Nelson, Richard B. '63		White, William R. '65		*Dechene, Joseph F. '82
		Puig, Carlos Manuel '94		Puig, Carlos Manuel '94		Puig, Carlos Manuel '94		White, William R. '65		Daubay, John R. '79
		*Thornton, Roger Lane '93		*Thornton, Roger Lane '93		*Thornton, Roger Lane '93		White, William R. '65		Greene Jr., Joseph F. '53
		Thurston, Jeanne L. '77		Thurston, Jeanne L. '77		Thurston, Jeanne L. '77		White, William R. '65		Holland, Donald S. '72
		Wang, Hui-Zhi A. '82		Wang, Hui-Zhi A. '82		Wang, Hui-Zhi A. '82		White, William R. '65		Kane, Martin P. '86
CA O		Carpenter, USAF Ret, G.L. '49		Carpenter, USAF Ret, G.L. '49		Carpenter, USAF Ret, G.L. '49		White, William R. '65		Perreault, Gregory J. '84
		Cook, John R. '76		Cook, John R. '76		Cook, John R. '76		White, William R. '65		Santoro-Schechter, Leann '84
		Glugoski, Michael W. '80		Glugoski, Michael W. '80		Glugoski, Michael W. '80		White, William R. '65		Seymour Deborah A. '86
		Hoekstra, Gerben N. '66		Hoekstra, Gerben N. '66		Hoekstra, Gerben N. '66		White, William R. '65	DE A	*Woodruff, Eileen A. '90
		Koerber, Matt J. '95		Koerber, Matt J. '95		Koerber, Matt J. '95		White, William R. '65		Halfen, Charles W. '80
		Koldrup, Nils P. '79		Koldrup, Nils P. '79		Koldrup, Nils P. '79		White, William R. '65		Harrell, Douglas G. '80
		*Lowe, William W. '73		*Lowe, William W. '73		*Lowe, William W. '73		White, William R. '65		Neimeyer, Terry F. '77
		McLaughlin, Ronald T. '51		McLaughlin, Ronald T. '51		McLaughlin, Ronald T. '51		White, William R. '65		Ree, Kirk A. '88
		Method Jr., William M. '73		Method Jr., William M. '73		Method Jr., William M. '73		White, William R. '65		Sowiak, Milton M. '57
		Mevers, Maryann '57		Mevers, Maryann '57		Mevers, Maryann '57		White, William R. '65		Titi, Gerard W. '79
		Rodin, Mike E. '73		Rodin, Mike E. '73		Rodin, Mike E. '73		White, William R. '65		*Williams, Jay J. '71
		Ruitani, Paul E. '82		Ruitani, Paul E. '82		Ruitani, Paul E. '82		White, William R. '65		

# FOUNDER'S CLUB, CONTINUED

MDA	Surina Jr., John J. '86	Brown, Marshall Joel '96	Farrell, Adam John '99	Morgan, Dennis R. '68	Papoulias, George '48
MAA	*Iannuzzi, Jo '96	Brunais, Ellsworth G. '52	Fink, Earl R. '56	Okoye, Chukwuka Kameme '96	*Ramblich, Chandranance '80
	Ahern, Michael P. '78	Buer, William J. '68	Gardner, Roger W. '63	Pasquale, Carl J. '47	Rubin, David K. '59
	Andel, Robert M. '81	Davis, Robert '81	Gillum, Marvis C. '56	Pinto, Richard C. '56	Schneck, David '49
	Brown, Mark W. '82	Dronzkowski, David J. '96	*Hibner, Dale V. '74	*Reitano, Anthony J. '72	Ucci, Ph.D., Donald R. '79
	Cannon, Lewis S. '82	Eichhorn, Jacob '46	Magee, Thomas H. '51	Reznak, Frederick J. '69	Wolff, Murray '48
	Cuechi, Thomas '85	Fertel, Howard K. '79	Magee, Thomas H. '51	Riege, Carl R. '57	NY 6
	Engman, George E. '50	Geib, Arthur J. '44	McKiernan, John W. '47	Rij, Jerry J. '72	Bunker, Wayne A. '82
	Haringa, Glenn E. '74	Gerdes, Walter '58	Ott, Ronald J. '71	Roche, Timothy E. '84	*Campana, Michael Albert '94
	Hunter, Nickie M. '81	Gniewek, Kenneth J. '77	Phillips, James M. '68	Schramm, Max '46	Carley, William J. '47
	Irwin, Michael J. '75	Goddin, Louis A. '51	Richmond, Deborah V. K. '70	Schreiber, Otmar P. '49	Harris, Everett S. '76
	Jacques, Donald A. '83	Goodenough, Richard D. '74	Rudy, William A. '81	Thelue, Thomas '64	Hughes, David C. '86
	Kerr, William A. '60	Hamburg, James A. '53	Satterlee Jr., George L. '52	Thompson, Susan M. '92	Lawrence, Brian L. '87
	*Lescoe, James Terrence '05	Hannig, William A. '47	Trefethen, Michael W. '70	Zarra, Saverio J. '48	Quay, Jeffrey R. '85
	Lindquist, Richard W. '54	Harris, Frederick A. '64	Weidinger, Robert P. '61	NY A	Abes, Jeff Isaac '97
	Mangaraci, Christopher A. '96	Hodge, William H. '57	Wesselhoft, Adolf J. '71	Beatty, Douglas N. '57	Cole, Peter P. '72
	Marcaccio, Mario J. '80	Hoisington, Robert H. '38	Agnew Jr., Louis E. '50	Garing, John D. '80	NY I
	Meyer, Robert A. '52	Iler, Gerald W. '49	Berkey, Vernon G. '50	Bodenhamer, P.E., Steven D. '75	Gross, Gary R. '80
	Mitschang, George W. '65	Insprucker III, John L. '78	*Koops, Leigh W. '72	Bondurant, David W. '71	Kovatch, George '55
	Morse, John E. '45	*Kroll, Charles E. '56	Lady, Edward R. '47	Elfrink, P.E., Lindell H. '62	Ma, Brian Bin-Ho '00
	Proulx, Thomas Joseph '92	Lambert, Thomas J. '77	Lasher, William C. '76	Gresco, Mary J. '84	Whitesides Jr., Lawson E. '68
	*Sage, Joseph A. '78	Lambert, Thomas J. '77	Lawyer, John J. '63	Hall, Johnnie E. '59	*Yu, Jeffrey C. '85
	Wielk, Michael R. '86	Lasher, William C. '76	Lempke, James D. '83	Hardwick, Harry E. '57	NMA
	Beaudoin, Bernard J. '65	Lawyer, John J. '63	MacDermott, William N. '49	Herbel, Arthur W. '50	Havens Jr., Kenneth H. '78
	Boyd, USN Ret., John H. '59	Lempke, James D. '83	MacDermott, William N. '49	Henderson, Robert E. '61	*Hays, Richard Allan '69
	Breen, Barry C. '70	McCormick, James R. '58	Molhsberg III, Sidney A. '71	Katz, Manfred '53	James, Ph.D., Jonathan C. '97
	Clark, Ronald C. '56	Molhsberg III, Sidney A. '71	Ori, Luigi '71	Kotemann Jr., Richard A. '82	Maggard, Samuel P. '56
	Colavita, M. Mark '81	Outz, Allan H. '51	Pace Jr., George D. '61	McDaniels, John L. '80	Tarbox, David '60
	Conklin Jr., James B. '59	Prioriello, Ronald A. '74	Pruley, Craig M. '78	Oberschep, William F. '53	Woodward Jr., Clinton B. '84
	Crawford, Charles E. '59	Randall, David L. '63	Rollinger, Martin G. '82	Preston, P.E., Scott Steven '97	Zimmerman, Ph.D., P.E., R.M. '59
	Delagrangre, Arthur D. '62	Randall, David L. '63	Sagaser, Donald D. '48	Raney, Edward M. '64	NMB
	*Efimba, P.E., Robert E. '63	Randall, David L. '63	Sagaser, Donald D. '48	Sanderson, Earl D. '74	Sullivan, Thomas D. '74
	*Fahy, Thomas E. '76	Randall, David L. '63	Schmidt Jr., Henry L. '44	Saperstein, Lee Waldo '64	Tills, Jack L. '78
	*Fong, Ivan K. '83	Randall, David L. '63	Seligman, George N. '70	Steinman, Robert L. '96	NY I
	Honigsberg, Charles A. '52	Randall, David L. '63	Simons, Robert A. '48	Thompson, George W. '53	Bakko, Anthony J. '97
	Hotte, A. Paul L. '42	Randall, David L. '63	Simon, Robert A. '48	*Wiseman, James L. '68	Bonjorni, Daniel Louis '90
	Hui, Anthony Y. '00	Randall, David L. '63	Stark, Robert E. '59	Wixson, Bobby G. '60	*Gollmer, Nicholas Alan '95
	Kendall, Robert E. '50	Randall, David L. '63	Stark, Robert E. '59	Apanal, Anna M. '80	*Jacobson, Eric D. '88
	Lawes, C. Peter '58	Randall, David L. '63	Stark, Robert E. '59	Bell, Joseph H. '51	Ochs, Daniel E. '95
	Liepins, Atis A. '57	Randall, David L. '63	Stark, Robert E. '59	Eddy, James D. '80	Thompson, Don '88
	McGrew, John D. '51	Randall, David L. '63	Stark, Robert E. '59	Gallagher, Robert W. '64	Bishop, Bruce S. '80
	Midney, John H. '47	Randall, David L. '63	Stark, Robert E. '59	Langren, Terry D. '80	Brooks, Arnold '47
	*Miller, Stephen W. '63	Randall, David L. '63	Stark, Robert E. '59	McKintyre, David Christopher '95	Chaudhry, Sohail S. '74
	Mezvia, Matt L. '65	Randall, David L. '63	Stark, Robert E. '59	Paule, Donald W. '74	Gaines, Allan M. '57
	Nagle, James L. '63	Randall, David L. '63	Stark, Robert E. '59	Schlager, Lynn M. '77	Knickrehm, Glenn A. '71
	Nole, Anthony Rocco '96	Randall, David L. '63	Stark, Robert E. '59	Swallow, Louis J. '54	Kremer, Christopher A. '93
	Osterberg, Peter M. '78	Randall, David L. '63	Stark, Robert E. '59	Wassum, Guy H. '78	Reznik, Alan M. '79
	Pease, Robert A. '61	Randall, David L. '63	Stark, Robert E. '59	Brin, Beth L. '79	Seader, David '67
	Robinson, Thomas J. '58	Randall, David L. '63	Stark, Robert E. '59	Delaney, Robert Charles '88	NY B
	Saba, Robert B. '61	Randall, David L. '63	Stark, Robert E. '59	Jellison, Gabe Lee '98	Bridgeman, Theodore H. '49
	Schreiber, P.E., Robert P. '75	Randall, David L. '63	Stark, Robert E. '59	Lansberger, John S. '90	Carpenter, Richard C. '51
	Shepperd, Stanley W. '70	Randall, David L. '63	Stark, Robert E. '59	Moody, Thomas W. '49	Darling, Jonathan K. '83
	Smith, Kenneth A. '58	Randall, David L. '63	Stark, Robert E. '59	Peck Jr., Delbert E. '77	Engel, P.E., Howard D. '50
	Smith, Thomas L. '67	Randall, David L. '63	Stark, Robert E. '59	Petersen, James N. '76	Glaser, Anthony J. '51
	Stark, Robert E. '59	Randall, David L. '63	Stark, Robert E. '59	Spindie, Eugene N. '55	Mossman, Allen L. '49
	Thaller, David Ben '93	Randall, David L. '63	Stark, Robert E. '59	Furston, Bradley '78	Placentra, Nicholas J. '79
	Wasem, Ondria J. '85	Randall, David L. '63	Stark, Robert E. '59	Hiers, Robert S. '80	Roberts, Christopher Alan '94
	Weinberg, Marc S. '70	Randall, David L. '63	Stark, Robert E. '59	Jackson, Darron '86	Stanton, James W. '61
	Wolf, Carl F. W. '53	Randall, David L. '63	Stark, Robert E. '59	Montgomery, Wayne '83	Straub, Carlos M. '48
MAA	Blesso, Thomas N. '73	Randall, David L. '63	Stark, Robert E. '59	NEA	Backensto, Arthur B. '48
	Cashman, William '84	Randall, David L. '63	Stark, Robert E. '59	Cowling, Edgar C. '75	Bower, Robert E. '48
	De Capite, Marco Luigi '91	Randall, David L. '63	Stark, Robert E. '59	Ekstrand, James G. '49	Buttz, Charles W. '56
	Hablaniyan, David A. '80	Randall, David L. '63	Stark, Robert E. '59	Iwan, Russel R. '81	Campbell, Charles T. '51
	Hamby, Genevieve D. '92	Randall, David L. '63	Stark, Robert E. '59	*Massey, Craig Allen '96	Davis, Walter M. '47
	Hildebrandt, Eric Michael '92	Randall, David L. '63	Stark, Robert E. '59	Montz, Mark A. '83	Diefenbacher, Robert H. '59
	Hunt, Robert F. '59	Randall, David L. '63	Stark, Robert E. '59	Moore, James J. '80	Douglas, James '89
	Malibie, Catherine Vadala '86	Randall, David L. '63	Stark, Robert E. '59	Paxton, William G. '87	Gordon, Benjamin Bruce '97
	Serencha, Mark E. '83	Randall, David L. '63	Stark, Robert E. '59	*Peters, Randall D. '87	Gorski, Andrew Joseph '01
	Stanfield, Robert B. '65	Randall, David L. '63	Stark, Robert E. '59	Sneed, Kathryn K. '80	Hirschman, Gordon B. '78
	Steigman, Frederic N. '67	Randall, David L. '63	Stark, Robert E. '59	*Stelling, Karen D. '85	Krause, Alfred F. '52
	Terranova, Dominic S. '55	Randall, David L. '63	Stark, Robert E. '59	*Van Slaver, Max A. '75	Kunz, H. Russell '53
	Wolff, Howard E. '47	Randall, David L. '63	Stark, Robert E. '59	NY A	Lehman, Herbert M. '43
	Wren Jr., Paul I. '57	Randall, David L. '63	Stark, Robert E. '59	NEA	*Levy, Michael David '89
	Zick, Michael '92	Randall, David L. '63	Stark, Robert E. '59	NEA	*Lewandowski, Michael '96
MAE	Cheh, Kuo-Sheng '83	Randall, David L. '63	Stark, Robert E. '59	NEA	Maichak, Thomas H. '50
	Field, Leslie A. '68	Randall, David L. '63	Stark, Robert E. '59	NEA	Maziarz Jr., Edward F. '66
	Los, Paul R. '67	Randall, David L. '63	Stark, Robert E. '59	NEA	Mucher, Craig A. '82
	Morse, Douglas H. '84	Randall, David L. '63	Stark, Robert E. '59	NEA	Natale, Michael Robert '02
	Nowell, Randall J. '73	Randall, David L. '63	Stark, Robert E. '59	NEA	Obernesser, M. Edwin '59
	*Perkins, George C. '64	Randall, David L. '63	Stark, Robert E. '59	NEA	Opsahl, Richard B. '53
	Schoenfeld, Richard Alan '71	Randall, David L. '63	Stark, Robert E. '59	NEA	Reinman, Kenneth J. A. '71
	Swanton, Bruce D. '85	Randall, David L. '63	Stark, Robert E. '59	NEA	Schoen, Edward A. '69
	Taverna, Louis M. '77	Randall, David L. '63	Stark, Robert E. '59	NEA	Schradler, Frank W. '66
	Thompson, John W. '72	Randall, David L. '63	Stark, Robert E. '59	NEA	Schradler, Gustav '51
MAZ	Young, Charles W. '72	Randall, David L. '63	Stark, Robert E. '59	NEA	Schrier, Steven E. '82
	Anthony III, James W. '65	Randall, David L. '63	Stark, Robert E. '59	NEA	Segal, William L. '68
	Bennett, Paul E. '50	Randall, David L. '63	Stark, Robert E. '59	NEA	Smith, Charles A. '81
	Cooper, Perry R. '87	Randall, David L. '63	Stark, Robert E. '59	NEA	Stresino, Edgar F. '48
	Cramer, Robert A. '80	Randall, David L. '63	Stark, Robert E. '59	NEA	Stull, Frank D. '53
	Cyr, Russell J. '85	Randall, David L. '63	Stark, Robert E. '59	NEA	Timour, Sune E. W. '52
	Dzialo, Frederick J. '54	Randall, David L. '63	Stark, Robert E. '59	NEA	Varner Jr., Andrew B. '57
	Ewell, Kenneth A. '68	Randall, David L. '63	Stark, Robert E. '59	NEA	Zimmerman, Walter G. '75
	Miller Jr., Melton M. '55	Randall, David L. '63	Stark, Robert E. '59	NEA	NY A
	Neill, John T. '68	Randall, David L. '63	Stark, Robert E. '59	NEA	Batson, Philip E. '70
	Onsorges, Thomas E. '59	Randall, David L. '63	Stark, Robert E. '59	NEA	Benedict, David C. '48
	Tomasi, Carl A. '68	Randall, David L. '63	Stark, Robert E. '59	NEA	Blanche, Carl R. '43
	Zarbo, Richard M. '85	Randall, David L. '63	Stark, Robert E. '59	NEA	Goughlin, Corey James '91
MAH	Drew, Gary R. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	Degan, P. Michael '76
	Leung, Xwinx B. H. '87	Randall, David L. '63	Stark, Robert E. '59	NEA	Greenick, Michael R. '75
	Salem, Hisham M. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	*Johnson, Eric Tanner '00
	Walsh, Edmund J. '83	Randall, David L. '63	Stark, Robert E. '59	NEA	Johnson, William C. '54
MA 6	Bloom, David R. '87	Randall, David L. '63	Stark, Robert E. '59	NEA	Reth, Thomas B. '64
	Chapman, David M. '83	Randall, David L. '63	Stark, Robert E. '59	NEA	Roseman, Ann Lynn '81
MA I	Villamaino, Mark John '75	Randall, David L. '63	Stark, Robert E. '59	NEA	Sinclair, Leroy W. '66
	Walczak, Raymond '74	Randall, David L. '63	Stark, Robert E. '59	NEA	Surov, Ramadon J. '78
MI A	Arnold, Charles J. '59	Randall, David L. '63	Stark, Robert E. '59	NEA	Wiley, David R. '82
	*Chaffee, Stanley W. '74	Randall, David L. '63	Stark, Robert E. '59	NEA	Barto, Thomas P. '70
	Crampton, Lee B. '51	Randall, David L. '63	Stark, Robert E. '59	NEA	Browning, Charles H. '63
	Fike, Jay Edward '96	Randall, David L. '63	Stark, Robert E. '59	NEA	Dubey, Michael B. '47
	Hills Sr., Richard E. '61	Randall, David L. '63	Stark, Robert E. '59	NEA	Duffy, John A. '71
	Hoshaw, Susan J. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	Fawcett, Walter J. '75
	Lowry, Peter A. '60	Randall, David L. '63	Stark, Robert E. '59	NEA	Gallo, Santo V. '72
	Mates, Robert E. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	Hendrickson, John L. '70
	*McIntosh, Carl L. '70	Randall, David L. '63	Stark, Robert E. '59	NEA	Jesaitis, Algirdas J. '67
	Moravsek, Michael J. '78	Randall, David L. '63	Stark, Robert E. '59	NEA	Koehler, George R. '63
	Payne, Lynette M. '95	Randall, David L. '63	Stark, Robert E. '59	NEA	*Kramer, Mark L. '70
	Ruth, Gregory P. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	Markatos, Louis G. '65
	Salisz, Albert A. '75	Randall, David L. '63	Stark, Robert E. '59	NEA	Messina, Robert J. '85
	Siefert, William H. '50	Randall, David L. '63	Stark, Robert E. '59	NEA	Swanson Jr., Ernest S. '49
	Trecka, William E. '82	Randall, David L. '63	Stark, Robert E. '59	NEA	Talavera, Maria C. '74
	Watanabe, Gerald T. '72	Randall, David L. '63	Stark, Robert E. '59	NEA	Torigian, Andrew '60
	Wilcox, John D. '76	Randall, David L. '63	Stark, Robert E. '59	NEA	Archer, Robert '50
MI B	Braem, Murray P. G. '80	Randall, David L. '63	Stark, Robert E. '59	NEA	Currer, John R. '43
	Glidden, Harry J. '65	Randall, David L. '63	Stark, Robert E. '59	NEA	Fallet, P.E., George '57
	Hammar, Richard H. '65	Randall, David L. '63	Stark, Robert E. '59	NEA	Fontaine, Arthur '63
	Hutala, David N. '82	Randall, David L. '63	Stark, Robert E. '59	NEA	Gucker, George C. '54
	Krause, Lawrence C. '86	Randall, David L. '63	Stark, Robert E. '59	NEA	Lander, Ferris H. '72
	Kuhn, Jonathan L. '92	Randall, David L. '63	Stark, Robert E. '59	NEA	Salarna, Roy D. '68
	Meiselman, Herbert J. '62	Randall, David L. '63	Stark, Robert E. '59	NEA	Baginski, Alfred J. '62
	Pelletier, Douglas Peter '89	Randall, David L. '63	Stark, Robert E. '59	NEA	Bisselbecke, Glenn J. '78
	Pirkil, John F. '62	Randall, David L. '63	Stark, Robert E. '59	NEA	Davidoff, Bernard A. '72
	Pollock, Craig A. '80	Randall, David L. '63	Stark, Robert E. '59	NEA	De Los Santos, Carlos A. '95
	Smith, John W. '82	Randall, David L. '63	Stark, Robert E. '59	NEA	Friedland, Allan B. '60
	*Sonsalla, P.E., Tim C. '95	Randall, David L. '63	Stark, Robert E. '59	NEA	Gilmore, Jerold P. '56
	Stamm, John A. '61	Randall, David L. '63	Stark, Robert E. '59	NEA	Kleinman, Irving '49
	Weber, Scott C. '88	Randall, David L. '63	Stark, Robert E. '59	NEA	*Lefkowitz, Alan H. '45
MI 7	Andersland, Mark S. '83	Randall, David L. '63	Stark, Robert E. '59	NEA	Metzger, Charles E. '45
	Bagutley, John K. '50	Randall, David L. '63	Stark, Robert E. '59	NEA	Oppenheimer, Robert M. '50
	Baker, John C. '63	Randall, David L. '63	Stark, Robert E. '59	NEA	
	Bovee, Norman V. '63	Randall, David L. '63	Stark, Robert E. '59	NEA	

