TACKLING THE NFL
MATT PATRICIA ’96—ENGINEERING THE DEFENSE FOR THE NEW ENGLAND PATRIOTS
The “Golden Cube” is a full-scale shelter designed and built in late spring by a group of third- and fourth-year architecture students, led by Associate Professor Gustavo Crembil and Ph.D. candidate Mae-Ling Lokko. It was created for the Chale Wote Festival in Ghana, a street art festival aimed at using dynamic public programming and creative arts to influence a new model for urban regeneration.
EMPAC unveiled a unique new sound system this spring. See page 6.

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Moving? Update your address via email at alum.mag@rpi.edu, or write to: Rensselaer Magazine, Office of Strategic Communications and External Relations, Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY 12180, or call (518) 276-2800.
On May 5, Rensselaer dedicated the auditorium in the Center for Biotechnology and Interdisciplinary Studies in honor of Howard Isermann ’42, to honor his remarkable accomplishments and generous philanthropy. “Today, we express our appreciation for all Howard has given to Rensselaer, as a philanthropist, a distinguished alumnus, a board member, and, above all, as an inspiration,” said President Shirley Ann Jackson.

Isermann is known for the development of the ultraviolet absorber that became the most effective sunscreen in the world. This development, in addition to preventing sunburn, has contributed to significant progress in skin cancer prevention. Isermann joined the Board of Trustees in 1986 and was named an honorary trustee in 1998. In 1989, the Institute named the Howard P. Isermann Department of Chemical and Biological Engineering in his honor. Through his fellowship fund, more than 200 graduate students have benefited from collaborative scientific research, empowering them to tackle the world’s greatest problems.
The Summer Arch

Giving students a taste of their future—before they reach graduation day

In 1824, when Rensselaer Polytechnic Institute was founded, higher education typically meant sitting on a stiff bench and passively listening to lectures. Students were presumed to be sponges for the absorption of conventional wisdom, which they would apply only after their education was complete. As you might imagine, innovation, discovery, and the genesis of new paradigms were not actively encouraged by such teaching methods. Yet, the United States was a resource-rich young country crying out for technological leadership, and for originality.

Our academic founder Amos Eaton had a radically different notion of how young leaders should be developed, and led a school that encouraged exploration. He was one of the very first educators in the world to offer organized instruction in field work, taking our students on arduous, weeks-long tours both on water and overland, in order to collect geological and biological samples, and to make and record observations. Rensselaer students also were among the first in the world to use laboratories as a systematic part of their education in chemistry, physics, botany, and zoology—laboratories well supplied with the cutting-edge apparatuses of the day, including microscopes, telescopes, and primitive batteries. Unsurprisingly, Eaton’s students, and the generations that followed, went on to invent, and to build, the physical, economic, communicative, and information infrastructure of the United States and, indeed, the world.

Today, Rensselaer continues to encourage exploration, to make our students active participants in their own learning, and to use different modes of teaching to spark unpredictable synergies and new ideas. One of the most transformative ways we are doing this is with the Summer Arch, which we will pilot next year.

With the Summer Arch, Rensselaer students spend the summer after their sophomore year on campus, engaged in junior-level classes, so that they can spend either semester of the traditional junior year away from campus—and still graduate within the same time span. Unconstrained by a classroom schedule, our students will spend their away semester engaged in a project of their own choosing that uses their accumulated knowledge and passion for learning.

We expect our students to benefit greatly, both personally and professionally, from both piers of the Summer Arch. The summer on campus, when they will be the only undergraduate class here, will afford them the undivided attention of their professors and our Student Life staff, at an important pivot point to advanced courses and a more outward career-oriented focus. Our Center for Career and Professional Development also will be extremely focused on them, readying them for a semester away with programs, panels, and networking opportunities that give them a deeper sense of potential career paths.

They also will have the opportunity to take advantage of the culturally and recreationally rich summer season in the Capital Region, which they might otherwise never experience. Their time away then will be spent in their choice of internship or co-op position, volunteer position, international travel, research, entrepreneurship—or in an adventure that involves some combination of these. We want our students to have the opportunity to launch a start-up, or to work in a health-care clinic in the developing world, or to help NASA to land humans on Mars—to have the galvanizing experience, within their college careers, of using what they have learned at Rensselaer, out in the world. When they return to Troy, we expect them to share new insights and skills with their peers, and to contribute to the vibrancy of the campus in new ways. When they graduate, they will be even better prepared for graduate school, a job in a major enterprise, military or public service, or for starting their own original ventures.

Indeed, the global companies that recruit Rensselaer graduates are enthusiastic about having our students for longer than a summer internship, and several of them are working with us to create new opportunities specifically for Rensselaer juniors.

The Summer Arch will launch, as a pilot, in the summer of 2017, with rising juniors from the School of Engineering and the Lally School of Management who volunteer for it. In 2018, students from all five schools will be eligible to participate. In 2019, the Summer Arch will be established as a fundamental characteristic of a Rensselaer education, with required participation of all rising juniors.

Rensselaer graduates always have changed the world. With the Summer Arch, we will give our students a sense of the possibilities—and of their own immense powers—before they reach graduation day.

An already extraordinary education is about to become even more remarkable.
To learn what different cells do, scientists switch them on and off and observe the effects. There are many methods that do this, but they all have problems: too invasive, too slow, or not precise enough. Now, a new method to control the activity of neurons in mice, devised by scientists at Rensselaer and Rockefeller University, avoids these downsides by using magnetic forces to remotely control the flow of ions into specifically targeted cells.

Jonathan Dordick, the Isermann Professor of Chemical and Biological Engineering and vice president for research at Rensselaer, and colleagues successfully employed this system to study the role of the central nervous system in glucose metabolism. The findings suggest that a group of neurons in the hypothalamus plays a vital role in maintaining blood glucose levels. Glucose metabolism is fundamental to human health, and a mechanism for controlling metabolism through remote activation of specific regions of the brain may provide new routes to therapies for a range of important diseases.

“These results are exciting because they provide a broader view of how blood glucose is regulated—they emphasize how crucial the brain is in this process,” says Jeffrey Friedman ’77, Marilyn M. Simpson Professor and head of the Laboratory of Molecular Genetics at Rockefeller.

“We can imagine adapting this method in a number of in vitro applications in drug discovery,” says Dordick. “Depending on the type of cell type we target, and the gene expression we enhance or decrease within that cell, this approach holds potential in development of therapeutic modalities, for example, in metabolic and neurologic diseases.”

Previous work led by Friedman and Dordick tested a similar method to turn on insulin production in diabetic mice. The system couples introduction of a natural iron storage particle, ferritin, and a fluorescent tag to an ion channel called TRPV1. Ferritin can be affected by forces such as radio waves or magnetic fields, and its presence tethered to TRPV1 can change the conformation of the ion channel.
The Curtis R. Priem Experimental Media and Performing Arts Center (EMPAC) has debuted a unique new system that explores the relationship between sound and space.

“Think of it like a pebble dropping into a pond,” says EMPAC’s lead audio engineer Todd Vos, describing the way a sound wave emanates from one of the speaker heads in the system. Now picture 500 tiny speakers arranged in a continuous ring around the room. As every one of those speakers casts sound into the room, the waves overlap and intersect, creating a dense, three-dimensional, immersive sound environment for a listener to explore.

This is a simple way to imagine the effect of “wave field synthesis”—the math behind the concept is significantly harder. Even harder is the process of constructing such a system, of which only a handful exist in the world.

To distinguish wave field synthesis from other more-common types of surround sound, EMPAC director Johannes Goebel, who tasked Vos and his team with construction of the array, uses a photographic analogy. Most audio systems create something like a snapshot of sound, mixing discrete elements together to imitate what is heard in real life. Wave field synthesis actually models the sound environment in its full complexity—more like a hologram. Within the wave field, there is no “sweet spot” where the mix is just right; one may actually move around in the sound space and find equal resolution in all places, the same as if one were to walk around a concert hall during a live performance.

What is significant about EMPAC’s new system is the very small size of the speakers and their very close proximity (5 centimeters apart). This allows the system to integrate a higher frequency range into the wave field (up to 6 kilohertz). This high range is important because it is the higher frequencies of human hearing that allow us to spatially locate the source of sounds around us. (In contrast, think of the more generalized, enveloping effect of deep bass.)

This spring, EMPAC hosted audio researcher Markus Noisternig, of the Paris-based IRCAM, to help implement software for the system, and Rensselaer graduate arts student Zach Layton took the rig for its first test drive. 512 Voices was a performance that used the voice of soprano Amelia Watkins to generate the effect of a full choir, situated around the audience, who were encouraged to move around in the space. Beginning this fall, several multichannel electronic composers will be in residence at EMPAC to work with the system with the goal of developing new pieces that take full advantage of the system’s spatial effects.
President Jackson Receives National Medal of Science

President Shirley Ann Jackson has been presented with the National Medal of Science, the highest honor for scientific achievement bestowed by the United States government. It was presented by President Barack Obama in a White House ceremony in May. The award honors individuals deserving of special recognition for their outstanding cumulative contributions to knowledge in the physical, biological, mathematical, engineering, or behavioral or social sciences, in service to the nation.