**FOUNDER'S CLUB, CONTINUED**

	Milas, Brian T. '87	OR A	Swearingen, Jerry D. '77	Barron, William R. '60	Parker, Frank L. '48	Coom, John W. '91
	Moorehead, Kenneth W. '50		*Allen, Scotty R. '82	Braun, James F. '84	Shireman, John F. '76	Rodriguez, Albert '91
	Scott, Charles J. '54		*Bontadelli, James A. '51	Capuzzo, Angelo M. '71	Vaughen, Bruce K. '88	UT A
	Weich, Charles F. '49		DeGroot, Edward R. '64	Purey, Robert A. '74	Jabriske, Kenneth A. '80	Birk, Jack B. '60
	Will, Ralph M. '55		Ethington, Howard C. '51	Gianguilio, Arduino N. '73	Barnett, William E. '56	Ellsworth, Richard D. '48
OH B	Avellano, Michael A. '85		Rice, Daniel S. '82	Hennessy, John L. '73	Buell, Phillip Ray '95	Forbes, Charles R. '49
	Bodocsi, Andrew '65		Sheldahl Jr., John O. '57	Hinkle, John L. '60	Haile, P.E., Robert John '94	Gehlich, Dietrich K. '53
	Bour, Timothy G. '79		Wilson, Robert E. '55	Kolb, Christopher M. '04	Henderson, H. LeRoy '53	Hahne, Edward '49
	Brenner, Anita J. '70		*Witt, Jay N. '74	Orsatti, Louis G. '66	Travis, Michael Todd '89	Soss, David A. '71
	Barroughs, Robert K. '58		Young, John R. '46	Yearson, Kenneth C. '75	Gillespie, Clarence E. '65	Kewar, William V. '60
	*Christie Jr., Ralph W. '73	PA A	Arrowsmith, Donald L. '65	Pela, Karen C. '85	Crenshaw, Mark A. '88	UT B
	Cline, Darrin O. '89		Bakis, Charles E. '81	Stalley, Thomas E. '83	Sanders, Darren John '96	DeCaro, Armondo '95
	Dartnall, R. Donald '47		*Barclay, Allen G. '52	*Goebel, Kenneth A. '76	Brumley, Paul Edward '02	Kramer, Stephen K. '81
	Goldstein, Mark C. '79		Conrad, Joseph D. '53	Kaye, Ronald E. '49	Carney, Terrance Magoun '56	Larsen, Bradford W. '88
	Hatch, Jeffrey A. '74		Donley, Shawn T. '71	Porter, William C. '51	Pyle, Angela D. '91	Moser, David R. '77
	Kojala, Scot Alan '95		Durdock, Robert C. '57	Sorg III, William '75	Wilson, Matthew William '00	Paxton, Thornton S. '63
	Laney, Robb T. '88		Edwards, Alfred B. '71	Stout, Robert '83	Ammerman, Wesley B. '70	Rasmussen, Lee C. '62
	Lockard, Chad William '01		Flaherty, Robert E. '68	Fink, Laurence I. '76	Andrew, Stephen '82	Thompson, James R. '76
	Mayer, Robert L. '69		Hack, John '50	Pothoff, Robert E. '56	Behrens, Paul D. '47	UT G
	Northrup, Richard E. '83		*Hernjak, James Gregory '96	Anselm, Gregory A. '81	Bouchier, Joe T. '67	VA
	Robinette, Lisa Marie '83		Johnson, Robert S. '80	Fitzpatrick, P.E., Anthony R. '03	Dechman, Don A. '57	Garno, Douglas T. '58
	Schoo, Donald C. '60		Gilott, Donald H. '66	*Francisco, Amy Denise '99	Dougherty, Patrick C. '56	Haward, William E. '82
	*Schwarz, Eric '88		Gillott, James F. '69	Gillott, Joseph M. '74	"Eck, Leroy '43	Kernick, Allan E. '58
	Stuhlberg, Stanley M. '50		Langenberg, Fred C. '50	Goll, Joseph M. '67	Floy, F. Mike '63	VT B
	Triplett, William J. '76		Long, James L. '60	*Hovance, Andrew Stephen '58	*Fuller, William B. '82	Walton, Robert F. '83
	Westermann, Fred E. '47		MacAdams, Richard J. '46	Hutchison, William G. '95	Garrett, Darrel W. '70	VA A
	Wilke, Raymond J. '81		Marshall, Daniel Q. '86	Kilanski, Jennifer S. '79	Gribble, Robert F. '56	Baker, P.E., Dwight E. '77
OH F	Wood, Ronald Eugene '89		Megerle, William G. '85	*Mozelewski, Stephen F. '86	Heath, Margaret S. '90	Bowen, Kelly G. '82
	Choyke, Wolfgang J. '48		Melvin, William Larkin '89	Rhodes, Milton '50	Hodges, Bobby W. '53	Byers, Duane M. '80
	Del Tosto, John '87		Muller, Eduardo E. '87	Scharlo, Stephen '79	Hudson, Stephen '79	Carlson, Gustave H. '80
	Del Tosto, Judd Agriesti '87		Ransom II, John T. '42	Archilla, Joaquin '68	Johnson, Morris B. '52	Cosby, James G. '61
	Engen, Todd C. '81		Shapiro, Michael H. '70	Caceres, Maria M. '86	Kuenast, Walter U. '78	Johnson, David K. '70
	Eshler, Jacob M. '71		*Stockham, Herbert C. '49	Cancio, Hugo M. '74	Lewis, Kari Ann '95	Jokl, James A. '80
	Gruber, Keith G. '80		Tomkiel, Stanley A. '72	*De Jesus, Tommy '00	*Loring, Mark P. '87	Mattauch, Robert J. '62
	Hall, Clarence A. '37		Wismer, David A. '59	Fernandez-Lugo, Carlos Juan '91	Lyon, Frank B. '79	*McDonald Jr., Wilbur E. '74
	Howe, James G. '67	PA B	Zacharias Jr., Edwin H. '66	Pedraja, Jose R. '84	McInt, Thomas '49	McChese, Kenneth E. '77
	Jester, Donald J. '67		Artz, Robert B. '51	Perez, Juan A. '78	Miller, Leland H. '49	McNair, Grayson E. '62
	Kohls, Thomas C. '81		*Bova, Francesco Antonio '05	Velazquez, Marina D. C. '81	Parent, Laurence E. '81	Miller, Lloyd F. '43
	*Merry, Carolyn J. '88		Bridge, David L. '71	Velez, Miguel '84	Pearre III, Charles M. '66	Mizelle, Peter P. '40
	*Moffat, Paul K. '51		Cady, Philip D. '56	Crockett, Robert M. '47	Peet, Ed '69	Nickell, Grason T. '67
	Mohr, John G. '63		Deluca, Robert M. '79	Solomon, John V. '80	Penley, Percy A. '48	Reeside, William O. '77
	Price, Theodore W. '59		Fairchild, Cindy P. '82	Schmidt, Robert L. '57	Phinney, Leslie Mary '90	Rubenstein, David W. '79
	Scrist, George R. '48		Fairchild, James W. '81	Aubin, Timothy Francis '94	Schmid, George H. '46	Keogh III, Kenneth N. '92
	Skock, Mark Allen '95		Fetcheh, John H. '69	Burger, Laurie A. '76	Wales, Robert C. '65	Stuart Jr., W. Preston '49
	Thrush, Thorle '48		Good, Michael L. '78	Castro, Mark Y. '83	Wilson, Everett H. '55	Stuarn, Theodore D. '81
	Vermillion, Thomas R. '80		Hanna, Howard C. '53	Chalsen, Michael J. '81	Yamamoto, Roy H. '46	VA B
OH A	Yates, Glen B. '52		Heinold, Paul Avery '91	Cheever, Paul R. '52	TX B	*Berthold, Kristopher David '04
	Ankron, Linda S. '79		Irwin, Thomas '70	Craig, Joe D. '84	Brosta, Ladrin '58	Boward, Jill Johnson '87
	Ballingston, George W. '72		Kutz, Michael Ransom '88	Karnes, Jeffrey S. '80	Craig, Joe D. '84	Matheson, Lane Cardwell '84
	*Hadley, Roger A. '56		Lawrence, Ann I. '82	Nardone, Steven C. '72	English, Luci Ann '86	Walton, Robert W. '42
	Keith, Charles L. '74		Mathason, Brian Keith '92	Sirois, Herbert J. '71	Fulton, William D. '80	Walton, Robert W. '42
	Miller, Roger K. '65		Mayers, Douglas L. '74	Callahan, Robert A. '79	Gates, Robert D. '72	Davidson Jr., Charles A. '70
OH E	Broudes, Thomas A. '72		*Meader, Erik John '90	*Craig Jr., James T. '72	Hosh, Edgar '42	Dunkley, Barry T. '71
	Courtesy, Karim J. '86		Mumma, Jeffrey S. '80	Freeman, Benjamin J. '77	Houston, Scott Lee '96	*Leiter, Jason Edward '96
	Diem, Priscilla S. '82		Murphy, Susan M. '85	Harley, John P. '78	Husen, Douglas Lee '99	Melton, Robert M. '57
	Dirks, Douglas A. '83		Paul, Frank W. '60	Hill, James C. '61	Jenkins, William '58	Towell, James D. '77
	Egger, Robert A. '85		Pollock, Andrew M. '72	Jensen, Charles B. '84	Krauss, Kerry L. '72	Smith III, Clold R. '75
	Frantz, Richard H. '56		Ripsom, George A. '60	McCraw Jr., Leslie G. '56	McNair, Michael K. '79	Spangler, C. Leigh '82
	*Gruszka, William '75		Smith, Charles J. '42	Teague Jr., Kenneth G. '89	Moss, Michael W. '83	Tacey, Charles F. '85
	Henfling, Richard N. '84		Strickler, Daniel B. '57	Wilson, Rick L. '81	Nelson, David L. '79	Thiel, Stephen W. '71
	Kuczarski, Maria Ann '84		Thompson, Arthur T. '45	Bayley, Mickey J. '82	*Olson, Rebecca J. '75	Thuchak Jr., Charles J. '61
	Lemmers, Robert C. '82		Tomasso, Kenneth J. '89	Davis, Charles M. '58	Avant, Richard L. '83	Utter, Patti '73
	Ross Sr., David E. '73		Trump, Jack R. '80	Fooshe, David S. '75	Chisholm, Roy D. '48	Hartelike, P.E., John T. '80
	*Susinskas, Kestutis P. '72		Walker, Kurt M. '77	Fripp, Archibold L. '66	David, Anne W. '87	Korte, P.E., John J. '80
OH Z	Babula, Maria '89		Wanenchak, Michael J. '69	Fuller, Donald K. '76	Fisher, John D. '70	Lashomb, Susan M. '83
	Birchall, Curtis L. '73		*Weston, P.D., Matthew W. '93	Hendricks, Irvine H. '62	Griswold, Ronald K. '71	Bunch Jr., Jennings B. '50
	Dusbey, Bruce C. '84		Bisser, Fred '56	Leist, Robert F. '58	Jackman, Alan P. '64	Flowers, Daniel F. '40
	Christen, Thomas E. '64	PA I	*Bolsler, William C. '69	Owen, Gene H. '58	Leist, Robert F. '58	Payne Jr., Lewis F. '67
	Dembrow, David A. '82		Capone, Christopher D. '87	Rippy, Crystal D. '93	O'Gwynn, David C. '58	Watling, Leavard '49
	Enderlein, Jeffrey R. '80		Hazeltine, Nelson '63	Segu, William T. '60	Paxson Jr., Ernest B. '57	Burger, Douglas W. '71
	Hazeltine, Nelson '63		Lucksay, Donald R. '51	*Skvoretz, Jonathan Maxwell '95	Turner, James W. '76	Brown, David R. '44
	Lucksay, Donald R. '51		Sussman, Arthur P. '49	Wilson, Samuel Scott '91	Williamson, Kent A. '77	Coombs, Gregory A. '77
	Trepinski, Charles '70		Trepinski, Charles '70	Barton Jr., Robert W. '62	Armstrong, Bryan Marcus '95	England, Edward J. '56
	Bailey, William F. '76		Jourdain, John M. '84	Bridis, Theodore W. '67	Barnhill, Robert W. '58	Fosberg, Theodore M. '59
OH H	Ballengier Jr., Wesley A. '83		*Kaplan, David Seth '03	Burton, Kevin Lane '90	Blaschke, Byron C. '60	Grant, Patrick W. '75
	Campbell, USAF Ret, John J. '76		Kuhr, Ernestine M. '81	Fritzsche, Robert E. '59	Bogner, Anthony J. '87	Haase, Richard H. '50
	Davie Jr., Robert N. '69		Marietta, William G. '68	Jones, Bernard L. '50	Boutte, Jennifer '89	*Heikkinen, Janet Lee L. '58
	Duvall, David John '88		Moore, Bruce E. '81	Julich, Thomas Frank '76	Bunch, John M. '81	*Jones, Bruce D. '70
	Hahn, Danny A. '88		Riedel, Frederick W. '68	*Kennedy, Thomas W. '64	Caso, Gregory S. '87	Mace, Leslie E. '75
	Houps, Constantine H. '47		Sack, John S. '75	Lucas, William S. '84	Chevalier, Mark Timothy '91	Milton, Ronald B. '77
	Manter, Joseph M. '74		*Spector, Scott J. '74	*Monroe Jr., William T. '66	Cook, Michael H. '66	Peterson, Gerard H. '66
	*Marler, Martin L. '76		Stem Jr., Theodore B. '75	Patrick, Harold Lee '58	Crews, James A. '58	Rife, David C. '60
	McKenzie Jr., Leslie E. '77		Wierzbicki, Jeannette M. '80	Sullivan, Jack L. '79	*Culver, Claude C. '57	Rusch, Christopher A. '79
	Pabst, David Julian '93	PA A	Baxley, John H. '88	Watkins, Terry L. '73	Davison, James L. '54	Saxberg, Bror V. H. '80
	Tannen, Peter D. '57		Friedson, Barry A. '90	Carriek, Janet L. '73	*Ellison, P.E., Brian Kirk '97	Samke, Leon K. '58
	Thompson, George W. '68		Hoeker Jr., Robert G. '71	Hatch, George Edwin '36	Eng, Ronald W. '71	Strickland, Elizabeth Ann '77
OH E	Battenberg, Virgil B. '58		Hoffer, Norman K. '81	McCortick, Bonnie R. '80	Foster, Scott A. '84	Tudor, Gregory S. '89
	Begovich, John M. '74		Lang, David R. '85	Putnam, Anne Michelle '05	Fowler, Joe R. '68	Bates, James M. '74
	Centers, Robert E. '70		Reardon, Frederick H. '54	*Ris-Christensen, Jan '75	Gerlich, Leon H. '54	Brower, Michael R. '70
	*Kennard, M. Jill H. '81		Werwa, Eric '92	Shoup, Heather Zarie '95	Gibbs, Sam G. '54	Eichelberger, Frank '56
	*McEldowney, Ralph A. '87		Yacarain, Robert G. '85	Strobel, J. Walter '67	Hartman, Daniel B. '78	*Finnia, James E. '63
	Mikalasauskas, George A. '86		Baum, Robert S. '37	Hoover, Robert W. '85	Lippman, Glenn E. '52	Galligan, William L. '52
	*Sink Jr., Robert Dean '87	PA E	Cottrell, Martin M. '67	Johnson, Dean H. '81	McClellan III, W. Roy '74	Gaslino, Fred W. '52
	Trovato, Joseph A. '71		Cross, David W. '67	Lundquist, Charles A. '49	Meloy, Charles A. '82	*Kubinski, Kenneth J. '84
	Walsh, Michael A. '75		Dadey, Kathleen Ann '81	Baldwin, K. Michele '90	Miesen Jr., Robert John '87	Nelson, Sandy H. '49
	Marone, Victor D. '59		Flynn, Susan M. '79	*Bensen, Joan M. '90	Rueter, Curtis O. '86	Sarles Jr., Daniel A. '83
	Milks, Donald E. '54		Gentilucci, Joseph A. '73	Burka, John M. '49	Schroeder, Scot A. '81	Sarles, Vivian B. '80
	Walker, David W. '72		Grish, Leonard W. '53	Conway, Tammy K. '82	Scott Jr., Charles M. '53	Shook, Vernon W. '72
	Williams, David M. '86		Hartman Jr., Harold F. '56	Wallace Jr., Barton B. '48	Vaden III, Frank S. '56	Small, James M. '52
OH K	Adams, Daniel J. '78		Johnson, David B. '83	Wallace Jr., Barton B. '48	Wallace Jr., Barton B. '48	Stewart, Roger D. '48
	Carver, Robert M. '87		Kulicki, John M. '65	Diaz, Amy A. '96	Wallace, Charles E. '66	Brooks, Forest C. '70
	Dudek, Scott Andrew '90		Manoway, Dina M. '83	Evans, Colby Russell '94	Whatley, Walter F. '63	Bruky, Kenneth M. '82
	Lee, Sunggyu '74		Raver, Roland '35	Exum, Joe H. '52	Willis, Giles W. '60	Lock, Raymond T. '83
	Phillips, Amy E. '94		Santo, William J. '53	Graves, Ronald L. '73	Wilson Jr., Edmon Doak '57	McCauley, Edward W. '53
	*Stimler, Jeff A. '84		Young, Douglas A. '86	Hopkins, John A. '88	Wornat, Richard O. '49	Ott, John '87
	Suboza, Keith Andrew '91		Ziegler, Mark A. '78	*Howard, Bruce E. Hill '91	Wright, Charles E. '62	Woodle, A. Sheldon '71
	Thome, Ted Lee '81	PA Z	Albrecht, Carl '54	Lovard, William P. '58	Bair, Alan R. '77	WAA
OH A	Bikulega, Stanley B. '86		Angilletta, Gerald W. '79	Long, William P. '69	Ford, Samuel '64	WAB
	Cairl, Randall F. '85		Boyle, Elmer H. '59	Lots, Adolphus L. '55	Klos, William A. '63	WVA
	George, Thomas Joseph '98		Brown, Joseph D. '87	Masengill, Kimberly Lynn '88	Robbins, Mary D. '81	Robbins, Mary D. '81
	Hallochak, Andrew J. '77		*Cipolla, John W. '65	McConnell Jr., Oaklie K. '51	Crum, Floyd M. '47	Crum, Floyd M. '47
	Nicalek, Richard A. '76		Citron, Paul '69	O'Bryan, Lynn C. '62	Dunn, Raymond H. '74	Dunn, Raymond H. '74
	Stiver, Alan W. '86		Cohen, Samuel M. '78	Ottigier III, Aurelius J. '87	Jansen, Joe B. '64	Jansen, Joe B. '64
	Valentz, Thomas M. '80		Daly, Thomas P. '85	*Richardson, Samuel '97	Kirkland, Robert A. '71	Kirkland, Robert A. '71
	Weber, Donald William '90		De Maio, Michael '76	*Roberts, P.E., Nancy R. '76	Rolen, Thomas J. '70	Rolen, Thomas J. '70
OH M	Clement, Susanna Setitz '96		Fox, Ronald N. '69	Rochat, Raymond A. '57	Clute, Gregory S. '85	Clute, Gregory S. '85
	Nesly, Matthew Minick '91		*Griggs, Robert J. '84	Rogers, Marvin D. '87	Farrow, Alan L. '68	Farrow, Alan L. '68
	Cameron, Miller Allen '47		Hom, Alva '57	*Romner, Michael Christopher '04	Godwin, Albert E. '84	Godwin, Albert E. '84
	Darby, Harold R. '51		Johnson, Robert C. '70	Scandlin, Thomas W. '49	Johnson, Ph.D., P.E., Richard L. '63	Johnson, Ph.D., P.E., Richard L. '63
	Dotsen, Neil A. '84		Kasoff, David '55	Scates, Stanley N. '80	*Le, Anhnguyet Thi '90	*Le, Anhnguyet Thi '90
	Duke, Chris '83		Koenig, William A. '42	Scott, Bobby G. '59	Loper, Thomas L. '81	Loper, Thomas L. '81
	Kahler, Jon P. '70		Mitchell, William T. '48	Settle, Gray L. '62	McBay, Michael R. '73	McBay, Michael R. '73
	Langston, Jennifer Diana '96		Olaker, Richard P. '54	Sewell, John J. '54	Powell Sr., William W. '62	Powell Sr., William W. '62
	Patterson, John L. '85		Patti, Francis J. '50	Sirran-Tov, Merav '36	Springer, William T. '75	Springer, William T. '75
	Seeman, Edward E. '73		*Pechulis, Michael John '97	Trivelpiece, Alan P. '53	Stonard, Raymond H. '74	Stonard, Raymond H. '74
	Shoebottom, Thomas B. '56		Pessiki, Stephen P. '84	Warren, Donald E. '71	Tepper, John C. '82	Tepper, John C. '82
	Baker, William D. '94		Robinson, William A. '62	Weathersby, William E. '51	*Thompson, James A. '72	*Thompson, James A. '72
OH B	Camacho, Roger A. '82		Rummeler, William D. '59	White, Robert S. '48	Whittle, Linda J. '84	Whittle, Linda J. '84
	Crowell, Robin L. '77		Wagner, William Andrew '89	Zimmerman, James L. '58	Zimmerer, Douglas Richard '93	Zimmerer, Douglas Richard '93
	Harper, Lois M. '86		Weirmuller, Eugene '68	Bass, Sara J. '73	Goolsby, Tommy D. W. '84	Goolsby, Tommy D. W. '84
	Janowski, Susan T. '80	PA H	Janowski, Susan T. '80	Brown Jr., John A. '49	Klancher, Michael J. '80	Klancher, Michael J. '80
	McConnell, Chuck G. '65		Hackman, Timothy B. '68	Cannon, Leonard W. '81	Schubert, Brian D. '71	Schubert, Brian D. '71
	Miller, Michael J. '81		Haggerty, John Edward '94	Cummings, Becky Olive '76	Sirmon, Jacqueline Theobald '90	Sirmon, Jacqueline Theobald '90
	Soper, Michael L. '71		Kreider, John R. '59	Hall, Steve D. '84	Trejo, Pablo Antonio '00	Trejo, Pablo Antonio '00
OH F	Lewis, Larry L. '76		*Radel, William R. '71	Hawkins, Kenneth E. '88		

**FOUNDER'S CLUB, CONTINUED**

Martell, Donald L. '60	CA T	Komai, Ricardo Kiyohiro '10	MDA	Harris, Matthew S. '98	NMB	Kimsal, Julie Melissa '06	PR A	Aviles Deliz, Edison '90
Oliver, Floyd F. '60	CA Y	Crick, Timothy Michael '04	MDB	Tracey, Lynn J. '86	NMI	Boyd, Thomas M. '60	SC B	Deliz-Alvarez, Jose R. '64
Patsfall, Ralph E. '44	CA Y	Bentley, Carolyn Dwyer '08	MDB	Surko, P.E., Stephen W. '82	NY A	Li, Yiding '06	SC B	Roberts, Matthew Bryce '08
*Reicher, Robert, Jeffrey '99	CA AB	*Montoya, Jeffrey '99	MAB	Johansson, Richard E. '56	NY B	Dyre, John L. '51	SC F	Edge, Charles E. '55
Severson, Roger E. '77	CA AB	Goldsmith, Bryan Richard '10	CO A	Kammyselis, Manolis E. I. '99	NY G	Mack, Robert A. '53	SD A	Morrison, Todd Michael '00
Traeder, Paul E. '48	CO A	Sigut, George '54	CT B	Wadel, Louis B. '46	MAA	Todd, Richard F. '49	PNR	Pirner, Steven Mark '72
Traeder, Howard F. '49	CT B	Tilden, Joan '96	CT F	Kurkowski, James F. '84	MAE	Hosford, Jean Fraser '98	TN A	Davis, Wayne Thomas '73
Wiesen, Ernest J. '62	DE A	Altschuler, Stephen '54	DC B	Galbraith, Floyd M. '60	MAZ	Krum, Robert C. '68	TN B	Icove, Ph.D., P.E., David J. '71
Barone, Frank J. '62	DC B	Chippelo, Ann-Marie D. '01	DC B	Kusekosi, Eugene F. '72	MAH	Lin, Ming De '01	TN B	Johnson, James W. '53
Bell Jr., Robert E. '61	FL A	Ballintyn, Nicholas J. '75	FL A	Roberts, Carl E. '56	MI A	Maisch, Anthony G. '66	TN B	Johnson, Harry '94
Bella, Robert E. '65	FL A	Butler, John E. '78	FL A	Beaupre, Paul E. '61	MI B	McAninch, Ian Matthew '02	TN B	Milligan, P.E., Mancel W. '56
Fedler, Richard E. '65	FL A	Tran, Binh Quang '98	GA A	Kislo, Joseph R. '74	MI G	Curry, Donald J. '73	TN B	Rowlson, Jon Devlin '06
Fons, Richard J. '79	FL A	Kee, Steven M. '78	IL A	Sullivan, Christopher F. '81	MI H	West, Richard John David '06	TN B	Morton, Wayne K. '63
Fosselman, Francine Marie '99	FL A	Howard, Andy G. '92	IL A	Walsh, James E. '76	MI I	Yen, Hsi-Chen H. '82	TN B	Anderson, Hollings T. '85
Hammetter, William F. '66	FL A	Kinsley, P.E., Terese M. '82	IL A	Troise, Francis J. '87	MI J	Von Urff, Ph.D., Charles A. '56	TN B	Thompson, David Andrew '00
Hauer, Eric D. '77	FL A	Clarke, Reed '97	IL A	McCormick, Ann L. '87	MI K	Wilson Jr., Ernest G. '66	TN B	Boyle, Bruce W. '79
Koester, Fred W. '39	FL A	Whitehouse, Gary E. '60	IL A	Harris, Jeremy M. '82	MI L	Quartano, Anthony G. '70	TN B	Burhan, Cynthia F. '05
Makal, Thomas J. '40	FL A	Carrillo, Paula Andrea '08	IL A	Lindgren, Douglas L. '69	MI M	Giamos, George P. '07	TN B	Canan, Patrick A. '79
Reak, Ronald P. '63	GA A	Hill, Stephen D. '94	IL A	Carpenter, David Robert '08	MI N	Schwartz, Richard '57	TN B	Dria, Dennis E. '86
Smith, John G. '87	IL A	Jackson, Henry C. '68	IL A	Dreszer, John Brayton '50	MI O	Duck, Holly J. '80	TN B	Fahel, Ramsey A. '81
Smith, Thomas M. '60	IL A	Hasenberg, Daniel M. '79	IL A	Emanuelson, William A. '86	MI P	Goyal, Deepak '94	TN B	Gonzales Jr., Lazarus '65
Sommerville, Martin Glenn '94	IL A	Houser, Frederick '52	IL A	Fitzgerald, Megan L. '81	MI Q	Brugger, David Samuel '08	TN B	Murphy, John M. '67
Beckley, James '88	IL A	Kroll, Allan Monforte '94	IL A	Harrison, Gregory K. '78	MI R	Carmine, Rebecca Keim '09	TN B	Possey Jr., John A. '45
*Beisner, Richard C. '74	IL A	Myers, William J. '75	IL A	Lee, David Shou-Ping '99	MI S	Chmielewski, Daniel '03	TN B	Sheldy, P.E., David Ray '00
Brengoso, Mary K. '78	IL A	Palkovic, Victor J. '61	IL A	Lorts, Daniel J. '77	MI T	Delaney, Edward Francis '51	TN B	Wong, Lucas '84
Griffin, Michael M. '93	IL A	Patronik, Jonathan P. '85	IL A	Mahal, Pratipal Singh '07	MI U	Glynn, Sean Francis '97	TN B	Birgel III, Stephen H. '62
Lesar, Jeffrey A. '86	IL A	Quiros Jr., P.E., Jorge L. '75	IL A	Hill, P.E., Colleen Lynn '00	MI V	Kroplick, Howard A. '71	TN B	Hick, Suzanne R. '81
Merkel, Brian J. '81	IL A	Sorenson, Gregory Erik '03	IL A	Mansoura, Monique K. '85	MI W	Frank, Ian Joseph '09	TN B	Bockman, Troy Scott '57
*Schneider, Gerald Scott '89	IL A	Stahl, Gary L. '72	IL A	Tillingier, Steven J. '68	MI X	Frazier, Athena Diane '09	TN B	Kelly, Kevin John '88
*Gerloff, James Robert '00	IL B	Ulvila, Jacob W. '62	IN A	Hall, Michael K. '93	MI Y	Jozkowski, Katherine G. '89	TN B	Schaak, John P. '83
Palmer, Mark William '90	IN A	D'Ambrosia, Richard D. '77	IN A	MI G	NY P	Henderson, Dale Lawrence '89	TN B	Lucky, Kevin James '48
WYA Boysen, John E. '76	IN A	Goldhaber, Jerome C. '50	IN A	MI A	NY Q	Gilbert, Robert Anthony '02	TN B	White, Elspeth Simpson '05
*Cavalli, Matthew N. '98	IN A	Petterino, Rinaldo C. '83	IN A	MNA	NY R	Davidson, P.E., Lindell A. '49	TN B	Latham, Robert J. '84
Duncan, John M. '78	IN A	West, Jonathan C. '07	IN A	MI B	NY S	Smutka, Joshua James '06	TN B	Settle, Donna R. '94
Miller, Alva K. '71	IN A	Kuffel, Greg L. '89	IN A	MNB	NY T	Cross, Matthew David '05	TN B	Wilson Jr., H. Clay '70
Reed, Bret Joseph '89	IN A	Chandik, Thomas J. '66	IN A	MO A	NY U	Erdelsky, Philip J. '66	TN B	Bradshaw, John H. '83
		Harrod, Byron N. '71	IN A	MO B	NY V	Francis, Patrick Aaron '03	TN B	Richards Jr., Fred F. '59
		Kim, Frank M.H. '56	IN A	MO C	NY W	Mulligan, Kevin John '90	TN B	Mayorga Jr., Jose S. '77
		Kyrumpff, William P. '64	IN A	MO D	NY X	Temple, Larry K. '80	TN B	Schmidt, Jason K. '09
		Prytherch, Hugh A. '64	IN A	MO E	NY Y	Seaman, Douglas D. '73	TN B	Eskees, Stefan Anders '02
		Theile, Michael L. '63	IN A	MO F	NY Z	Snyder, Christopher A. '83	TN B	Sutton, Stephanie Danica '06
		Ersson, Krishnamurti K.K. '06	IN B	MO G	NY A	Raley, Jeremy Alan '75	TN B	Abraham, Ryan Thomas '09
		Reives, Thomas Scott '08	IN B	MO H	NY B	Herbert, Mark W. '79	TN B	Frazier, Timothy Mark '89
		Rose, Gerald C. '57	IN C	MO I	NY C	Jaminet, Phillip Jean '02	TN B	Rodeffer, Charles C. '58
		Masseti, Michael A. '79	IN C	MO J	NY D	Klesch, Heather Ann '04	TN B	Tipton Jr., Thomas E. '67
		McHugh, Brian J. '83	IN C	MO K	NY E	Novak, Michael Richard '96	TN B	Williams, George D. '62
		Goldammer, Samuel F. '68	IN C	MO L	NY F	Smith, Denise Anne '95	TN B	Michael, Glenn P. '66
		Antell, Michael Joseph '08	IN C	MO M	NY G	McNamara, Robert '85	TN B	Shallerross, Thomas Jerred '03
		Crawford, Brian Matthew '04	IN C	MO N	NY H	Smith, William L. '77	TN B	Shuang, Adolf L. '81
		Lammers, Leon '59	IN C	MO O	NY I	Flaming, Daryl L. '81	TN B	McDowell, Monty A. '79
		Irani, Keki B. '46	IN C	MO P	NY J	Hess, Bruce W. '75	TN B	Ng, Kim M. '84
		Lane, Stephen R. '75	IN C	MO Q	NY K	Paden, Alvin R. '57	TN B	Wilkins, Lynn A. '76
		Winter, Ralph O. '49	IN C	MO R	NY L	Amish, Keith W. '47	TN B	Schleif, Ferber R. '35
		Wong, Raymond W. '84	IN C	MO S	NY M	Brown Jr., Ernest E. '55	TN B	Tan, Ghee Peng '92
		Sprouse, Gary P. '08	IN C	MO T	NY N	Weber, Mark '00	TN B	Burt, Michael Allen '07
		Wolf, Jack E. '68	IN C	MO U	NY O	Yee, David G. '04	TN B	WVA Read, Kevin E. '83
		Carlson, John Richard '04	IN C	MO V	NY P	Coffman Jr., Roger Lee '03	TN B	Albert, George Essa '98
		Jones, Molly C. '81	IN C	MO W	NY Q	Dobiszewski, Kyle Francis '09	TN B	Belesky, Robert M. '78
		VanDeWeghe, Peggy Pitre '85	IN C	MO X	NY R	Yapay, Martin H. '78	TN B	Belesky, Robert M. '78
		Collison, David Scott '94	IN C	MO Y	NY S	Sulzberger, Virginia Claire '62	TN B	Yocum Jr., Harry E. '47
		Cain, Charles T. '70	IN C	MO Z	NY T	Sulzberger, Virginia Claire '62	TN B	Yocum Jr., Harry E. '47
		Johnson, Bobby D. '77	IN C	NMA	NY U	Vecchiotti, Camillo M. '36	TN B	Dirosa, Thomas E. '86
		Blanchard, Andrew J. '72	IN C		NY V	Marshall, Paul E. '88	TN B	McNamee, Bernard M. '53
		Savoy, Mark L. '85	IN C		NY W	Smith, B. Wayne '88	TN B	Miller, Brian Michael '94

**125TH ANNIVERSARY CLUB**

AL A	Chancey, Carol '96	AL B	Josephson, William Ernst '87
AL B	Ashcraft, Jr., James H. '78	AL A	Vaden, Justin Parker '06
AL A	Bigelow, William A. '85	AZ A	Eisenberg, Patricia Phelan '91
AZ A	Goodhue, Jeffrey William '06	AZ B	Hutchins, Richard D. '75
AZ F	Battle, Oliver Daniel Eric '08	AZ G	Clough, Gene A. '69
CA A	Fulton, Albert S. '45	CA G	Ward, Philip L. '38
CA A	Toyke, John H. '80	CA E	Testa, Lori Ann '01
CA Z	Testa, Lori Ann '01	CA Z	Battle, Thomas M. '73
CA Z	Sivens, Michael H. '85	CA H	Citrano, Charles '80
CA H	Hung, Alexander G. '94	CA I	Estrada, Walter W. '09
CA A	Camara, John A. '84	CA N	Wyllie, Richard T. '78
CA N	Wyllie, Richard T. '78	CA P	Motogawa, Bruce J. '75
CA P	Motogawa, Bruce J. '75	CA Z	Booth, Andrew Joseph '08
AL A	Aliffi, Thomas J. '88	AL A	Beathorn, Brian L. '84
AL A	Benefield, Larry D. '66	AL A	Carey, George W. '69
AL A	Carson, E. Bruce '63	AL A	Gentile, Zachary J. '93
AL A	Goodwin, Maurice W. '60	AL A	Holloway Jr., Charles B. '94
AL A	Kelley, Benjamin Clarke '08	AL A	Lunsford, Joseph R. '67
AL A	Melton, James B. '77	AL A	Murray, Scott B. '69
AL A	Raney, Sonya Marie '94	AL B	Babcock, Roger L. '57
AL B	Babcock, Roger L. '57	AL B	Bailey Jr., Boyd L. '74
AL B	Crawford, Robert F. '52	AL B	Davidson, Janet Sims '78
AL B	Dodgen, Hugh E. '02	AL B	Duncan, Eddy N. '87
AL B	Elmore, Gregory David '97	AL B	Filip, George L. '67
AL B	Garrison, Rasa E. '80	AL B	Hayes, Raymond C. '54
AL B	Jackson, Jerry W. '68	AL B	Leon III, Tofey J. '80
AL B	Masseti, Joseph L. '58	AL B	Mickens, Lakeshia Renee '97
AL B	Owen, William H. '66	AL B	Searcy, John S. '49
AL B	Swanson, Wallace A. '68	AL G	Berry, Francis C. '50
AL G	Berry, Francis C. '50	AL G	Collins, Cheryl Diane '81
AL G	Nichols, Gary G. '78	AL A	Conway, Timothy J. '87
AL A	Conway, Timothy J. '87	AL E	Harrison, Brent William '04
AL E	Harrison, Brent William '04	AL E	Hartwein, Kenneth J. '53
AL E	Hartwein, Kenneth J. '53	AL E	Henderson, Robert L. '50
AL E	Henderson, Robert L. '50	AL E	Larimore, John C. '58
AL E	Larimore, John C. '58	AL E	Magariel, Kerry Elizabeth '06
AL E	Magariel, Kerry Elizabeth '06	AL E	Muterspaugh, Milo E. '66
AL E	Muterspaugh, Milo E. '66	AL E	Nowatzki, Edward A. '62
AL E	Nowatzki, Edward A. '62	AL E	Farrill, Leslie F. '66
AL E	Farrill, Leslie F. '66	AL E	Schell, Richard G. '65
AL E	Schell, Richard G. '65	AL E	Shaver, Frederick W. '55
AL E	Shaver, Frederick W. '55	AL E	Sisson, David J. '65
AL E	Sisson, David J. '65	AL E	Spagon, Patrick D. '68
AL E	Spagon, Patrick D. '68	AL B	Whitlock, Charles N. '79
AL B	Whitlock, Charles N. '79	AL B	Gembawosky, Charles J. '74
AL B	Gembawosky, Charles J. '74	AL B	Hooton, Thomas R. '62
AL B	Hooton, Thomas R. '62	AL B	Lee, William H. '04
AL B	Lee, William H. '04	AL B	Mack, James T. '69
AL A	Olson, Marilyn T. '78	AR A	Tang, Victor W. '81
AR A	Tang, Victor W. '81	AR A	Brady, Mark J. '83
AR A	Brady, Mark J. '83	AR A	Broadaway Jr., Vance L. '58
AR A	Broadaway Jr., Vance L. '58	AR A	Chastain, J. Dee '59
AR A	Chastain, J. Dee '59	AR A	Dockery, David E. '76
AR A	Dockery, David E. '76	AR A	Floyd, Royce Woodrow '08
AR A	Floyd, Royce Woodrow '08	AR A	Gamel Jr., Carl M. '44
AR A	Gamel Jr., Carl M. '44	AR A	Holt, James N. '58
AR A	Holt, James N. '58	AR A	Magness, Joe D. '55
AR A	Magness, Joe D. '55	AR A	McKinnie, Jane L. '84
AR A	McKinnie, Jane L. '84	AR A	Moody, Charles R. '58
AR A	Moody, Charles R. '58	AR A	Moser, Murray C. '72
AR A	Moser, Murray C. '72	AR A	Moutor, Jonathan Benjamin '05
AR A	Moutor, Jonathan Benjamin '05	AR A	Mowery, Calvin L. '33
AR A	Mowery, Calvin L. '33	AR A	Patel, Manish G. '87
AR A	Patel, Manish G. '87	AR A	Shook, William E. '50
AR A	Shook, William E. '50	AR A	Siebenmorgen, Terence J. '79
AR A	Siebenmorgen, Terence J. '79	AR A	Walton, Trent A. '81
AR A	Walton, Trent A. '81	AR A	Whitson, James E. '80
AR A	Whitson, James E. '80	AR A	Cwiertyny, David Michael '00
AR A	Cwiertyny, David Michael '00	AR A	Edgar, Timothy Matthew '08
AR A	Edgar, Timothy Matthew '08	AR A	Fuller Jr., Clarence C. '48
AR A	Fuller Jr., Clarence C. '48	AR A	Ganapoli, Barry '66
AR A	Ganapoli, Barry '66	AR A	Gurin, Ilya V. '07
AR A	Gurin, Ilya V. '07	AR A	Jacobs, Lydia M. '76
AR A	Jacobs, Lydia M. '76	AR A	Lin, Gene Chin '91
AR A	Lin, Gene Chin '91	AR A	Notthoff Jr., Arthur P. '45
AR A	Notthoff Jr., Arthur P. '45	AR A	Polder, Jacob H. '50
AR A	Polder, Jacob H. '50	AR A	Rail, Robert D. '62
AR A	Rail, Robert D. '62	AR A	Selna, Michael W. '70
AR A	Selna, Michael W. '70	AR A	Silva, Christopher P. '82
AR A	Silva, Christopher P. '82	AR A	Wade, Wallace O. '62
AR A	Wade, Wallace O. '62	AR A	Wilson, Garth H. '54
AR A	Wilson, Garth H. '54	AR A	Alekseyev, Viktor Yuryevich '00
AR A	Alekseyev, Viktor Yuryevich '00	AR A	Broido, Michael D. '70
AR A	Broido, Michael D. '70	AR A	Colgrove, Robert C. '81
AR A	Colgrove, Robert C. '81	AR A	Manatt, Stanley L. '55
AR A	Manatt, Stanley L. '55	AR A	Tokein, Robert E. '58
AR A	Tokein, Robert E. '58	AR A	Villiant, Daniel D. '69
AR A	Villiant, Daniel D. '69	AR A	Whitehead, John C. '82
AR A	Whitehead, John C. '82	AR A	Robertson, Bryan Rhett '03
AR A	Robertson, Bryan Rhett '03	AR A	Zozulin, Alexander Joseph '91
AR A	Zozulin, Alexander Joseph '91	AR A	Chadik, Paul A. '84
AR A	Chadik, Paul A. '84	AR A	Fellner, Kenneth M. '84
AR A	Fellner, Kenneth M. '84	AR A	Hampton, Brent William '04
AR A	Hampton, Brent William '04	AR A	Hartwein, Kenneth J. '53
AR A	Hartwein, Kenneth J. '53	AR A	Henderson, Robert L. '50
AR A	Henderson, Robert L. '50	AR A	Larimore, John C. '58
AR A	Larimore, John C. '58	AR A	Magariel, Kerry Elizabeth '06
AR A	Magariel, Kerry Elizabeth '06	AR A	Muterspaugh, Milo E. '66
AR A	Muterspaugh, Milo E. '66	AR A	Nowatzki, Edward A. '62
AR A	Nowatzki, Edward A. '62	AR A	Farrill, Leslie F. '66
AR A	Farrill, Leslie F. '66	AR A	Schell, Richard G. '65
AR A	Schell, Richard G. '65	AR A	Shaver, Frederick W. '55
AR A	Shaver, Frederick W. '55	AR A	Sisson, David J. '65
AR A	Sisson, David J. '65	AR A	Spagon, Patrick D. '68
AR A	Spagon, Patrick D. '68	AR B	Whitlock, Charles N. '