“These scientific laureates exemplify the American spirit and ingenuity that have enriched our society and the global community in profound and lasting ways,” President Barack Obama said at the ceremony. “Their ambition and accomplishments are an inspiration to the next generation pursuing careers in the essential fields of science, technology, engineering, and math.”

“Dr. Jackson is a deserving recipient of the nation’s pre-eminent award for research and leadership in science,” says Arthur Gajarsa ’62, chairman of the Rensselaer Board of Trustees. “She has been the driving force behind establishing a new model for scientific and technological education at Rensselaer. Due to her leadership, we continue to be counted among the top universities in the world, while breaking new ground in terms of our research linked to global challenges, leading-edge pedagogical innovations, and an integrated transformative student experience.”

She has served as the 18th president of Rensselaer Polytechnic Institute since her appointment in 1999. At Rensselaer, President Jackson has undertaken a transformation of the university’s pedagogical approach with the implementation of The New Polytechnic, emphasizing collaboration across disciplines, sectors, and regions to address key intersecting challenges and opportunities in energy security, health, food, water, and national security, as well as the linked challenges of climate change and allocation of scarce resources so critical to our future.

In 2014, President Obama appointed President Jackson as co-chair of the President’s Intelligence Advisory Board, which assesses issues pertaining to the quality, quantity, and adequacy of intelligence activities. In addition, she sits on the Secretary of State’s International Security Advisory Board and the Secretary of Energy Advisory Board. From 2009 to 2014, she served on the President’s Council of Advisors on Science and Technology, which assists the White House in policy formulation in the many areas of science, technology, and innovation that are crucial to strengthening the economy and increasing opportunity.

In 2011, she co-authored a report to the president offering an overarching strategy for revitalizing the leadership of the nation in manufacturing.

At a White House ceremony in May, President Jackson was presented the National Medal of Science by President Barack Obama.

Physics, Applied Physics, and Astronomy

Exploring Phosphorene

Two-dimensional phosphorus, a material known as phosphorene, has potential application as a material for semiconducting transistors in ever faster and more powerful computers. But there’s a hitch. Many of the useful properties of this material, like its ability to conduct electrons, are anisotropic, meaning they vary depending on the orientation of the crystal. Now, a team including researchers at Rensselaer has developed a new method to quickly and accurately determine that orientation using the interactions between light and electrons within phosphorene and other atoms-thick crystals of black phosphorus.

Phosphorene—a single layer of phosphorous atoms—was isolated for the first time in 2014, allowing physicists to begin exploring its properties experimentally and theoretically. Vincent Meunier, head of the Department of Physics, Applied Physics, and Astronomy and a leader of the team that developed the new method, published his first paper on the material—confirming the structure of phosphorene—in that same year.

“This is a really interesting material because, depending on which direction you do things, you have completely different properties,” says Meunier, a member of the Rensselaer Center for Materials, Devices, and Integrated Systems (cMDIS).

Meunier says that Raman spectroscopy uses a laser to deliver energy toward the phosphorene that causes it to vibrate intrinsically. However, lighting the material from different directions would produce varying results because of the electron and light interaction within the material. With this, the electron-photon interaction, in itself, is anisotropic as well.

Meunier and researchers at Rensselaer contributed to the theoretical modeling and prediction of the properties of phosphorene, drawing on the Rensselaer supercomputer, the Center for Computational Innovations, to perform calculations.
BIOMEDICAL ENGINEERING

Historic Fossils Tell the Story of Ancient Proteins

A FEW SNIPPETS OF PROTEIN EXTRACTED from the fossil of an extinct species of giant beaver are opening a new door in paleoproteomics, the study of ancient proteins. Ancient proteins can be used to place animals on the evolutionary tree, and could offer insights into how life and Earth’s environment have evolved over time. Typically, paleoproteomics relies on fossils collected for the purpose. But in a paper published recently in the Proceedings of the Royal Society B, researchers at Rensselaer used a fossil collected more than 170 years ago in central New York.

“Paleoproteomics is a young field. We don’t yet know the full potential of the information it may offer us, and one barrier to that is the supply of fossils we can call upon for research,” says Deepak Vashishth, professor of biomedical engineering and director of the Center for Biotechnology and Interdisciplinary Studies. “In developing these techniques, we’re creating new value in fossils that are already on exhibit, or sitting in storage waiting for a purpose.”