### DONORS, CONTINUED

	Naluwoza, Samalie Nakimera '05		Guill, Daniel A. '73		Tengdin, John T. '49		Webster, John R. '57		Kaliski Jr., Burton S. '84
	Nelson, Nicole M. '01		Hall, Wilfred B. '75		Thornell, Richard E. '64		Wells, William L. '62		Kirchner, Mark E. '48
	Smith, Ph.D., Tori Rhoulac '98		Hemmer, Joseph C. '64		Todd, Douglas A. '73		Becker, Stanley E. '72		Knox Jr., Harry E. '42
	Wimberly, Mark D. '77		Henkel, Eric L. '85		Travis, John C. '85		Ferry, Gary L. '81		Lord, Robert L. '51
DC B	Amugh, Fred A. '61		Highland, Steven D. '68		Tumenoksa, David L. '80		Fleischer, Donald M. '59		Lumdsaine, Anne J. '85
	Blair, Erin Elizabeth '06		Hogue, Robert B. '58		Van Horne Jr., William C. '72		French, Mark N. '86		Mangano, James L. '61
	Bonucci, Hugo A. '73		Klick, Donald W. '53		Von Fahr, Reinold M. '73		Gray, John H. '75		Mohr, William C. '84
	Czernikowski, Roy S. '64		Kubu, Stanley '42		Wessel, Richard F. H. '48		Kraher Pinto, Marguerite V. '85		Nichols, Barbara Michelle '94
	Johnson, Robin Jeanette '97		Labelle, Edward B. '76		Wolber, Raymond W. '80		Newhall, Chester W. '50		Niessen, Charles W. '62
	Kosnik, Cristina Josephine '95		Likander, George A. '55		Wunder, Jack S. '75		Reynolds, Joseph C. '48		Paterson, William J. '62
	Thfari Jr., Edman F. '62		Logan, George H. '37		Zygmunt, Robert W. '74		Sheehan, Charles J. '82		Peirce, William H. '46
DC I	Calvo, Jorge J. '80		Michlovich, Michael S. '81	IN B	Jeffries, Quentin R. '41		Sim, JuThi Eddy '03		Plotnick, Stanley K. '64
	Etemad, Shahriar '80		Moon, Donald W. '56		Petersen, Derek Michael '09		Tockstein, Carl D. '74		Reis Jr., Wendy A. '56
	Hanrahan, Donald J. '50		Moroni, Thomas E. '81		Roll, Richard R. '81		Tyler III, Wayne Paul '91		Russo, M.D., Ph.D., Gilberto '69
	Kemelhor, Robert E. '49		Nemivan, Kathleen Durkin '94		Twarek, P.E., Andrew Ball '05	LA A	Atkins, Teresa C. '97		Scoppettulo, Lisa Anne '02
	Moore, Robert M. '59		Newman, Harry D. '55		Doty, Ph.D., Daniel J. '96		Evans, Alfred W. '51		Sedor, Gerald '70
	Stepnowski III, Stanley V. '96		Picco, Joel '79	IN I	Geer, Ivan Daniel '94		Fontenot Jr., Leonard G. '83		Shelton, Paul W. '54
FL A	Adams, Donald W. '89		Regul, Thomas F. '55		Hudson, Matthew Timothy '08		Fowler, James B. '82		Shields, James D. '72
	Arnold, Paul W. '74		Rexroad, William M. '90		Kupfer, Lawrence J. '88		Hollier, Joseph K. '79		Silveston, Peter L. '51
	Benjamin, Donald M. '72		Rudolph, James G. '55		May Jr., Robert J. '60		Hutchinson, Jeffrey T. '68		Singer, Arnold M. '48
	Birge, Warren A. '54		Schneider, David R. '72		Metayer, Alan Patrice '99		Joiner, Berndt V. '64		Snedeker, Robert A. '50
	Caraway, Sean Lee '93		Skidmore Jr., Sidney A. '50		Morgan, George H. '58		McClatchey, Lloyd D. '49		Snider, Steven J. '82
	Ferslew, Matthew '05		St John, Robert C. '43		Simons, Joseph '75		Tabor Jr., John '75		Spencer, Matthew Edmund '07
	Gardner, Ph.D., Patrick J. '84		Steinkamp, Diane Merna '96		Walters, Mary A. M. '86	LA B	Bernard, Jules C. '50		Stallard, David V. '49
	Garmizo, David W. '89		Sulaski, Ernest A. '49	IN A	Bolur, Adam Reza '02		Bhust, Henry L. '50		Targgaard, Peter T. '68
	Geiger, John R. '77		Szumski, Daniel R. '80		Hasz, Richard E. '85		Snoko, Nancy Meares '02		Turnock, Lawrence C. '41
	Gill, Tracy R. '89		Toepfer, Richard E. '56		Heidepriem, Heide E. '68	LA I	Brooks, Jasmina '99		Wampler, Charles W. '79
	Higgins, Adam Steven '03		Treadwell, Karen G. '79		Kirschmann, Kendrick C. '71		Hammons, Robert W. '78		Whitney, Alan R. '66
	Kiers, John L. '66		Williamson, Maurice M. '49		Love-Pruit, Jennifer M. '81	MA A	Harvey, Irvin M. '69		Whillington, Frank W. '39
	James, Matthew '80		Witkowski, Larry C. '79		Sinko, Kenneth M. '70		Johnston, Thomas W. '88		Babin, Robert '39
	James, Donna F. '80		Yarborough, Keith A. '55		Stutzel, Dennis C. '64		Risley, Martin C. '66		Collamore, Holden H. '46
	Knuckey, Thomas S. '86	IL B	Burnley, Robert Todd '89		Wolka, Daniel Robert '02		Stagg, Charles H. '68		DiPerna, Richard A. '66
	Kunz, Aaron D. '06		Dygdon, John T. '50		Hosack, Mack B. D. '88		Stewart, James E. '65		Flysch, Joseph C. '84
	Massenburg, Walter Black '98		Formanek, Vincent C. '69	IN E	Sreeter, Roy A. '85	LA A	Girir, Donald A. '62		Gibbons-Neff, Lyndsey Ann '08
	Phillips, Donald L. '52		Graham, Frederick A. '57		Adams, Clark F. '58		Sprowl, Brandon '99		Levine, Robert A. '77
	Porter Gregory, Lewis '99		Halle, Henry '49	IA A	Arora, Madan L. '70	LA E	Stucker, Shaun Charles '04		Mangonig, Don V. '64
	Smith, Daniel J. '87		Kozlik, John F. '59		Blank, William A. '51	ME A	Diliberto, Marcella Dianne '03		Pape, Diana K. '79
FL B	Berman, Gerald A. '55		Larson, Richard B. '44		Burg, George M. '58		Leonik, Krzysztof Christopher '91		Rizzone, Angelo J. '53
	Davis Jr., William L. '66		Lieberman, David A. '49		Carlton, William A. '41		Elwell, John R. '50		Sabin, Paul Chandler '93
	Enriquez, Leonel E. '66		Nelson, John D. '60		Crousse, James E. '52		Gagnon, John R. '62		Walsh, James Ralph '90
	Kirkpatrick Jr., William R. '78		Sanders, Rodger A. '76		Eichorn, Ronald L. '64	MA E	Hackett, John A. '59		Wilson, Robert J. '70
	Prada, Jaime O. '70		Staschke, Ralph A. '50		Faas, Ph.D., Daniela '10		Jones, Cheryl W. '78		Wronski, Ida A. '80
	Routh, Andre G. '89		Taylor, Robert S. '57		Garrison, Phillip E. '66		Lamoreau Jr., Earl B. '86		Cadman, Gary R. '74
	Senzer, Eric Brian '05		Zhao, Weizhao '91	IL I	Graham, Frederick A. '57		Lawry, Daniel E. '66		Campbell, Brian F. '86
	Zhao, Weizhao '91		Brunstein, David '83		Holan, Elmer W. '80		MacDonald, Joseph D. '68		Chioldo, Richard A. '71
FL I	Cilsdorf, Maryann '75		Cantwell Jr., Edward N. '49		Hoyer, John H. '62		McTaggart, Robert B. '53		Devney, Peter '89
	Glenn, Frederick '32		Herman, Edward '42		Kleemeier, Kelly N. '99		Artenson, Robert A. '70		Dow, Benjamin L. '88
	Hughes, Joseph '88		Jurkowski, Gregory J. '74		Koester, David J. '79		Nadeau, Robert E. '78		Ellis, Artenson '86
	Miller, Charles L. '72		Love, Joseph E. '42		Riesberg, Jeffrey R. '83		Theriault, Lucien J. '51		Hastings, Joyce Ellen '93
	Molloy, Mark Patrick '05		Ono, Craig M. '81		Rockne, Allan K. '66		Whitney, Lynnette Ann '99		Hooper, Frederick Payson '96
	Pissale, P.E., Peter E. '06		Parks, Melvin J. '52		Rowley, James C. '79		Winslow, Arthur C. '79		Keagle Jr., William A. '75
	Scharf, Michael James '97		Pector, Scott W. '78		Schwuers, Albert '50	MD A	Bergstrom, C. Wallace '49		Lord, Joseph S. '53
	Schlotter, Frank C. '77		Puente, Robert L. '84		Sessler Jr., Albert L. '50		Chang, William '01		Lundquist IV, Ray A. '82
FL A	Andreale, Richard '97		Sasaki, Masahiro '91		Stratmoen, Todd Noel '88		Coxe, Michael P. M. '59		Marcinko, Robert A. '72
	Boucher, Darnell M. '90		Schepman, Berne A. '50		Tekippe, George L. '69		Dair, Edwin D. '92		Marzetta, Aldo L. '68
	Bowman, Roger D. '79		Trueman, Richard E. '48		Tennant, Jerry R. '61		Dorsey, Herbert W. '62		Murphy, Kelly Ann '83
	De Paiva, Deborah Ann '92		Williams, Molly Wells '63	IL A	Dellar, Ralph E. '71		Durst, Matthew Scott '04		O'Donnell, John J. '56
	Jacob, Clinton Robert '06		Lopez, Faviu Llanes '03		Franco, Amor J. '75		Horowitz, Harvey A. '63		Peruzzi, Robert O. '82
	Lopez, Faviu Llanes '03		Millsaps, Thomas Ewing '98		Kozlicar, Joseph G. '63	IA B	Kiehm, Kelly J. '68		Root, Christopher E. '82
	Morse, Lucy C. '88		Pearson, Michael T. '83		Kraatz, Roland L. '65		Levine, Jeffrey S. '85		Schiro, Ann R. '80
	Quillen, Justin Kincaid '01		McLachlan, Christopher R. '96		Plouzek, John M. '86		Loran, Jordan Richard '89		Sciartelli, Anthony P. '86
	Schiebold, Paul Victor '02		Shourt, William R. '65		Greusel, Fred B. '50		Dodge, Robert D. '76		Tremontozzi, Venus K. '84
	Washburn, Donald A. '82		Yerby, P.E., Joel T. '56		Hann, Murray T. '88		Folkers, Craig A. '92		Vallee, Joy M. '83
FL E	Carlson, Leif A. '82		Hartsell, Catherine Diane '04		Keuh, Donald M. '41		Pribitkin, Edmund '82		Vece, Paul J. '64
	Nguyens, Thi '91	IL E	Mueth, Timothy Paul '89		Knox, Marvin F. '61	MA Z	Rackson, Gary M. '83		Bearman, Maxim V. '86
FL Z	Brown, Daniel Narthey '05		Roth, Christopher A. '86		Lumpa, Robert D. '77		Ragonese, Paul '87		Bondar, Richard M. '95
	Campos, Diana Sue '98	IL Z	Wittmer, Dale E. '73		Madsen, Nels H. '78		Seyboth, Donald C. '54		D'Agostino, Eric D. '84
	Crowe, Jeremy McCandless '07		Gomez, Camille M. '86		McSwiggan, Thomas G. '61		Sible, Verne C. '48		Defrance, Francis J. '76
	DeLaurentis, Gary Andrew '92		Komorowski, Michal Pawel '08	IN A	Chai, Katarzyna A. '91		Syed, M.D., Ishaq Yousuf '00		Fiejdasz, Paul A. '85
	Thorpe, Gary Anthony '01		Lai, Katarzyna A. '91		Restis, Jude H. '89	MD B	Watson, Thomas E. '41		Freeman, Jacob Ross '04
	Dohmeier, Chris M. '93		Anastasiopoulos, Panagiotis '09		Andrew, Stephen P. '82		Witten, Louis '41		Gross, Stephen R. '80
	Lamb, James Melvin '98	KS A	Apple, Richard K. '56		Ayers, Peter G. '66		Antman, Louis G. '66		Bing, James M. '92
	Nasser-Martinez, Christina M. '09		Baumer, Ernest B. '56		Barr, Deborah A. '81		Baer, Ph.D., P.E., Ret. Michael '69		Kennedy, Philip J. '59
	Reinert, Richard D. '94		Beche, Robert L. '48		Bradley, P.E., Richard L. '59		Baranowsky II, Patrick W. '90		Liberty Jr., Harold J. '59
	Smith, R. Joseph '04		Berman, Mitchell L. '74		Brinkmeyer, Francis M. '56		Bloom, Seymour '59		Lynch, David P. '82
FL Ø	DeCorioli, Paul Ernest '91		Bode, Robert B. '68		Conrad, Christina June '08		Brundrett, Charles P. '66		Meese, William E. '83
	Elizay, Karen Elizabeth '98		Bower, William W. '67		Coxen, Alan L. '54		Cederman, Candace F. '82		Miller, Kendall G. '79
	Erwin, James William '96		Brosmer, Mark A. '81		Cronemeyer, D.S., Donald C. '45		Clifton, Frank R. '63		Mulcahey, Leo T. '76
	Prieto, Eduardo '04		Brumund, William F. '64		Eyerocik, Ryan Edward '03		Dorenfeld, Alan '67		Sallah, Richard '82
	Steuer, Anabel D. R. '90		Capasso Jr., Vincent N. '54		Floss, Gary D. '64		Dunnigan, Gerard J. '62		Simon, Michelle A. '89
	Suarez, Eduardo M. '90		Chenoweth, James M. '49		Hartman, Richard H. '63		Gilpin, Linda B. '86		Tan, Edwin J. '94
GA A	Akridge, James M. E. '59		Cox, C. Russell '80		Holmberg, Joyce D. '51		Hann, Susan P. '80		DeBassi, Paul L. '79
	Allison, Patrick Mannel '08		Day, R. Laurence '52		Khiwer, Max E. '49		Harman, P.E., Stewart T. '82	MA H	Hameel, Susan M. '86
	Averett, Jack M. '81		Evitts Jr., James C. '64		Laidig, John F. '41		Kaminski, Edward '35	MA Ø	Aste, Stephen Robert '99
	Axon, Michael William '90		Fauver, P.E., Vernon A. '52		Lake, Orley L. '61		Kociscin, Joseph J. '66		Burgess, Linda Marie '86
	Clark, Martin '53		Fisher, John D. '61		Neff, Cassandra J. '82		Kuzio, Stephanie P. '96		Cochran Jr., Lawrence C. '93
	Croft III, John J. '66		Fleck, John W. '48		Nelson, John A. '50		Munach, Arnold S. '58		Craven, McCharles Anthony '91
	Cullen Jr., Frank H. '73		Glenn, Richard A. '49		Prim, John E. '67		Pendorf, Paul W. '62	MA I	Furlong, Kim M. '87
	Dansky, Ted '50		Gotschall, William O. '55		Ridder, Wendell C. '60		Puryear, Daniel O. '73		Kelley Jr., Timothy James '01
	Dunderivill, Walter E. '58		Hekel, Ulis D. '63		Rozich, Frank J. '49	MD I	Starosta, Lauren Elizabeth '03		Van Epswoy, Anthony Elizabeth '09
	Duong, P.E., Chay Ngoun '94		Henley, Robert A. '49		Studd, Winton L. '49		Dobie, Ryan Gerald '06		O'Melia, Sean Ryan '05
	English Jr., William R. '92		Hokanson, John L. '57		Smith, Derick S. '08		Neilson, John M. '61		Paul, David Dickson '92
	Foster, Raymond W. '82		Johnson, Donald W. '57		Taylor, James T. '50		Mitalas, Peter C. '01		Allard, Timothy Ryan '08
	Freedenberg, Melissa '07		Kenny, Michael D. '63		Vaught, Douglas J. '84		Weinert Jr., William E. '83		Bieksha, Gregory J. '94
	Freeman, David W. '77		Kropf, Robert W. '48		Von Waaden, Carl E. '49		Astar, William '94	MD A	Jefferson, Michael Steven '90
	Hays, James C. '50		Lane, David G. '71		Wehe, Robert L. '48		Pierson, Jeffrey Scott '05		Schreiner, Steven '86
	Hill, Byron Y. '80		Lee, Robert E. '67		Wrobel, Walter J. '78		Smith, Derick S. '08		Swall, Michael Paul '04
	Joye Jr., Cleland M. '59		Levine, Jerrold L. '61		Li, Frank K. '62	KS B	Burbano, Luis Miguel '09	MI A	Amar, Jack J. '73
	Menocal, Serafin G. '74		Lindner, Robert A. '49		Linder, Frank W. '66		Diallo, Alioune H. '06		Beal, Timothy A. '84
	Olive, Charles M. '70		Lott, Charles P. '48		Lott, Charles P. '48		Abbateilo, James Martin '01		Beck, Maureen E. '03
	Parker, Elton L. '47		MacKlin, Dennis G. '81		Lochman, John W. '65		Allen, Owen F. '54		Cheney, John O. '54
	Petrie, Lester M. '59		Mark, Donald G. '43		Lochman, John W. '65		Auclair, Ph.D., Jared Robert '01		Christenson, Carl E. '49
	Pressly Jr., Wilbur H. '51		Marshall Jr., John T. '50		Lochman, John W. '65		Bretton, Randolph H. '41		Herrick, Robert J. '88
	Priece, James I. '53		Marshall, Maurice K. '46		Lochman, John W. '65		Carlson, Ronald A. '60		Lapekas, Sean Philip '96
	Priest, Anthony J. '88		McLean, Douglas H. '59		Lochman, John W. '65		Dworkin, Larry '58		Maier, Dirk E. '87
	Rawlings, Kenneth '69		McMillion, Robert A. '81		Lochman, John W. '65		Ekstrom, Leland P. '42		McDonald, Gregory Scott '96
	Raynes, Herman D. '48		Mendelson, Robert M. '47		Lochman, John W. '65		Goodhue, Harold D. '71		Montague, Richard W. '48
	Royce, Steven L. '88		Miller, James R. '86		Lochman, John W. '65		Guerci, William B. '48		Sharpe Jr., C. Granville '41
	Stainton, Samuel D. '73		Mucha, Ph.D., Thomas J. '60		Lochman, John W. '65		Humphrey Jr., Harold W. '39		Stevlik, J. Frank '67
	Tyson, Jack J. '48		Nichols, Anne Abell '85		Lochman, John W. '65		Koslowski, Carl Casimier '90		Thelen, Stanley P. '83
	Weathers, Anthony D. '84		Olin, David B. '52		Lochman, John W. '65		Manning, Robert James '88		Vissing, Guy S. '48
	White, Charles M. '52		Park, James E. '57		Lochman, John W. '65		Melanson, Ph.D., Vanessa Rose '01		Williams, Robert G. '59
GA B	Moore, Ricky Cornelius '97		Perkins, Ph.D., George '37		Lochman, John W. '65		Osovski, John J. '77	MI B	Anderson, P.E., Richard O. '71
	Morgan, Scott Robert '94		Peter, David L. '85		Lochman, John W. '				

DONORS, CONTINUED

	Sager, Bonaventure F. '55		Hardin, John W. '87		Lynch, John F. '77		Einson, Stephen E. '59		NY Σ	Sinnaman, Kathleen Ellen '04
	Skaugen, Borg '63		Johnston, Donald W. '62		Ortiz, Mary T. '81		Kanchanagom, Danai '67			Votava, Ward Eugene '66
	Stone, David G. '69		Potter, Charles J. '71		Balma, Peter M. '75		Reiss, Herbert R. '58		NY T	Cilento, Anthony J. '06
	Thome, Diane M. '38		Rogge, P.E., Dustin James '92	NJ Γ	Berry, Brian G. '70		Steban, Brian G. '62			Strivas, Nicholas Demetri '97
	Willson, Vernon R. '64		Stoecklein II, Robert L. '81		Becker Jr., George W. '66		Bornscheuer, George C. '55		NY Z	Land Jr., Walker H. '58
MI Γ	ACKENHUSEN, John W. '50		Vetter, Louis H. '62		Benson, Robert H. '70		Gold, Harris '58			Olenik, Anthony Michael '08
	Astrove, Edgar '48	MO B	Astrack, Richard F. '68		Bornako, Gregory L. '70		Krieger, Martin A. '69			Pieper, Kelsey J. '09
	Atkinson, David E. '60		Brockhaus, Douglas A. '68		Daniello, George T. '68		Levine, Howard S. '63			Torres, Peter '07
	Bittman, Thomas W. '70		Brodhacker, John W. '44		Finnerty, Robert F. '65		Mendelson, Irwin '51		NY Y	Penskar, David Stewart '09
	Bjornbe, Harvar C. '52		Brunkharr, Gerald E. '61		Foehner, Michael D. '63		Pollack, Marian G. '72		NY C A	Barton, Jerry F. '77
	Chick, Kenneth Martin '91		Burke, Harold L. '73		Fratini, Bert J. '70		Atzenbeck, Charles R. '60			Farthing, Dale E., H. Glenn '43
	Clark, Kenn E. '61		Carte, Mark D. '80		Godwin, William R. '48	NY H	Badalamenti, Salvatore '75			Freeze, John M. '85
	Collar, Robert S. '50		Charles, Albert L. '78		Gomez Jr., Ernest '71		Chakraborty, Sankar '88			Hine, David E. '80
	Cross, Fredrick T. '58		Cline, David W. '87		Graber, Eugene A. '66		Diamond, Joseph E. '56			Ingram, William P. '70
	Dapkins, Roderick F. '67		Coffman, James D. '60		Hampel, Daniel '53		Fautale, Charles '63			Kamprath, John M. '82
	Davis Jr., Virgil W. '63		Coon, J. Marvin '40		Hernandez, David Carlo '03		Greenfield, George '51			Loos, Robert A. '39
	Dunlap, Roger '56		Coone, Homer E. '52		Igener, Ronald '77		Jackson, Gilbert S. '63			McCaughy, Ellis H. '82
	Geck, Paul E. '67		Daily, Madison M. '84		Kennedy, Peter D. '49		Kahn, Robert E. '60			Miller, David K. '65
	Gothamy, Joseph O. '07		Davis, Raymond W. '50		Kirwin, Raquel Baamonde '09		Koss, Leonard L. '66			Miller, Wesley J. '81
	Hall, William S. '85		Dreisewerd, Douglas W. '66		Lacki, Allan V. '75		Lederer, Paul S. '49			Noble, Robert T. '69
	Harf, Frederic H. '50		Duderstadt, Edward C. '58		Lisovitz, Edward J. '49		Marcoux, H-Paul J. '47			Palmer III, Jacob A. '69
	Harris, Peter V-S '58		Erwin, Charles T. '62		Makowski, Theodore E. '55		Martino, Anthony L. '77			Peterson, Wayne A. '49
	Hiltunen, P.E., Dennis R. '83		Fallert, David M. '68		McDermott, Kevin J. '65		Necla, Horia '83			Pitts Jr., Robert M. '78
	Holm, John Gustaf '89		Friedman, Marc Andrew '00		Miloscia, Lawrence G. '63		Palazzo, Cosimo '60			Pointeclair, Richard C. '64
	Jackson, Richard H. '64		Goetemann, Edwin C. '43		Nycz, Joseph C. '39		Rossolimo, Alexander '62			Rambo, Martin B. '72
	Jackson, William L. '70		Green, Michael A. '86		Pisz, Frank A. '71		Shimmers, Stanley M. '54			Ratiff, Morris '57
	Kimball, Robert P. '41		Hargrave, Aaron Tyler '02		Podesinski, Raymond A. '73		Sonsky, Sidney N. '58			Skipper, Lee Roy '82
	Krejc, John C. '78		Hatfield, Jerry G. '69		Praschak, Joseph J. '73		Sosinsky, Emanuel '59			Starkey, Robert L. '80
	Kuz, James W. '74		Henrickson, Richard C. '53		Qualle, James P. '68		Wong, Keith K. '73		NY Θ	Dudley, Robert M. '83
	Laidlaw, Charles E. '62		Kenrick, Ralph C. '59		Rhodes, Ronald '77		Adair, James L. '83			Hatley, Marvin T. '43
	Leibold, Robert A. '84		Kern, John H. '60		Rosty, Roberta '77		Adams, Susan P. '79			Lemel, Page Ives '84
	Mitchell Jr., Frank J. '60		Kimmel, Curt William '04		Sasso, William L. '78		Atkinson, William C. '70			McGuire, Sean Thomas '08
	Parkinson, James B. '59		Korinko, Paul S. '87		Singalewitch, Joseph D. '50		Conklin, George M. '47			Russell Jr., Parvin M. '57
	Pomeroy, Don A. '49		Kyser, Dale A. '83		Soares, Eggrington Martins '93		Daye, Mary C. '71			Weber, Paul William '01
	Reid, John B. '81		Larkins, Richard R. '74		Stevens, John '48		Dodd, Christopher W. '89		NY A	Wastin, John G. '86
	Reiter, Harold M. '50		Loos II, Louis G. '84		Stomp, Steven W. '59		Ernis, Ernest E. '50			Boomgarder, Mark Daniel '99
	Shastry, Rohit '05		Luetjen, Hulen H. '50		Tosto, Leonard C. '70		Haritatos, Fred N. '70			Diep, Thanh-tu Le '09
	Smith Jr., William B. '47		Mokhtari, Sha '84		Vergara, Cynthia H. '76		Jacobson, Geoffrey L. '76			Holscher, Thomas E. '86
	Spelman, John M. '74		Olson, Leslie Kaye '07		Walters, Brian D. '67		Jerabeck, Valerie B. '76			Raty, Pasche LaShea '02
	Sterngold, Henry '43		Owens Jr., Malachi '87	NJ Δ	Adrigato III, Anthony John '89		Saviz, Camilla M. '87			Rose, Denise Chitwood '87
	Stoughton, Herbert W. '53		Smith, Floyd T. '55		Blosser, Robert C. '62		Sheppard, Jennifer Lynn '00			Sandok, Paul L. '87
	Stroebe, Richard M. '70		Steele, James D. '66		Grant, Tyler Carrington '02		Thiemann, Peter E. '79			Blunt, Thomas Reynolds '92
	Teller, Andrew S. '61		Stopkey, Waldemar D. '52		Moore, Christopher C. '87	NY I	Andrews, Richard F. '79			Thompson, Renee C.D. '98
	Tury, Adam Woodruff '04		Szumachowski, Edwin R. '50		Murdoch, Kevin Charles '89		Bienstock, Mark A. '83			Bolmgren, Lester N. '55
	Tuttle, Alyson M. '98		Thomas, Crystal Yvette '04		Richards Jr., Rowland '57		Capuzzi, A. Michael '01		NY D A	Bracke, Bruce L. '59
	Wilson, Richard C. '42		Ward, Terrence R. '70		Webster, Robert C. '67		Fischer, P.E., Lawrence '55			Braun, Odell E. '60
	Zaniani, Kevin Kanani '02		Weber, Robert C. '67	NJ E	White, Kimberly Elizabeth '94		Kayton, P.E., Myron '55			Child, Gordon B. '55
MI A	CERQUONE, Peter F. '61		Williams, M. Theresa '88		Williams, M. Theresa '88	NMA	Kuzin, John W. '89			Choo, Kevin D. '84
	Gies, P.E. '71		Willyard, Donald L. '62		Almeida, Tom '90		Lee, Jean '59			Eng, Leonard A. '58
	Hubbel, Jacob J. '50		Bade, Priscilla F. '83	MO Γ	Bornholdt, James M. '79		Nelson, Carl E. '54			Heltemes, Robert B. '52
	Klaes, Leo J. '55		Bornholdt, James M. '79		Favre, Mark Edward '98		Parr, Oscar J. '43			Rumore, Frank C. '74
	Kurajian, George M. '48		Parker III, William H. '60		Kilne, Samuel Aaron '94		Farmer, Ronald A. '85			Salcedo, Frederick J. '62
	Porbeck, James J. '63		Sommerfeld, Jude T. '58		Mustoe, Anthony McDowell '09		Hoelt, John D. '84			Savatta, M.D., Domenico James '93
	Williams, William B. '55		Williams, William B. '55		Neuhoff, Paul S. '43		Schulman, Gilbert J. '67			Siegel, Arnold B. '81
MI E	Cleary, Gary K. '71		Ostrodka, Leon S. '47		Payne, Bradley A. '87		Skaggs Ryan, T. Gwynne '08			Simms, Richard '59
	Klotz, James C. '01		Payne, Bradley A. '87		Sax, Franklin S. '55	NMB	Albright, Kevin L. '89			Sullivan, Roger K. '63
	Mellwain, Colleen Ann '97		Specht, Eugene R. '54		Sax, Franklin S. '55		Buck, Cindy Jo '90			Uhl, P.E., Wilfred O. '49
	Miesiak, Stephen J. '74		Stokely, Robert J. '52		Thomas, Arthur '50	NMI	Hilland, David H. '83			Wangner, Ronald P. '89
	Opiela, Kenneth S. '88		Thomas, Arthur '50		Thomas, Arthur '50		Cok, Jeremy Michael '98			Wilkowski, Stephen J. '60
	Nigler, David R. '76		Darkenwald, Gregory Dale '93	MT A	Fuller, Deirdra L. '78		Gehris Jr., Allen P. '87		NY K	Yasuda, Kentaro '57
	Silver, Arthur G. '59		Jeffries, William R. '42		Kujawa, Stephan T. '73		Al-Hussain, Yahya M. '81			Cohn, Brian D. '79
	Smith, Glenn D. '62		Laport, Alexander K. '58		Laport, Alexander K. '58		Bruder, Britanny Lynn '09			Dube, George '64
	Tracy, Shawn Lance '95		Monaghan, Kathleen Lynn '90		Morse, Mark H. '83		Carlucci Jr., Charles J. '68			Footo Jr., James C. '70
	Witt, Jason Alan '98		Morse, Mark H. '83		Porter, John H. '50		Freiman, Joseph V. '55			Kaufman, Michael J. '60
	Yarner, Victor C. '68		Porter, John H. '50		Smith, Raymond J. '63		Mucci, Thomas '64			Wenstein, Michael R. '85
MI Z	ALDERSON, Bradley R. '86		Thompson, Philip L. '68		Valach, Ernest J. '55	NY B	Albaladi, Waleed '86		NY A	Chipolone, Michael D. '54
	Carpenter, Michael '82		Valach, Ernest J. '55		Aguirre, Stacy M. '86		Andrews, David R. '45			Mizzi, P.E., John V. '63
	Carpenter, Robert D. '82		Borst, Kenneth M. '86	MT B	Erickson, Elizabeth Jeffery '93		Bernard, Jeffrey L. '80			Schuler, Robert A. '67
	Duvall, Paul Franklin '58		Fogelsgor, Robert B. '40		Jones, Sharon Alane '93		Booth Jr., Elwood F. '48			Shelley, Harold B. '47
	Hamilton, April Ann '09		Greaves, Robert W. '43		Lindgren, Elizabeth D. '01		Borst, Kenneth M. '86			Stephan, John E. '47
	Heston, Joseph James W. '08		Hennesey, James E. '55		Link, Curtis A. '85		Fogelsgor, Robert B. '40		NY M	Trana, Edward P. '62
	Jester Jr., Herbert C. '51		Hunte, Brian F. '09		Michel, Rodney Lee '04		Goetz, Herbert '52			Brier III, Burgess B. '71
	Jinks, Terrence E. '73		Kosboth, George L. '59	NE A	Ceele, Chad Adam '07		Greaves, Robert W. '43			Delano, Stephen D. '87
	Larson, Keith Alan '91		Cox, John D. '85		Cox, John D. '85		Hennesty, James E. '55			Feldman, Brian Pearson '07
	McKeel, George J. '50		Fortik, Jason La Vern '98		Frenzel, Gary G. '59		Hunte, Brian F. '09			Ludik, Amy E. '96
	Miller, Gene H. '67		Frenzel, Gary G. '59		Haflike, Nicole Annette '09		Kosboth, George L. '59			McCarthy Jr., James Joseph '66
	Miller, William P. '79		Haflike, Nicole Annette '09		Johnson, James A. '85		Olson, John F. '65			Mulle, Gary E. '62
	Petzold, Merlin A. '56		Johnson, James A. '85		Lang, Oscar A. '79		Pool, David R. '69			Neville, James Maurice '92
	Slagh, Douglas J. '88		Lang, Oscar A. '79		Scott, Stanley S. '85		Rice, Ann C. '78			Panik, Jennifer Elizabeth '04
	Tidrow, Raymond E. '65		Scott, Stanley S. '85		Wolff, Nicholas Lowell '00		Robinson, James C. '85		NY N	Chen, Gordon K. '81
	Trehanne, William D. '89		Zechmann, Edward L. '00	NV A	Erickson, Spencer Lee '99		Shippee, Robert C. '85			Colorati, Robert Thomas '08
	Voigt, Ronald W. '88		Graham, P.E., Aidan Michael '98		Pearson, Brett Steven '07		Spearot, James A. '76			Fligmer, Mark '77
	Brow, Duane A. '03		Dam, Clifford Huy '92	NV B	Engida, Fikadie Dagnew '08		Strait, Stanley S. '85			Goldsmith, Robert Holloway '51
	Cole Jr., James J. '78		Collins, David Earl '83		Zaragoza, Richard O. '03		Barnette, David J. '76			Greenweiz, Daniel G. '82
	Collins, P.E., Arnold J. '82		Zaragoza, Richard O. '03	NH A	Anason, Christopher M. '07		Buell, Richard E. '72			Guildford, Harry J. '81
	Hitzelberger, Michael Robert '00		Asanon, Christopher M. '07		Bickford, M. Dudley '59		Burns, Jay R. '41			Hammer, Mark R. '81
	Jasinski, Richard Paul '92		Bickford, M. Dudley '59		Einstein, Thomas H. '54		Canavan, Kevin Joseph '92			Irwin, Christopher Joseph '92
	Kipp, P.E., Eric Michael '98		Getchell, William Forbes '95		Getchell, William Forbes '95		Capek, Thomas G. '86			Lavit, Martin S. '78
	Matejin, Mirjana '07		Gleske, Indulis U. '70		Gleske, Indulis U. '70		Cavett, Robert E. '69			Malmsteier, Mark E. '88
	Orr, Christopher Wayne '07		Jacobiec, Philip S. '75		Jacobiec, Philip S. '75		Clifford, James D. '54			Markunas, Justin Kenneth '01
	Rice, Timothy I. '76		Johnson-Battista, Christine M. '87		Johnson-Battista, Christine M. '87		Collins, Donald Francis '09			Matyjas, John David '98
	Roman, P.E., Jerry Michael '01		Mayo, James F. '76		Mayo, James F. '76		Cordaro, Emily A. '01			Miller Jr., Donald Bruce '90
	Sochowicz, Peter G. '88		Rand, John F. '59		Rand, John F. '59		Ganoun, Frank J. '85			Notaro, Frank J. '85
	Faust, Alan H. '86		Amato, Corrado '76	NY J A	Buce, Stephen J. '86		Prosser, Neil M. '81			Rosen, Kevin P. '78
	Long, Michael C. '84		Carlson, Robert W. '53		Carlson, Robert W. '53		Rosenthal, Ph.D., Jordan C. '95			Smith, Frederick E. '79
	Mesina, Rami Wagdy '06		Denzer, George C. '61		Denzer, George C. '61		Watkins, Matthew Ace '05		NY Z	Costello, Joseph J. '70
	Shermetaro, Mark R. '83		Gross, Chester J. '56		Gross, Chester J. '56		Ives, Jon R. '61			Crist, Edward J. '99
	Zarin, Paul S. '87		Hess, Edwin J. '55		Hess, Edwin J. '55		Jablonska, David Andrew '96			D'Angelo III, Louis A. '71
MI I	Bassett, Patricia F. '86		Ioffredo, Michael L. '63		Ioffredo, Michael L. '63		Kellis Jr., Robert F. '78			Kovacs, Charles V. '51
	Makled, Haney '85		Menafra, Domenic Bernard '04		Menafra, Domenic Bernard '04		Lee Jr., George H. '38			Lehr, Valentine A. '62
	Ringler, Ashley Marie '08		Newton, Thomas J. '58		Newton, Thomas J. '58		Makaitalo, Dauno M. '51			McKenna, John Dennis '61
	Rossi, Robert E. '85		Olsen, James F. '54		Olsen, James F. '54		Mara, Brendan Scott '98			Pabisz, Ronald A. '96
	Mulkey, Daniel G. '07		Sarsten, Gunnar Edward '58		Sarsten, Gunnar Edward '58		Polmann, Donald J. '79			Polmann, Donald J. '79
	O'Brien, Ronald Charles '92		Smith, Alexander Paul '07		Smith, Alexander Paul '07		Reilly, William J. '50			Reilly, William J. '50
	Barrows Jr., Kenneth C. '56		Stoner, Scott William '07		Stoner, Scott William '07		Rimmert, Leslie J. '98			Savrick, Martin '90
	Boller, Robert A. '45		Zachariades, Savvakis C. '85		Zachariades, Savvakis C. '85		Saskett, Robert F. '88			Smith Jr., Martin G. '59
	Fine, Morris E. '40		Ayyala, Sarma S. '03	NY B	Badgley Jr., Robert H. '60		Chung, George F. '54			Wileox, Bruce '51
	Han, Keesook Julia '91		Badoyannis, George '51		Badoyannis, George '51		Collicott, Robert B. '68			Wissick, William P. '59
	Hobble, Russell Klyver '56		Bates, Mark A. '92		Bates, Mark A. '92		Dumouchel, Matthew Paul '08			Ziegler, John Lewis '06
	Jung, Paul '98		Butch, Nicholas P. '01		Butch, Nicholas					