The first fossil skull of Castoroides ohioensis ever found. Collected more than 170 years ago in central New York, the giant beaver skull, housed at the New York State Museum, is the oldest museum-curated bony specimen to have been studied using paleoproteomic tools. The researchers were searching for proteins, chains of amino acids assembled from instructions encoded in DNA that perform a wide variety of functions in living organisms. Using mass spectrometry analysis, researchers detected many samples of collagen 1, the most common protein in bone.

The big challenge to drawing upon existing fossil collections is that they weren’t collected for the purpose of paleoproteomics, and they may not have been stored in conditions optimal to protein extraction and analysis techniques.

When researchers studied the giant beaver skull, the first thing they noticed was that it appeared to have varnish, a common treatment used to preserve fossils, applied to the outside of it. To avoid the varnish (which is itself organically based), they took samples from the nasal cavities of the skull. They removed a small sample of bone, extracted the preserved proteins, digested with enzyme, and analyzed the protein pieces with mass spectrometry.

The analysis determined the primary sequence of amino acids in the protein detected, as well as post-translational modifications, chemical changes on the surface of the protein that are not defined by DNA.

A database of primary protein sequences could be useful in clarifying evolutionary trees, in reverse engineering proteins to understand how particular proteins evolved over a period of time, or in “reviving” a sequence that may be nonexistent now for therapeutic use.

ATHLETICS

Student-Athlete Receives Arthur Ashe Sportsmanship Award

RENSSELAER STUDENT-ATHLETE EMILY LAURILLIARD ’16 has received the ITA/Arthur Ashe Leadership and Sportsmanship Award for the Northeast Region. The prestigious honor is given annually to collegiate students who have shown great achievements on and off the court. The award takes into account a player’s tennis accomplishments, scholastic achievements, and extracurricular endeavors.

“Being a student-athlete at RPI helped me grow in all aspects of my life including academics, leadership, and service,” says Laurilliard, one of only four regional honorees and a finalist for the national award. “Tennis has shown me that if you are passionate about what you do and continue to work hard at it despite winning or losing, you will be successful.”

The team’s captain, Laurilliard was named All-Liberty League in both doubles and singles this season. A biomedical engineering major with a concentration in biomaterials, she was on the Dean’s List every semester on her way to earning multiple Liberty League All-Academic and ITA Scholar Athlete awards. She conducted research while on campus as well as during separate internships with Regeneron Pharmaceuticals Inc. At Rensselaer, she was an undergraduate research assistant who worked on developing a synthetic anterior cruciate ligament (ACL). She also assisted in the effort to discover new methods to sort differentiated adult stem cells.

Laurilliard played an active role in volunteering, assisting with food drives, Special Olympics, area junior tennis tournaments, and the youth tennis organization 15-LOVE. In addition to the on-court instruction with 15-LOVE, she also spoke with high school participants about college preparation, choosing a major, and playing collegiately.
How did Donald Trump become the 2016 Republican nominee for president of the United States? It’s a common question these days, and scientists at the Network Science and Technology Center (NeST) at Rensselaer say the answer can be found in social opinion dynamics and the influence of a committed minority.

The scientists—Boleslaw Szymanski, NeST director and the Claire and Roland Schmitt Distinguished Professor of Computer Science; Chjan Lim, professor of mathematical sciences; and William Pickering, doctoral student in mathematical sciences—used mathematical models to investigate how opinions spread when there is unusual dissent or diversity. That was the case for much of the 2016 Republican primary season, which began with 17 candidates seeking the party’s nomination.

The scientists found that, under such circumstances, members of a small, committed minority can quickly spread their opinion to those who are uncommitted. In addition, the success of the committed minority increases with the diversity of opinion among the uncommitted group. The more fragmented the group, the easier it is for the group to be influenced by a smaller number of committed members.

“In a situation where there are many small groups and no dominant opposition, stability is broken. Sooner or later, one of the small minorities will win,” Szymanski says. “Too much dissent between individuals makes them susceptible to even a few zealots.”

“This division of the majority opinions allows for even initially small committed groups to thrive,” Lim says. He stressed, however, that the research could not predict which committed minority opinion would become dominant.

The team used a new variation on the Ehrenfest urn model to assess the impact of zealots on a larger group. Developed in 1907 to explain the diffusion of gas molecules between two urns, the Ehrenfest model has since served as the basis for other generalizations in physics. The Rensselaer team has extended the application of the Ehrenfest model by inventing a new class of similar urn models to study problems in sociology and biology.

The recent findings complement Szymanski’s earlier research on the tipping point required for the spread of ideas. That research found that if just 10 percent of the population holds an unshakeable belief, the belief will always be adopted by the majority of society.