DONORS, CONTINUED

	Oatman, Thomas D. '56		Weiss, David S. '65		Martelli, Phil J. '85		Wilson, Christopher D. '85		Webb, Brian Douglas '96
	Plaumer, Robert G. '67		Yetter Jr., Larry W. '81		Meixner, Henry M. '67	TN A	Klein, Sally Anne '89		Webb, Melissa A. '98
OH E	Shearer, Richard P. '68	PA B	Babcock, Daniel L. '52	PA A	Besse, Robert Emery '90	TN E	Maguire, John B. '87	UT A	Cannon, Jana Lynn '03
	Earth, Walter G. '75		Benson, P.E., Walter '74		Brunell, Anthony Gerald '94		Cook, Jason D. '91		Cole, David '90
	Bennett, William R. '80		Chatacavage, Edward F. '80		Burns, Michael '75		Dodds Jr., Robert H. '73		Damon, Alex '90
	Cibulskas, Cinda L. '79		Fuller, Donald Brian '92		Campbell, Mark Russell '04	TN Z	Edlund, Robert A. '79		Heninger, Suzanne T. '86
	Diemer, Andrew William '89		Garback, Richard J. '59		Domhoff, Edward Scott '91		Wade, Ann M. '79		Kelley, Brenton Collier '89
	Eberlin, Fred E. '95		Graham, Arthur H. '58		Garofalo, James Donald '95		Keck, Christopher C. '95		Milligan, Thomas Allen '95
	Gedson Jr., Lonnie '95		Grieff, Richard Eugene '96		Kozcko, John P. '77		McClumphy, Jonathan David '02	UT B	Weaver, Kevin Dean '98
	Hemming, Thomas L. '85		Handshue, James David '03		Koiman, Caroline M. '86	TX A	Burkett, William J. '49		Lashby, Robert '64
	Moffitt, Steven P. '83		Harper, Kenneth L. '74		Loehlein, Werner C. '74		Cates, John W. '74		Christens, Todd Gregory '99
	Morris, Kevin E. '85		Harvey, P.E., John William '95		Matey, John G. '78		Chen, Annie Y. '89		Christens, James Kumen '03
	Radcliffe, Thomas J. '51		Hemler, Robert J. '70		Murphy, William J. '80		Dexter, John N. '57		Dickson, Lloyd B. '63
	Rieler, James J. '62		Hogan, William Oliver '95		Needy, Kim L. '84		Eeck, Aarne E. '54		Hainsworth, Gary P. '83
	Smiialek, Raymond '02		Kempf, Dwight C. '81		Newton, Mark A. '81		Ehlers, Clarence J. '66		Hamilton, Justin Sean '00
	Vary, Alex '58		Kessler, John R. '47		Rodgers, Jesse C. '99		Glavan, John R. '88		Hardy, Mark D. '84
OH Z	Kristie, Frank M. '72		Klingeman, Roger L. '57	PR A	Sawyer Jr., Stephen Gerard '98		Gloyna, Earnest P. '46		Haymon, Edward F. Franklin '92
	Krout, Ashley Nicole '06		Krause, Scott Tobin '93		Tomko, Leonard M. '80		Harrison, Steven Manley '97		Hilton, Ronald N. '80
	McDonough, John E.-A. '04		Livingston, Jason S. '00		Burgos-Leub, Concepcion N. '89		Irick, John T. '59		Jarvis, David R. '82
	Miller, John J. '59		Manno, Jeremy Vidmar '06		Capo, Rosa I. '07		Jiang, Wei '03	UT F	Rathke, Lane E. '89
	Walker, Russell A. '92		McCully, Shannon Aileen '96		Caraballo, Jose A. '82		Johnson, Mark E. '78		Anderson, Matthew O. '93
OH H	Breaux, Erik Regis '97		Meisel, Donald D. '49		Lopez, Norman Antonio '99		Krasner, Marvin D. '69		Bodily, Travis Kim '03
	Carlson, Lonnie '97		Merritts, Jack M. '70		Milan, Lionel '87		Lautinc, Regina M. '80		Bruneel, Frank Weston '90
	Cole, Kenneth N. '86		Mudrinich, Richard T. '85		Ortiz-Cassius, Manuel Angel '92		Lee, Vernon A. '56		Espin, Robert Barton '04
	Deviriglo, Mark L. '83		Oross, Matthew P. '02		Ramirez Rodriguez, Alfonso '09		McGraw, Joe H. '54		Harshbarger, Roger K. '82
	Ethridge, Ronald A. '78		Patterson, David A. '88		Rivera, P.E., Aurea L. '80		Moguel, Walter L. '93		Olsen, Kettie Lynn '97
	Hartman, Dean H. '99		Polifko, John T. '70		Rodríguez, Lorna Mariel '97		Musler, Jeffrey Lynn '90	VT A	Reese, Kenneth Bryce '04
	Martin Jr., Emilen L. '83		Raser Jr., William H. '42		Sierra Jr., Jesus '86		Reynolds, A-Lan V. '91		Aldrich, P.E., Bradley F. '81
	Morrow Jr., Robert W. '63		Roth, Donald L. '79	RI A	Yrimia, Yvo Anthony '99		Schreuders, Paul Dennis '89		Clark, Robert Alan '89
	Piske Jr., Andrews A. '61		Rubin, Paul K. '70		Burgans, Richard E. '81		Seaman, George C. '66		Garcia, Michael '83
	Renfro II, Robert Steven '01		Stollmeyer, Michael A. '59	RI B	Zhang, Kangyi '09		Sommer Jr., Walter F. '65	VT B	Christens, Michael A. '76
	Silkowski, Eric '90		Taylor, Paula Ann '90		Asdoorian, John '58		Taylor, Neale H. '83		Pratt, Lawrence W. '59
	Spector, Marvin '73		Thomas, Kathleen D. '80		Faunce, Kimberly N. '89		Thomas, Kurt O. '79		Shlyoski, Ed C. '66
OH Ø	Beach, David Nathan '03	PA F	Wolfgang, Robert J. '85	SC A	Palmer, Robert P. '59		Vaverek, Gavin N. '81		Van Domelen, John F. '64
	Karpuzak, David '90		Carter, Woodward C. '66		Bryant, Paul '99		Yoigt, Richard A. '89		Pampieri, Robert P. '63
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## IN THE COLLEGES

### SPOTLIGHT

#### Science & Engineering Festival

The inaugural U.S. Science & Engineering Festival targeting K-12 students took place October 23-24 on the National Mall in Washington, DC.

TBPI hosted a booth, located about a block from the Capitol building, and an activity (Expanding Your Mind-SET). The activity was a condensed version of the circuit board MindSET module.

Attendees were greeted by volunteers and asked if they wanted to 'build and test' a lie detector. A brief introduction was given detailing the circuit board.

Using either simple or more complex principles of Boolean logic,



circuit boards were used to test truth statements.

If the statement were *true*, the light indicator on the circuit board would illuminate. If the statement were *false*, the indicator would not light.

Student volunteers comprised 30 members from the DC Alpha, Maryland Beta, and Maryland Delta Chapters.

#### Degree Trends Move Rankings

From 2000 to 2008, bachelor's, master's, and doctoral engineering degrees increased by 16, 29, and 51 percent, respectively, according to figures presented by the ASEE. This growth caused rankings by disciplines to change.

The growth in M.E. bachelor's was 33%, master's 37%, and doctorates 36%.

In 2008, mechanical engineering B.S. degrees overtook electrical to become the largest discipline with 17,324. This compared to 16,814 in electrical engineering, the previous

leader, which peaked at 21,038 in 2004 and declined by 3% between 2000 and 2008.

Electrical/computer offset the 3% decline in bachelor's with a 34% rise of master's and 47% more Ph.D.s.

Biomedical bachelor's increased by 180% during that time, master's grew by 157% and Ph.D.s rose by 226%.

Chemical B.S. and M.S. degrees fell by 19% and 10% respectively, while doctorates grew by 36%.

#### A Matter of Grades

The proportion of science and engineering graduates still working in those fields after 10 years has gone up—except for those with the highest G.P.A.s, according to an analysis of data from the U.S. departments of education and labor.

Some 43.7% of all 1993 science and engineering graduates were still employed in 2003—43.2% of those with the highest grades. This compared with 35% of all graduates and 45% with higher grades during 1977-87.

The analysis, by public-policy academics at Rutgers and Georgetown universities led them to conclude that the U.S. could largely resolve industrial shortfalls by persuading more elite graduates to stay in their fields.

The proportion of engineers still in the field 20 years after graduation is 53% for men and 35% for women. This was announced after a survey of 3,349 graduates by the Commission on Professionals in Science and Technology.

#### Minorities Boost "Urgent"

Efforts to strengthen U.S. science and engineering must include all Americans, especially minorities—the fastest growing groups of the population but the most underrepresented in science and technology careers. This is one of the conclusions of a report by the National Academy of Engineering, National Academy of Sciences, and Institute of Medicine.

Minority participation in science, technology, engineering, and mathematics (STEM) education at all levels should be an urgent national priority, states the report.

The U.S. labor market is projected to grow faster in science and engi-

neering than in any other sector. However, non-U.S. citizens have accounted for almost all growth in STEM doctorates, and a number of science and engineering disciplines are heavily populated by international students.

Relying on them for U.S. science and technology needs is becoming "increasingly uncertain" for many reasons, concludes the congressionally mandated report, including stricter visa requirements and the possibility that graduates will return home.

### PEOPLE

**Dr. Lyle D. Feisel, PE., Iowa Alpha '61**, has been named as interim executive

director of ASEE.



He is a past president of ASEE and is dean emeritus of the school of engineering and applied science at the State University of New York at Binghamton.

Dr. Feisel is the 2002 TBPI Distinguished Alumnus, writes the popular column *Lyle's Laws* for THE BENT, and is a member of the magazine's editorial board.

**Dr. Lee T. Todd Jr., Kentucky Alpha '68**, has announced his retirement next June from the presidency of the University of Kentucky. The academic, inventor, and entrepreneur has held the post since 2001.

**Dr. Mohamed S. El-Aasser, Pennsylvania Alpha '62**, is now a Lehigh University vice-president directing the new office of international affairs. The Egyptian-born chemical engineering professor is a former dean and provost at Lehigh.

**Isaac U. Odum, Minnesota Beta '11**, Corresponding Secretary and a running back at University of Minnesota, Duluth, is one of two Tau Bates named by the National Football Foundation & College Hall of Fame among 2010 recipients of its national scholar-athlete awards. The other is **Travis A. Nissley, Pennsylvania Eta '11**, a linebacker at Bucknell.

### ASEE Awards to Tau Bates

The following Tau Bates were honored with 2010 ASEE awards: **Dr. James E. Stice**, *AR A '49*, Benjamin Garver Lamme award; **Dr. Philip S. Schmidt**, *TX A '62*, Chester F. Carlson award; **Dr. Adedeji B. Badiru**, P.E., *TN I '79*, John L. Imhoff award; **Robert J. Herrick**, *MI A '68*, Frederick J. Berger award; and **Dr. Johnna S. Temenoff**, *OH A '98*, Meriam/Wiley distinguished author award (jointly).

**Dr. C. Daniel Mote Jr.**, *California Alpha '59*, has retired after 12 years



as president of the University of Maryland. He will continue his academic appointment as an engineering professor. Dr. Mote chairs the National Research Council

committee studying global science and technology strategies, and their effect on national security.

**Dr. Marc S. Ingber**, *Louisiana Beta '72*, is the new dean of the University of Colorado at Denver's college of engineering and applied science. Dr. Ingber was a program director of the chemical, biological, environmental and transport systems



division at the National Science Foundation.

**Dr. Mark H. Weichold**, P.E., *Texas Delta '78*, has served as dean of Texas



A&M University at Qatar since January 2007. As dean and CEO, he serves as the chief executive officer of Texas A&M's branch campus. He previously served on the main

campus as associate provost for undergraduate programs and academic services during 1998-2003, when named as dean of undergraduate programs and associate provost for academic services.

**Dr. Karen T. Marosi**, *PA E '94*, represented TBPi at the November 14 inauguration of **Dr. John C. Bravman**, *CA I '79*, as president of Bucknell University. Dr. Marosi is associate dean at Bucknell's engineering college and a *PA E* Advisor. Dr. Bravman's appointment was reported in the Summer issue of *THE BENT*.

## FACILITIES

**Ohio University** is recognizing two engineering faculty members with new professorships as a result of a \$95 million estate gift in 2008 for the Fritz J. and Dolores H. Russ College of Engineering and Technology. Srdjan Nesic and Gerri Botte, professors of chemical and biomolecular engineering, have been named Russ professors. The five-year professorships carry an annual salary supplement as well as a travel budget to attend professional meetings to present and promote work. Bequeathed by the late **Dr. Fritz J. Russ**, *Ohio Delta '42*, an electrical engineering alumnus, and Dolores Russ, the estate gift is the largest charitable gift to any public engineering college in the U.S.

The college also recently established the center for electrochemical engineering research, funded by grants from the state department of development and the U.S. Department of Defense. The center includes an analytical laboratory facility to advance electrochemical research and has already developed technology that converts ammonia from human waste-water into hydrogen fuel. The lab will enable researchers to perform *in-situ* electrochemistry combined with modeling and simulations.

**University of Minnesota, Duluth**, civil engineering students can now have hands-on experience, thanks to the new \$15 million, 34,000-square-foot Swenson Civil Engineering Building. The structure is the most user-friendly that department head **Dr. Andrea J. Schokker**, *Missouri Gamma '93*, has ever seen. "Everything is on display for the students. The building itself is a teaching tool; everything is exposed." A high bay area split into two sections contains

two 15-ton gantry cranes and a hydraulic flume, which allows for water-flow testing. A typical use would be to test school-made beams or decommissioned bridge beams by loading them until failure. The two-story building was paid for with \$10 million from the state, a \$3 million gift, and the rest from UMD.

**Virginia Tech** is developing a *scien- eering* minor that will unite all sciences with engineering. Students who pursue the minor will take courses in departments outside their major and participate in seminars exploring topics at the interfaces of science and engineering. The school was among 50 research universities nationwide to receive a precollege and undergraduate science education program award from the Howard Hughes Medical Institute that will be used to encourage faculty to develop new ways to teach and inspire undergraduates about science and research. Virginia Tech received \$1.4 million.

**Purdue University** has opened a West Coast partnership center in Mountain View, CA, to link the school's expertise in engineering and technology with technological companies and entrepreneurs there. The institution already has a strong tie to Silicon Valley and California—home to more than 18,000 alumni, third highest after Indiana and Illinois. The center is being led by **John C. Boyle**, *Indiana Alpha '80*, who has worked for Hewlett-Packard and General Motors, as well as being a partner in two Silicon Valley venture-capital firms.

Florida's university system has awarded \$10 million in grants to boost research and innovation, with nearly a quarter going to the **University of Florida**. The funding comes from the "new Florida initiative," which aims to broaden the economy beyond agriculture and tourism into engineering, health, and science. Originally, the Florida board of governors requested \$100 million for the initiative, but the legislature allocated \$12 million. In October, the governors awarded \$2 million to 21 projects with commercial possibilities.



# Brain Ticklers

## RESULTS FROM SUMMER 2010

### Perfect

*Beaudet, Paul R.	Father of member
Bukowski, Justin D.	OH A '90
Couillard, J. Gregory	IL A '89
*Hagadorn, Hubert W.	PA E '59
*Jenneman, Jeffrey H.	OK A '08
*Jones, John F.	WI A '59
*Kaliski, Burton S., Jr.	MA B '84
Kaliski, Stephen	Son of member
*Kimsey, David B.	AL A '71
*Mayer, Michael A.	IL A '89
Midgley, James E.	MI I '56
*Nabutovsky, Joseph	Father of member
Norris, Thomas G.	OK A '56
*Schmidt, V. Hugo	WA B '51
*Spong, Robert N.	UT A '58
*Strong, Michael D.	PA A '84
*Thaller, David B.	MA B '93
*White Jr., Warren N.	LA B '74

### Other

*Aron, Gert	IA B '58
Beal, Timothy A.	MI A '84
Brule, John D.	MI B '49
*Gaston, Charles A.	PA B '61
Handley, Vernon K.	GA A '86
Holloway, Benjamin R.	TX Z '02
Jacobs, Gregory P.	WI B '09
Jones, Donlan F.	CA Z '52
Lamb, James A.	NY I '66
Marks, Lawrence B.	NY I '81
Marks, Benjamin	Son of member
Marrone, James I.	IN A '61
Rasbold, J. Charles	OH A '83
Solt, Matthew	Son of member
Spring, Gary S.	MA Z '82
*Stribling, Jeffrey R.	CA A '92
Summerfield, Steven L.	MO I '85
Sutor, David C.	Son of member
*Voellinger, Edward J.	Non-member

\* Denotes correct bonus solution

## SUMMER REVIEW

The Summer set appears to have been somewhat easier than usual. The most difficult regular problem was No. 5 about the vertical belt sander. However, of the answers submitted, at least 80 percent were correct for all the problems.

## FALL SOLUTIONS

Reader's entries for the Fall problems will be acknowledged in the Spring BENT. Meanwhile, here are the answers:

**1** Cleo is not remarkably rich. There are four "remarkable" traits—artistic (ra), beautiful (rb), intelligent (ri), and rich (rr), with two women having each

trait for a total of 8. Since each woman has a maximum of three traits, the distribution must be 3, 3, 2. Assume Ann (A) has two traits. One cannot be ri, because then A would also be rr and ra, three traits; A also cannot be rb and rr, for then she would also be ra, three traits. Therefore, A is ra, rb or ra, rr; but she cannot be ra, rb, for then both Barb (B) and Cleo (C) are ri, rr, and one is also rb, but that makes her also ra, four traits; and A cannot be ra, rr, for then both B and C are rb, ri, but this means both are also ra, which makes all three women ra. Therefore, A must have three traits. There are only four possibilities for this: (1) ra, rb, ri; (2) ra, rb, rr; (3) ra, ri, rr; and (4) rb, ri, rr. (1) and (4) can be ruled out, because for A, ri implies rr and rr implies ra, both of which would require A to have four traits; (3) can be eliminated since it requires both Barb (B) and Cleo (C) to be rb, which implies they are both ra, but this makes all three women ra. Therefore, A is ra, rb, rr, which makes both B and C ri. Now if C is rr, she is also ra, which leaves rb for B, but then B is also ra, so all three are ra. Thus, C must be ra, rb, ri, and B is ri, rr; so C is not rr.

**2** An estimated 18.37 percent of the students cheated. Assume the "Answer Yes," "Answer No," and "Have You Cheated" cards are selected with equal probability by the 2,352 students, that is 784 for each card. Then  $928 - 784 = 144$  students had "Have You Cheated" cards and answered "Yes," indicating that they had cheated. And  $1,424 - 784 = 640$  students had "Have You Cheated" cards and answered "No," indicating that they had not cheated. The estimated fraction of cheaters is then  $144/(144 + 640) = 0.1837$ .

**3** After one year, you will owe the banker \$271,828,182.85 which is the constant,  $e$ , times one-hundred million. The expression for the annual payment is  $(1 + i/n)^n$ , where  $i$  is the annual interest rate and  $n$  is the number of times per year that interest is compounded. For continuous compounding, the payment is the limit of the above expres-

sion as  $n$  approaches infinity; when  $i$  is 1, this limit is defined as  $e$ , the base of natural logarithms. You can use a spreadsheet to calculate the payment with an increasing number of time intervals and quickly observe that the answer is approaching  $e$  times  $10^8$ .

**4** The distance of the center of the 1-cm-radius ball above the plane surface is approximately 4.6208 cm. Label the centers of the 4-cm, 3-cm, and 2-cm-radius balls  $a$ ,  $b$ , and  $c$ , respectively. Then, as they lie on the plane surface and touch, their centers, from a top view, project a triangle ABC on the plane surface, where  $AB = \sqrt{(7^2 - 1^2)} = 4\sqrt{3}$ ,  $AC = \sqrt{(6^2 - 2^2)} = 4\sqrt{2}$ , and  $BC = \sqrt{(5^2 - 1^2)} = 2\sqrt{6}$ . Let  $d$  be the center of the 1-cm-radius ball as it rests on the other three balls and  $D$  be its projection on the plane surface from a top view. Then, letting  $H$  equal the distance of  $d$  above the plane surface,  $AD = \sqrt{(5^2 - (H - 4)^2)}$ ,  $BD = \sqrt{(4^2 - (H - 3)^2)}$ , and  $CD = \sqrt{(3^2 - (H - 2)^2)}$ . Use trial and error to find an  $H$  such that the areas of the three small triangles ABD, ACD, and BCD sum to equal the area of ABC. Use Heron's formula for calculating the area of a triangle when the lengths of the three sides are known.

**5** The young girl should release from the swing with the swing  $29^\circ$  from its static position. She will land about 8.7 feet from the point directly below the swing's static position. For a pendulum, which the swing is, total energy is a constant and equals potential energy,  $mg(h - h_0)$ , plus kinetic energy,  $mv^2/2$ , at any point in its arc. Equating kinetic and potential energy gives  $v^2/2 = gh_m - gh$ , so  $v = \sqrt{[2g(h_m - h)]} = \sqrt{[2gL(\cos\theta - \cos\theta_m)]}$ , where  $\theta$  is the angle the swing's chains make with the vertical and  $L$  is the length of the chains. Once the girl releases, the distance she travels from the release point is determined by the formulas for the trajectory of a projectile, which are  $x_m = x_0 + v_x t$  and  $0 = y_0 + v_y t - gt^2/2$ . Now,  $v_x = v\cos\theta$  and  $v_y = v\sin\theta$ . Solving for  $t$  (the time it takes the girl to hit the ground) gives  $t = [v_y + \sqrt{(v_y^2 + 2gy_0)}]/g$ . Substi-

tuting into the equation for  $x$  gives  $x = x_0 + (v \cos \theta / g)[(v \sin \theta + \sqrt{v^2 \sin^2 \theta + 2gy_0})]$ , where  $x_0 = L \sin \theta$  and  $y_0 = L(1 - \cos \theta) + h_0$ . Using trial and error (with  $L = 6$  ft and  $h_0 = 2$  ft) on the swing's angle at the release point to discover that  $29^\circ$  gives the maximum attainable distance.

**Bonus.** The punter should aim at the six-yard line and expect to have the ball placed, on average, at the 14-yard line. The normal probability distribution is given by  $p = [1/(\sigma\sqrt{2\pi})]\exp(-\theta^2/2\sigma^2)$ , where  $\theta$  is the deviation from the aim angle,  $\theta_a$  and varies from  $-45^\circ$  to  $+45^\circ$ , and  $\sigma = 7.5$  is the standard deviation. (Although the normal distribution goes from  $-\infty$  to  $+\infty$ , we can truncate this range without loss of accuracy. After all, this is football!) Pick a yard-line aim point  $y_a$ ; then the aim angle is given by  $\theta_a = \tan^{-1}[(50 - y_a)/(80/3)]$ . The yard line for other angles is given by  $y = 50 - (80/3)\tan(\theta_a + \theta)$ , except that when  $y$  is negative (indicating that the ball crossed the goal line),  $y = 20$ . The expected value of the yard line for spotting the ball is then the integral from  $-45^\circ$  to  $+45^\circ$  of  $y \, d\theta$ . It is easy to write a simple numerical integration computer program that varies  $y_a$  to find the minimum expected ball-placement spot. However, a spreadsheet also works well. Program the expressions for  $y$  and  $p$  into the spreadsheet (with  $y_a$  as a variable), and calculate  $y$  for unit increases in  $\theta$  from  $-45$  to  $45$ . (This is sufficiently accurate for this problem.) Then, sum the expected values. Repeat with various values of  $y_a$  until the minimum listed above is found.

**Computer Bonus.** The next two palindromic squares that have an even number of digits are  $637,832,238,736 = 798,644^2$  which has 12 digits and  $4,099,923,883,299,904 = 64,030,648^2$  with 16 digits! This is quite a distance from the first such number  $698,986$ , whose square root is  $836$ . An eight-digit palindrome can be expressed as  $abcdcba$  where  $a$  can equal 1, 4, 5, 6, or 9 and  $b, c$ , and  $d$  can equal 0 through 9. Write a computer program to check each possible combination to see when a perfect square occurs. Do this for 6, 8, 10, 12, 14, and, finally, 16-digit palindromes.

## NEW WINTER PROBLEMS

**1** Find the smallest positive integer that has a remainder of 1 when divided by 2, a remainder of 2 when divided by 3, a remainder of 3 when divided by 4, a remainder of 4 when divided by 5, a remainder of 5 when divided by 6, and a remainder of 6 when divided by 7.

—Christopher R. Oliver, *AL E '08*

**2** Five pirates find a chest containing 100 gold pieces and decide to divide them according to the following scheme. In order of seniority, each pirate proposes a distribution of the gold pieces. All of the pirates then vote, and if half or more of the pirates accept the proposal, the gold pieces are divided as proposed. If not, then the proposer must walk the plank and drown, and they start the process over again with the next most senior pirate making a proposal. Assuming the pirates are very intelligent, greedy, and interested in surviving, how does the senior pirate propose to split the 100 gold pieces?

—How to Ace the Brain Tickler Interview by John Kador

**3** My wife and I recently attended a party at which there were four other married couples, and various people shook hands. No one shook hands with himself or herself or with his or her spouse, and no one shook hands with the same person more than once. After the handshakes were over, I asked each person, including my wife, how many hands he or she had shaken. To my surprise, each had shaken a different number of hands. How many hands did my wife shake?

—Knotted Doughnuts and Other Mathematical Entertainments by Martin Gardner

**4** Professor Asterisk treated his friend, Professor Scalene, to a ride on the local bus. He asked the driver for two transfer tickets, which had consecutive five-digit serial numbers. He mentally added the ten digits and informed Professor Scalene that the sum was 62. Professor Scalene asked if the sum of the digits of the serial number on either of the tickets were in the range of 29 to 39, inclusive. After

Professor Asterisk answered, Professor Scalene remarked, "I now know what the two serial numbers are." What were the serial numbers?

—Hard-to-Solve Brainteasers by Jaime and Les Ponichik

**5** A sparrow, flying horizontally in a straight line, is 20 m directly below an eagle and 40 m directly above a hawk. Both the eagle and the hawk always fly directly at the sparrow, and they reach it simultaneously. If the sparrow is flying at a speed of 15 m/s and the hawk is flying at 30 m/s, how fast is the eagle flying?

—Chases and Escapes by Paul J. Nabin

**Bonus.** A regular dodecahedron has 12 faces in the shape of regular pentagons. If some, including none or all, of the faces are painted red and the rest are painted blue, how many dodecahedrons that are distinguishable from each other are possible?

—Classic Puzzles by Gyles Brandreth

**Computer Bonus.** A, B, and C are different nine-digit integers that each use the digits 1 through 9 once and only once. What is the value of C that satisfies the equation,  $A \times B = C^2$ , and where A and B are also perfect squares?

—Madachy's Mathematical Recreations by Joseph S. Madachy

Send your answers to any or all of the Winter Brain Ticklers to Jim Froula, **Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697** or email to [BrainTicklers@tbp.org](mailto:BrainTicklers@tbp.org) only as plain text. The cutoff date for entries to the Winter column is the appearance of the Spring BENT in late March. The method of solution is not necessary.

We welcome any interesting problems that might be suitable for the column. The Computer Bonus is not graded. Jim will forward your entries to the judges who are **Dr. H.G. McIlvried III, PA  $\Gamma$  '53**; **F. J. Tydeman, CA  $\Delta$  '73**; **J. L. Bradshaw, PA A '82**; and the columnist for this issue,

—D.A. Dechman, *TX A '57*.





## CHAPTER ETERNAL

*The condensed style of these notices of death is made necessary by Tau Beta Pi's large membership and space limitations in THE BENT. You may write the Editor for further facts concerning the following deceased members. The assistance of all is earnestly sought in reporting to TBPI the deaths of Association members, with appropriate details.*

- AL A '60 **Duck, Sherman W.**; July 10, 2008.  
 AL B '44 **Potter, J. Leith**; July 20, 2010.  
 '50 **Walsh, Eugene J.**; September 3, 2010.  
 '52 **Downey, James A.**; April 15, 2010.  
 AZ Γ '07 **Archambault, Joshua C.**; March 12, 2010.  
 AR A '37 **Bona, Louis E.**; no details.  
 '89 **Acre, Lawrence J.**; May 31, 2008.  
 CA A '41 **August, George R.**; August 2, 2010.  
 '42 **Cambra, Jessie G.**; December 12, 2008.  
 '47 **Alden, Donald W.**; June 14, 2010.  
 '56 **Warriner, Philip C.**; January 31, 2009.  
 CA B '46 **Sellers, Ernest E.**; March 30, 2002.  
 '46 **Stephenson, Elliott O.**; December 1, 2008.  
 '47 **Bowerman, Francis R.**; July 10, 1998.  
 '47 **Mac-Lean, Douglas J.**; July 6, 2005.  
 '47 **Meier, Dale J.**; June 11, 1996.  
 '47 **Sturdevant, Clayton R.**; February 6, 2003.  
 '48 **Beder, Earl**; January 19, 1995.  
 '48 **Bloom, Justin L.**; November 19, 2005.  
 '48 **Dalton Jr., Robert D.**; May 11, 2010.  
 '48 **Dixon, William J.**; June 22, 2007.  
 '48 **Emerson, Frank M.**; July 18, 2004.  
 '48 **Harder, James A.**; December 30, 2006.  
 CA Γ '38 **Ward, Philip L.**; 2009.  
 '50 **Potter, Myron**; August 26, 2010.  
 '71 **Leach, M. Robert**; September 26, 2009.  
 CA Δ '43 **James, Lee B.**; no details.  
 CA E '57 **Potter, Ronald A.**; August 9, 2010.  
 '71 **Kingsley, William E.**; February 13, 2009.  
 CA Z '49 **Smith, Richard L.**; June 17, 2010.  
 CA H '59 **Mattingly, Marvin L.**; July 21, 2010.  
 CO A '52 **Newton, Bobby G.**; May 16, 2010.  
 CO B '46 **Frisch, Bernard E.**; June 4, 2010.  
 '59 **Eastman III, Harry O.**; no details.  
 CT A '42 **Whittemore, Robert N.**; no details.  
 '50 **Roessel Jr., Lawrence R.**; no details.  
 '55 **Vercellone, Peter T.**; September 4, 2010.  
 '56 **Ross, Donald J.**; May 30, 2010.  
 CT B '58 **Swatt, Edward P.**; September 23, 2010.  
 '60 **Oloughlin, James F.**; March 17, 2010.  
 DC B '59 **George, Theodore A.**; April 30, 2010.  
 FL A '57 **Schrade, Earl E.**; June 9, 1994.  
 '59 **Isaman, William C.**; August 27, 2002.  
 FL B '60 **Taub, Murray G.**; April 9, 1998.  
 GA A '58 **Herrman Jr., Charles C.**; April 26, 2002.  
 '59 **Minkin, Joseph L.**; November 23, 2002.  
 '60 **Grenga, Helen E.**; April 12, 2006.  
 IL A '41 **Ireland, Herbert O.**; no details.  
 '43 **Wong, Homer S.**; January 17, 2005.  
 '47 **Hattis, Russell E.**; no details.  
 '51 **Rosenberg, Alfred H.**; no details.  
 '58 **Carlston, Carl E.**; September 16, 2002.  
 '58 **Spafford, Michael L.**; January 27, 1985.  
 IL B '49 **Newman, Howard L.**; no details.  
 '51 **Bielak, Sigmund H.**; June 20, 2008.  
 '51 **Storer III, Edwin W.**; August 2, 2010.  
 '52 **Weinberg, Alfred**; no details.  
 '56 **Lister, John W.**; no details.  
 '57 **Gadbois, Richard D.**; no details.  
 '57 **Mayle, Bernard K.**; June 3, 2005.  
 '58 **McConahay, John B.**; April 30, 1998.  
 '60 **Givens, Shelby D.**; June 7, 1997.  
 IN A '41 **Westburg, Vernon B.**; no details.  
 '48 **Clark, Paul S.**; July 13, 2010.  
 '51 **Baxter, Alan J.**; no details.  
 '55 **Kishline, Samuel J.**; no details.  
 '56 **Keerbs, Gerald E.**; December 22, 2004.  
 '56 **Schmucker, James P.**; October 2, 2005.  
 IN B '57 **Frumpp, Clyde R.**; July 22, 2001.  
 IA A '39 **Durham, Charles W.**; no details.  
 '41 **Hoehn Jr., Alfred J.**; April 19, 2010.  
 '57 **Polenz, Daryl L.**; July 2, 2009.  
 IA B '38 **Jungjohann, Vernon H.**; May, 2010.  
 KS A '52 **Haworth, Lee O.**; September 17, 2010.  
 '56 **Dalton, Benjamin A.**; April 30, 2005.  
 '59 **Straub, Fred C. H.**; February 6, 2004.  
 '70 **Carrier, Christopher M.**; September 26, 2010.  
 KY A '39 **Hendry, Wickliffe B.**; no details.  
 '50 **Anderson, Ralph G.**; no details.  
 '65 **Conway, Leon T.**; no details.  
 LA A '59 **Averyt, Joseph H.**; August 16, 2000.  
 LA B '34 **Roehm, Jack M.**; July 15, 2010.  
 '50 **Groves Jr., Frank R.**; February 14, 2010.  
 LA Γ '56 **Wightman III, Charles E.**; October 14, 2008.  
 LA Δ '57 **Braquet, Merlin X.**; May 30, 2006.  
 ME A '45 **Parmenter, Robert H.**; June 3, 2005.  
 '49 **Dutton, Robert C.**; no details.  
 MD A '38 **Adams Jr., James B.**; August 6, 2010.  
 MD B '42 **Carpenter, Frank G.**; no details.  
 '67 **Smith, Barry B.**; June 16, 2010.  
 MA B '44 **Floden, John G.**; April 30, 2010.  
 '57 **Schachtman, Marshall G.**; January 31, 2002.  
 MA Z '59 **Sylvia, Theodore R.**; February 26, 2009.  
 MI A '41 **Giddings, George A.**; October 19, 2010.  
 '43 **Buwalda, Watson C.**; August 23, 2009.  
 '51 **Little, William A.**; no details.  
 '53 **Meyer Jr., Leslie C.**; no details.  
 MI Γ '38 **Schafer Jr., Vernon E.**; no details.  
 '64 **Rice, James E.**; August 7, 2009.  
 MI Δ '62 **Leffler, John E.**; April 2010.  
 MN A '37 **Cartwright, Paul A.**; May 31, 2009.  
 '42 **Bowers, Charles E.**; no details.  
 '43 **Geankoplis, Christie J.**; no details.  
 MS B '70 **Rollins, Martha M.**; November 10, 2003.  
 MO A '42 **New, John C.**; July 28, 2010.  
 MO B '42 **Kisslinger, Fred**; September 20, 2010.  
 '42 **McGhee, Vernon T.**; July 4, 2010.  
 '50 **Belew, Leland F.**; June 6, 2008.  
 '53 **Hansen, Peter G.**; no details.  
 MT A '30 **Johnson, Frithiof V.**; September 8, 2010. [Centenarian No. 73]  
 NE A '40 **Winter, Eva A.**; June 13, 2006.  
 NJ A '34 **Kanzaki, George A.**; no details.  
 '40 **Garbarini, Robert F.**; October 12, 2010.  
 NY A '42 **Hertwig, Waldemar R.**; April 1, 2010.  
 NY Γ '47 **Engel, Walter R.**; May 6, 2010.  
 '57 **McCabe, Peter S.**; September 2010.  
 '60 **Schwartz, William C.**; no details.  
 '67 **Repperger Jr., Daniel W.**; January 3, 2010.  
 NY Δ '66 **Backer, Donald C.**; July 25, 2010.  
 NY Z '43 **Oates Jr., Clifford**; September 27, 2010.  
 NY H '47 **Windman, Arnold L.**; June 19, 2010.  
 '48 **Rabinow, Jacob**; September 11, 1999.

- '59 **Sitomer, James L.**; July 14, 2010.
- NY Θ '56 **LeClair, John E.**; February 10, 2008.
- NY Λ '48 **Van Hare Jr., George F.**; October 6, 2008.
- NY N '92 **Szustak, Peter W.**; no details.
- NC A '61 **Henson, Benjamin H.**; December 8, 2009.
- OH B '47 **Ranz, William E.**; October 20, 2009.
- OH Γ '51 **Edwards, David A.**; no details.
- OH Δ '51 **Bode, Clarence A.**; September 19, 2010.
- '63 **Ferguson, Donald B.**; March 13, 2010.
- OH E '75 **Lowenkamp, Allen R.**; September 8, 2010.
- OH H '61 **Gamble, John T.**; 2010
- OH I '40 **Metcalf, Coburn C.**; no details.
- OR A '43 **Chaffin, Leo E.**; no details.
- PA A '58 **Geesey, Roger A.**; November 4, 2009.
- PA B '51 **Goodenow, Robert H.**; June 2010.
- '77 **Koszela, Paul J.**; no details.
- PA Γ '31 **Seanor, Rex C.**; February 26, 2010. [*Centenarian No. 67*]
- '51 **Mallory, Robert W.**; March 13, 2009.
- PA Δ '39 **Zahler Jr., Charles W.**; September 16, 2010.
- '08 **Chan, Jeremy G.**; 2010
- PA H '51 **Jack, Joseph E.**; no details.
- '51 **Shearer, Richard E.**; October 2, 2008.
- PA I '56 **McWilliams Jr., Thomas G.**; no details.
- SC A '82 **Hunter, S. Mark**; no details.
- SC B '67 **Young Jr., Ralph L.**; October 17, 2010.
- SC Γ '62 **Jackson, V. Brian**; no details.
- TN A '41 **Griscom Jr., Harry F.**; April 16, 2006.
- '43 **Shamblin, Henegar D.**; August 28, 2010.
- '44 **Hubbs, David R.**; no details.
- '49 **Anderson, Charles A.**; August 28, 2008.
- '49 **Kestner, William N.**; February 20, 2007.
- '50 **Harr, Minnis C.**; September 27, 2010.
- '50 **Pique, Munce M.**; July 20, 1995.
- '51 **Francisco, Dillard M.**; April 17, 2010.
- '54 **French, James L.**; April 21, 1997.
- '79 **Abraham, Thomas J.**; October 28, 2010.
- TN B '46 **Turnley Jr., Edmund W.**; September 27, 2008.
- '49 **Gwinn, Allen F.**; February 16, 1991.
- '55 **Smith, John W.**; October 2, 2010.
- TN Γ '86 **Schenk, William P.**; September 3, 2010.
- TX A '38 **Kasperik, Archie S.**; no details.
- '39 **Souther, Robert E.**; March 17, 1995.
- '42 **Fair, James R.**; October 11, 2010.
- '42 **Oneal, Marion B.**; September 11, 2002.
- '43 **Kovar, Wilbert J.**; no details.
- '47 **Folmar, Laurie W.**; March 26, 2007.
- '47 **McWherter, Robert C.**; September 16, 2008.
- '48 **Anderson, Ben H.**; November 1, 2003.
- '48 **Haws, Ray C.**; April 9, 2002.
- '49 **Salane, Harold J.**; March 19, 2000.
- '49 **Standley, Milton H.**; August 2, 2009.
- '49 **Younger Jr., Dewey G.**; July 16, 2010.
- '50 **Barnes, C. Glenn**; September 12, 2008.
- '50 **Burford, Louis C.**; July 9, 2009.
- '50 **Livingston, John W.**; March 20, 2006.
- '50 **Nicodemus, William F.**; November 19, 1991.
- '52 **Cooper, Norman R.**; no details.
- '53 **Barker, Calvin L. R.**; November 3, 2008.
- '53 **Chai, Hi-Chang**; October 22, 2001.
- '53 **Crocker, Clinton P.**; March 25, 2004.
- '53 **Draper, Robert L.**; March 21, 2003.
- '54 **Warner Jr., James L.**; July 13, 1998.
- TX B '49 **Reynolds, Charles W.**; June 1, 2003.
- '49 **Yuzbick, Raymond J.**; October 13, 1998.
- '51 **Bergan, Reuben A.**; September 18, 2010.
- '52 **Freels, Earl A.**; November 1, 2000.
- '52 **Walker, George P.**; May 15, 1998.
- TX Γ '40 **Spaw Jr., Louis D.**; no details.
- '44 **Rooke, David L.**; August 5, 2009.
- '49 **Bridges, Wilson B.**; December 12, 2004.
- TX Δ '38 **Collie, Robert M.**; June 2, 2000.
- '39 **Whiting, Robert L.**; May 4, 2005.
- '42 **Galloway, Bob M.**; November 29, 2009.
- '46 **Ervin, Burl H.**; February 20, 1995.
- '47 **Jones, Mortimer D.**; July 12, 2003.
- '49 **Jones, Wilbourne O.**; no details.
- '49 **Linn, Dudley P.**; June 7, 2002.
- '50 **Fromme, Gillig L.**; May 22, 2003.
- '53 **Ransdell, Clifford H.**; May 30, 2004.
- '54 **Bailey, Bobby G.**; February 15, 2004.
- '54 **Willis Jr., James E.**; January 3, 2005.
- '55 **Austin, James E.**; December 21, 2004.
- '77 **McQuien, Larry J.**; no details.
- UT A '39 **Stroh, Opal Y. C.**; April 5, 1999.
- '52 **Hensala, Walfred E.**; February 2, 2008.
- UT Γ '52 **Kahel, Martin**; no details.
- VA B '44 **Jones, Jane H.**; October 26, 2009.
- '44 **Pannill Jr., James K.**; February 1, 2010.
- '48 **Seay, Carlton E.**; May 22, 2008.
- '49 **Rhodes Jr., Clarence A.**; June 6, 2000.
- '50 **Nance, Robert E.**; September 15, 2010.
- '51 **Lilly, Weldon G.**; no details.
- '62 **Kennedy, Robert K.**; August 2010.
- WA A '40 **Putt, Gladyn H.**; May 2010.
- '42 **Eberstein, Clyde F.**; January 1, 2008.
- '43 **Yaplee, Harry S.**; no details.
- '44 **Lindell, Harry W.**; January 20, 2004.
- '47 **Wallstrom, Lloyd L.**; January 23, 2010.
- '50 **Chong, Antonio T.**; March 2, 1998.
- '50 **Detering, Haerman**; December 7, 2000.
- '50 **Webb, Sanford E.**; June 9, 2007.
- '51 **Pleger, Leland C.**; July 24, 1994.
- '52 **Brotten, Caroline S. L.**; May 6, 2009.
- '53 **Oakes, Glen K.**; May 8, 2010.
- '54 **Johnson, Warren C.**; December 1, 1994.
- '54 **Yoshinaka, Kenji**; July 17, 2007.
- WA B '49 **Carlson, Ernest R.**; December 2008.
- '49 **Sethre, Vernon C.**; April 12, 1995.
- WV A '50 **Foreman, A. Robert**; September 21, 2004.
- '53 **Moore, Theodore D.**; January 20, 2004.
- WI A '37 **Hoepfner, Conrad H.**; March 24, 2005.
- '43 **Hagensick, C. Gordon**; September 24, 1997.
- '51 **Meyer, Gerhardt E.**; March 11, 1997.
- '54 **Nord, Jay M.**; no details.
- '59 **Aasterud, Jon P.**; 2003.
- WI B '49 **Evans Jr., Walter J.**; November 1, 2001.
- '49 **McElroy, William J.**; February 22, 2009.
- '50 **Haig, John M.**; October 4, 2003.
- '53 **Rynning Jr., Alfred**; November 19, 2001.
- WY A '72 **Mangan, James J.**; October 7, 2009.
- ΣΤ E '44 **Gandee, Irvine E.**; May 13, 2010.
- ΣΤ Ψ '51 **Harris, Morley M.**; November 29, 2009.

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## EXECUTIVE COUNCIL MEETING

### The Executive Council met in Knoxville, TN, on June 12, 2010.

The selection of Dr. Robert E. Efimba, P.E., *MA B '63*, Chief Advisor to the District of Columbia Alpha Chapter, as the 2010 TBPI National Outstanding Advisor was accepted. District 9 Director Brenda A. Kramer, Chair of the 2010 Laureate Selection Committee, reported that her group had named five Laureates from 14 nominees. The selections of Dr. Merl Baker, P.E., *KY A '45*, as the 2010 TBPI Distinguished Alumnus and of Dr. Donna S. Reese, *MS A '79*, as the 2010 TBPI-McDonald Mentor were accepted.

The Council re-appointed as District Directors for 2010-13: L.J. Swett, P.E., A.J. Rovnan, C.G. Campbell, A.J. Flowerday, M.W. Ohland, R.C. Huck, J.C. Hill, J.G. Dabling, J.R. Burnett, S.E. Fable, and P.D. Homen, and for 2010-11: R.W. Mead. The Council voted Distinguished Service Awards to retiring District 9 Director C.W. Caldwell, *CA A '64*, and District 10 Director J.N. Comardelle, *LA A '01*, and a Resolution of Appreciation to retiring District 6 Director C.M. Gearheart, *KY B '04*.

The Council appointed Kassy M. Lum, *KY A '10*, Adrian R. Sullivan, *KS I '10*, and Brian R. Buisson, *LA E '06*, as Directors of Districts 6, 9, and 10, respectively, to terms ending 2013. Councillors reported on their attendance at District Spring Conferences with invited alumni and decided to hold a meeting of National Officers and Directors in Knoxville, TN, on June 11, 2011.

The Council voted Distinguished Service Awards to retiring Engineering Futures Facilitators J.A. Huggins, P.E., *FL A '96*, and I.H. Klestadt, *CA E '84*, and a Resolution of Appreciation to D. Truque, *FL O '04*. Engineering Futures Facilitators M.D. Czebatul, C.G. Gorzkowski, N.F. Gray, F.A. Leon, Dr. J.R. Luchini, P.E., L.A. Matta, J.M. Nolan, M.L. Peterson, and R.W. Pierce were re-appointed for 2010-13; and S.C. Dao, P.E., W.A. Hillard, M.D. Lauer, and R. Singhal were re-appointed for 2010-11.

Councillor Norman Pih reported on the meeting of the Engineering Futures Planning Committee in Phoenix, AZ, on May 1. George J. Morales, *FL E '06*, was appointed as an Engineering Futures Facilitator for a term ending June 2013.

Executive Director J.D. Froula reported that chapters had ratified the Constitution amendment from the 2009 Convention that now requires an Executive Council to take office within 11-14 months after its election. The Council reviewed and modified plans for the 2010 Convention to be held in King of Prussia, PA, on October 7-9. A proposal to allow more than one officer or director to serve as advisor to a committee was reviewed and will be sent to the Convention. The Council appointed a permanent Convention Chair and a Parliamentarian for the 2010 annual meeting.

The Council approved a petition to establish the Philadelphia, PA, Alumnus Chapter. The Council reviewed the preliminary petitions for new collegiate chapters from the

local engineering honor societies at the University of San Diego and Fairfield University, and Mr. Pih [actual: Vice President Solange C. Dao, P.E.] and Councillor Jonathan F.K. Earle, Ph.D., P.E., were named to represent the Council on respective inspection visits on September 16 and 23.

Councillor Earle reported on recent progress in the TBPI K-12 MindSET Program. The Council made modifications to a proposed draft of a new Fellowship/Scholarship brochure. Vice President Dao reported on the meeting of the Advisor Recruitment and Development Committee in Washington, DC, on May 22.

Project grants with cash awards were given under the Greater Interest in Government Program to the California Psi Chapter and South Dakota Alpha Chapter, and the local projects will be reported in later issues of *THE BENT*.

The Council received the report of the Trust Advisory Committee meeting on April 9 in Ft. Myers, FL. President L.A. Simonson reported on his visits with alumni in Arizona, California, Florida, Michigan, Texas, and Tennessee on behalf of the Financial Development Committee. The Council granted Resolutions of Appreciation to committee members R.W. Pierce, *WA A '70*, and C.W. McDonald, *NC I '74*, for their service on the FDC.

Mr. Froula reported on the status of the 2010 Alumnus Giving Program, on the status of the multi-state charitable-organization registration project, and on the various information-technology improvements; his third-quarter financial report of the fiscal year had been sent to the Council and was accepted. A contract had been signed with KODA Inc., to provide engineering job opportunities to TBPI members. The salary schedule for the Headquarters staff was modified in accordance with merit policy and the cost-of-living index. The Council approved the 2010-11 budget and a plan for the July 31 allocation transfers to the trust funds.

The Council established the Charles O. Forge Fellowship Fund with \$200,000 and the Forge Scholarship Fund with \$400,000 from a recent bequest. The Council added \$50,000 to the Convention Fund and \$10,000 to the MindSET Fund with the remaining Forge bequest. First priority for use of the earnings will be given to student members of the California Gamma Chapter.

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## The Executive Council met by teleconference August 6 and August 23 and in Orlando, FL, on September 11, 2010.

The Council appointed Dr. Darrell W. Donahue, *NC A '86*, to the Fellowship Board for a term ending in July 2011. The Council enthusiastically voted one TBPI Superior Service Award and three Resolutions of Appreciation to retiring advisors of the collegiate chapters.

The Council re-appointed Dr. Robert E. Efimba, P.E., Dr. Sally J. Steadman, and Barry I. Frost III to the Advisor Recruitment and Development Committee to terms ending in June 2011 and appointed Dr. Robert L. Ward, *OH I '88*, to the ARDC to a term ending in June 2012.

The Council appointed Kimberly R. Stillmaker, *CA P '08*, as District 15 Director to a term ending in June 2013 and voted a Resolution of Appreciation to Dr. M.W. Ohland, *FL A '96*, retiring District 8 Director.

The Council received the Membership Study Report for 2009-10 indicating that a significant number of engineering students continue to seem uninterested in TBPI membership.

A Project Grant with a cash award was given under the TBPI K-12 MindSET Program to the Michigan Gamma Chapter, and the local project will be reported in a later issue of *THE BENT*. Councillor Earle reported on recent progress in the program, including working with chapters to make contacts in their local school districts to be ready to start teacher training in the fall. The goal is to complete 20 training sessions during the year. The Council approved plans for a MindSET meeting of chapter representatives and school-district liaisons in Kansas City, MO, in November.

The Council reviewed and modified plans for the 2010 Convention to be held in Valley Forge, PA, and approved \$4,000 for a Convention social event and \$2,000 to conduct voting by text-polling contingent upon protected confidentiality of phone numbers. The Council decided to invite the TBPI Trust Advisory Committee to the annual business meeting.

## TBPI Directory

### Executive Council

**President Larry A. Simonson**, Ph.D., P.E., *SD A '69*, SDSM&T Foundation, 501 E. St. Joseph St., Rapid City, SD 57701.

(larry@tbp.org)

**Vice President Solange C. Dao**, P.E., *FL A '95*, 1110 E. Marks St., Orlando, FL 32803.

(solange@tbp.org)

**Councillor Jonathan F.K. Earle**, Ph.D., P.E., *FL A '65*, 8516 SW 20th Lane, Gainesville, FL 32607.

(jonathan@tbp.org)

**Councillor Jason A. Huggins**, P.E., *FL A '96*, 4701 Hickory Shores Blvd., Gulf Breeze, FL 32563.

(jason@tbp.org)

**Councillor Norman Pih**, *TN A '82*, # 10, 811 W. Cherry Ave., Flagstaff, AZ 86001.

(norman@tbp.org)

### International Headquarters

**Executive Director James D. Froula**, P.E., *TN A '67*, P.O. Box 2697, Knoxville, TN 37901-2697.

(tbp@tbp.org)

Executive Director Froula reported on the status of the 2010 Alumnus Giving Program and the multi-state charitable-organization registration project, and his preliminary fourth-quarter financial report of the fiscal year and his annual report were received by the Council. The Council reviewed the draft of the TBPI Trust Investment Policy and submitted it to the 2010 Convention for review. The Council received the preliminary auditor's report. The EC reviewed and suggested updates for the Trust Investment Reference Document.

The Council established the Marlin U. Zimmerman Jr., (*MD A '44*) Fellowship Fund to receive a large restricted bequest. The Council added \$70,000 to the Convention Fund from a recent payment from the Charles O. Forge, *CA I '56*, bequest to cover the cost of California Gamma delegates and advisors to attend the Convention. The Council made plans to restore the Stabile Scholarship Fund to its permanently restricted level by the end of the 2014-15 fiscal year. The Council approved the new Fellowship/Scholarship Program brochure with changes.

President Simonson and Mr. Froula reported upon the 30<sup>th</sup> consecutive TBPI Reception at the ASEE annual conference in Louisville, KY, on June 21.

The Council discussed focus areas and priorities of its strategic plan for the next four years.

## The Executive Council met in King of Prussia, PA, on October 6, 2010.

J.G. Dabling, R.L. Werneth, and D.A. Stirm were appointed to the Alumnus Recognition Selection Committee.

President Simonson reported on recent visits with alumni in Huntsville, AL, and King of Prussia, PA. Councillor J.F.K. Earle reviewed progress made toward the TBPI K-12 MindSET Program, and the Council approved funding for a MindSET meeting of chapter representatives and school-district liaisons in Kansas City, MO, in November.

Executive Director Froula reviewed the final program and logistical details of the 2010 Convention.

The auditor's report was accepted. The auditor's management letter was reviewed with respect to segregation of duties and the small size of the Headquarters staff. The Council authorized a feasibility study for a capital campaign to be completed and reported in June. The Council approved updates to the TBPI Trust Investment Reference Document.

The Council approved the inspection report of the visit to the petitioning group at the University of San Diego; that petition will be presented to the 2011 Convention. The Council reviewed the inspection report of the visit to a petitioning group at another university and decided that the petition was not ready for submission to the Convention.

The Council appointed members of a Search and Screen Committee, chaired by Russell W. Pierce, *WA A '70*, to review applications and nominations for TBPI Executive Director. Mr. Froula announced his planned retirement in October 2011.



## ALUMNUS NOTES

### Alabama Alpha

**Elizabeth C. Minor, '82**, has been joined in membership at the Auburn University chapter by son **William C. Minor, '09**.

### Alabama Beta

**Dr. Richard M. Hamner, P.E., '67**, is now president of the Green Mountain Soap Company in Huntsville, AL, first incorporated in 1992 to make an additive-free product.

**Dr. Erin Y. Akin, '98**, is now a veterinary neurology and neurosurgery resident at Auburn. She became a vet student, including studies at a game reserve in South Africa, after working for five years as a chemical engineer. She is also working on a master's in biomedical studies.

### California Gamma

**Alison L. Hu, '96**, is now senior manager for learning and organizational development at virtualization software provider VMware, Inc. She is a TBPI Laureate and served as Executive Councillor during 2002-06.

### California Rho

**Ronald E. Bourgault, '85**, has joined engineering design and consulting firm Mazzetti Nash Lipsey Burch (M+NLB) as associate principal and co-leader at the Denver office. He was formerly owner of ABS Consultants, Inc.

### Colorado Alpha

**Stephen R. Nelson, '75**, has retired to Vancouver, WA, and will continue selling and working with antique clocks, as well as playing the hammered dulcimer. This follows 30-plus years in technology licensing, and environmental remediation, which netted him six patents.



### Florida Gamma

**John B. Ramil, '78**, has been named as president and chief executive officer of TECO Energy Inc. He was formerly president and chief operating officer. Ramil first joined his firm as a cooperative education student with Tampa Electric in 1976 and joined the board of directors in 2008.



### Iowa Alpha

**Stephen R. Lorenc, '86**, has been named senior vice-president and general manager of diagnostic X-ray business for Philips Healthcare based in Hamburg, Germany. He has held a variety of positions in the past at GE Healthcare where he spent the first 19 years of his career, as well as Baxter and Covidien prior to taking on this role.

### Kansas Gamma

**Kyle R. Kuhlman, '05**, is an aviation hardware design engineer at Garmin in Olathe, KS.

### Maryland Beta

**John R. Mularski, '05**, received the space flight awareness launch honor award for his work in support of NASA's Space Shuttle and International Space Station programs at Johnson Space Center. He is a Barrios Technology employee, serving as an extravehicular activities task instructor and flight controller.

### Maryland Gamma

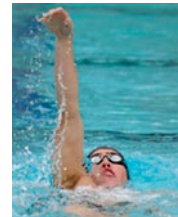
**Capt. Robert B. Dishman, '85**, is program manager for the U.S. Navy's persistent maritime unmanned-aircraft-systems program office, headquartered in Patuxent River, MD. He is



responsible for the development, production, fielding, and sustainment of all persistent maritime unmanned-aircraft systems. His operational assignments included service as a P-3 Orion pilot and squadron commanding officer.

### Maryland Delta

**Keilan G. Freeman, '11**, has been named to the *CoSida/ESPN The Magazine* academic all-America university division men's at-large second team. The junior swimmer was part of the 800-yard freestyle relay team that broke the



America East championship record for the third straight year at the 2010 America East swimming and diving championships.

### Massachusetts Beta

**Dr. Achille Messac, '80**, has been appointed as distinguished professor and chair of the department of mechanical and aerospace engineering in Syracuse University's L.C. Smith college of engineering and computer science. He moved from Rensselaer Polytechnic Institute in Troy, NY, where he was a professor in the department of mechanical, aerospace, and nuclear engineering.



### Michigan Gamma

**Dr. John R. Luchini, P.E., '71**, principal research scientist at Cooper Tire and Rubber Company, is among the 2010 ASME class of fellows. He served on the TBPI Executive Council during 1994-98.

### Montana Alpha

**Dr. Gary L. Lewis, P.E., '67**, has been

named as a senior professional associate by HDR Engineering in acknowledgement of his accomplishments as a water resource engineering consultant, professor, author, and forensic engineer. Dr. Lewis provides fluvial hydraulic engineering services to clients, including several major railroads. He is co-author of four editions of a hydrology textbook, adopted at more than 80 universities across the world.



#### Montana Beta

**Dr. Jennifer L. Miskimins, P.E., '90**, is an associate professor in the petroleum department of the Colorado School of Mines. She is director of the fracturing, acidizing, stimulation technology consortium. Dr. Miskimins is a consultant for various firms, having worked as a production engineer, production supervisor, and reservoir engineer.



#### New Jersey Delta

**Dr. Laura L. Forese, '83**, has been elected to the Princeton University board of trustees. She is the senior vice president, chief operating officer, and chief medical officer of the New York-Presbyterian/Weill Cornell hospital. Dr. Forese is responsible for all operations at the 781-bed medical and surgical hospital in Manhattan and the 276-bed psychiatric hospital in White Plains.

**Robert J. Saltiel, '85**, has been appointed president and CEO of Atwood Oceanics, Inc., an international offshore drilling contractor. Saltiel has more than twenty years of experience in the energy industry



and most recently was executive vice president and chief operating officer of Transocean Ltd.

#### New York Iota

**Stephen J. Wilkowski, '80**, recently marked 30 years of service with Alcatel-Lucent. He began his career with Bell Laboratories at Whippany, NJ, and is now working at Murray Hill, NJ.

#### Ohio Iota

**Dr. Nathaniel D. Bird, '03**, is now an assistant professor of computer science and computer engineering at Ohio Northern University's college of engineering. He is teaching programming, data structures, and operating systems courses, along with a new course on computer vision.

#### Pennsylvania Beta

**Dr. Ronald L. Baus, '72**, is retiring as a professor after completing 31 years of teaching soil mechanics, foundations, and pavements (now called geo-tech) at the University of South Carolina's college of engineering and computing.

#### Pennsylvania Kappa

**Karen J. Ohland, '83**, has been named by ASME to the voluntary position of vice president of financial operations for the knowledge and community sector. She is a financial administrator at the Metropolitan Museum of Art in New York City.

#### South Carolina Alpha

**Dr. James W. Klett, '90**, is shown demonstrating how a graphite foam he developed can quickly melt ice by transmitting heat from the hand holding the foam. He made the discovery at Oak Ridge National Laboratory in Tennessee. The foam has been welcomed as a possible "enabling technology" to solve heat rejection qualities in many areas. It can be used as a component in LED lights to help keep them cool.



#### Tennessee Alpha

**Russell D. Moorehead, P.E., '85**, has joined the Chattanooga, TN, office of engineering and architectural firm Barge Waggoner Sumner & Cannon, Inc., as senior project engineer. He is responsible for water and wastewater projects. Moorehead has 24 years of experience as a civil engineer with assignments including design, engineering, and project management.

#### Tennessee Beta

**Philip J. Page, '80**, is principal business consultant for automotive, aerospace and defense, and EPC industries at Dassault Systemes, at Gloucester, VA.

#### Washington Gamma

**Grant Erickson, '96**, is principal and founder of design and development company Nuovations. Before that, he was a senior engineer and project manager at Apple Computer, Inc., working on products including the iPod and iPhone.



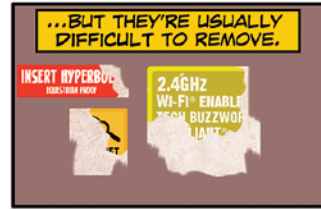
#### Correction

THE BENT [Fall 2010] incorrectly reported that Laureate **Jaclyn R. Kondratko, Indiana Delta '10**, is a member of the Indiana Alpha Chapter.

## WRITE YOUR OWN ALUMNUS NOTE!

Your fellow Tau Bates are interested in news about you. Send items about civic activities, honors won, weddings, births, promotions, changes in address, etc. to Tau Beta Pi, Box 2697, Knoxville, TN 37901-2697 or to [alumnote@tbp.org](mailto:alumnote@tbp.org). Material for publication must be received for the **Spring** issue by February 1, **Summer** issue by May 1, **Fall** issue by August 1, and **Winter** issue by November 1. Include name, address, chapter, class year, and email address or phone no. Thank you!

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*B.2(p)	SMALL BENT (PIN): •10K YELLOW GOLD.....72.00 •GOLD FINISH, SATIN BACK.....27.00		J.	EXPANDABLE TIE BAR, WITH ALLIGATOR CLASP AND 140mm CURB CHAIN, GOLD FINISH.....46.00		
*B.2(c)	SMALL BENT (CHARM): •10K YELLOW GOLD.....90.00 •GOLD FINISH, SATIN BACK.....14.00 <b>SALE PRICE</b>		K.	WOMAN'S SINGLE-LINK BRACELET, GOLD FINISH (BENT NOT INCLUDED).....44.00		
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F.	OFFICIAL RING (SEAL TYPE): •10K YELLOW GOLD.....395.00 •10K WHITE GOLD.....395.00		RI.	T-SHIRT: 100% PRESHRUNK COTTON, BLACK WITH RADIANT BENT, (XXL: 18.00) S-M-L-XL.....16.00		
G.	OFFICIAL SIGNET RING (WITH MINIATURE BENT): •10K YELLOW GOLD.....475.00		S.	T-SHIRT: 100% PRESHRUNK COTTON, WHITE WITH BLUE LOGO ON BOTH SIDES, S-M-L-XL-XXL.....13.00		
			T.	GOLF SHIRT, 100% WHT. COT. PIQUE, BLACK TRIM COLLAR & CUFFS, S-M-L-XL-XXL.....35.00		
			U.	UNSTRUCTURED, LOW-PROFILE, WHITE CAP WITH BLUE LOGO, TAU BETA PI ON SIDE.....14.00		
			U.2	UNSTRUCTURED, LOW-PROFILE, KHAKI CAP WITH BLACK LOGO, TAU BETA PI ON SIDE.....14.00		
			V.	TIE TACK, STERLING OVAL, w/ PIN & CLUTCH, NOT SHOWN (SEE WEB).....45.00		
			W.	UNSTRUCTURED, LOW-PROFILE CAP, WHITE CROWN WITH BLUE LOGO, BLACK VISOR (SEE WEB) <b>SALE PRICE</b> .....8.00		
			X.	HONOR CORD: WHITE & ORANGE GRADUATION CORD, NOT SHOWN (SEE WEB).....15.00		

\* FOR MEMBERS & RELATIVES

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# TAU BATES...

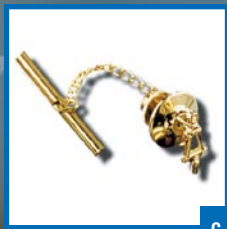
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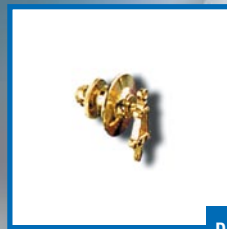
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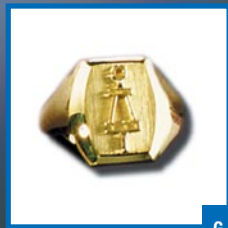
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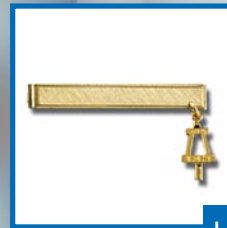
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