The 10 percent tipping point applies when there are two competing opinions. The new research indicates that the tipping point will fall below 10 percent when society holds a wide variety of opinions on the given subject. In fact, the greater the diversity of opinion, the lower the tipping point.

“In a situation where there are many small groups and no dominant opposition, stability is broken. Sooner or later, one of the small minorities will win,” Szymanski says.
In June, President Barack Obama announced that the Smart Manufacturing Leadership Coalition (SMLC) will lead the new Smart Manufacturing Innovation Institute, in partnership with the Department of Energy (DOE).

The winning coalition brings together a consortium of nearly 200 partners from more than 30 states—and from across academia (including Rensselaer), industry, and non-profits—to spur advances in smart sensors and digital process controls that can radically improve the efficiency of U.S. advanced manufacturing.

The Smart Manufacturing Innovation Institute, the ninth manufacturing hub awarded by the Obama Administration, will focus on innovations such as smart sensors that can dramatically reduce energy expenses in advanced manufacturing, making our manufacturing sector strong today and positioning the United States to lead the manufacturing of tomorrow, helping sustain the resurgence of U.S. manufacturing currently underway.

Headquartered in Los Angeles, the Smart Manufacturing Innovation Institute also will launch five regional manufacturing centers across the United States, each focused on local technology transfer and workforce development. Rensselaer will lead the Northeast center, where glass, ceramic, and microelectronics manufacturing have a strong presence.

Rensselaer will be responsible for administering the center for the DOE Clean Energy Smart Manufacturing Innovation Institute (CESMII) programs, involving regional partners from industry, academia, and government. Overall, the CESMII partners will bring more than $140 million in public-private investment from leading universities and manufacturers to develop smart technologies and systems for use in advanced manufacturing.

“Advanced manufacturing is accelerating the translation of U.S. innovations in science and technology into new products and processes, and helping to create jobs across all technology sectors,” says President Shirley Ann Jackson. “We are very pleased that Rensselaer has been selected to lead the Northeast center of a new Smart Manufacturing Innovation Institute, and to contribute even more vigorously to the revitalization of our nation’s manufacturing base.”

“At Rensselaer, we work within a paradigm that we term The New Polytechnic, in which we serve as a great crossroads for collaboration—working with partners across disciplines, sectors, and geographic regions—to address complex global challenges, using the most advanced tools and technologies, many of which are developed at Rensselaer,” President Jackson says. “The leadership we provide to the Smart Manufacturing Innovation Institute will be the finest possible example of The New Polytechnic in action.”

Craig Dory, who currently serves as director for business development in the Center for Automation Technologies and Systems at Rensselaer, will serve as the Northeast Regional Director for CESMII. Modeling, design, and controls expert B.Wayne Bequette, professor of chemical and biological engineering, will serve as the chief technology officer for the Northeast region, planning and coordinating R&D activities with academic and industrial partners.
Rensselaer Startup Wins NY Business Plan Competition

Rensselaer startup Dual:Lock won this year’s New York Business Plan Competition (NYBPC) and a $100,000 grand prize. The startup is the creator of an external gun retention system allowing safe and fast access to a loaded weapon through biometric sensor technology. Team Dual:Lock members include Timothy Oh ’17, mechanical engineering, and Rachel Dyment ’17, mechanical engineering and design, innovation, and society.

The timing of Dual:Lock’s technology aligns with President Obama’s recent announcement that his administration will move on multiple fronts to save lives by encouraging the development of “smart gun” technology that allows only the owner of the gun to operate it safely.

The NYBPC is a venture creation and innovation competition that was established in 2010 to encourage innovation and entrepreneurship throughout New York’s colleges and universities. Eighty-six teams from 27 colleges and universities presented at the competition.

“The startup success of Dual:Lock is a true testament to the extraordinary and supportive ecosystem of entrepreneurship at Rensselaer,” says Jason Kuruzovich, faculty director of the Paul J. ’69 and Kathleen M. Severino Center for Technological Entrepreneurship. “We congratulate them and the other Rensselaer teams who won awards at the NYBPC and look forward to continuing to see them grow and develop their companies.”

Team Dual:Lock’s winning idea focuses on a conveniently placed stainless-steel sleeve or “safe” into which gun owners will slide and lock their fully armed, ready-to-use pistols. At the top of the “safe” is a biometric scanner—the location of this sensor places the user’s hand in a ready-to-fire position—that releases the lock the instant it recognizes the gun owner’s registered thumbprint. The gun can be accessed in less than a second in the event of an emergency. This technology can sharply reduce firearms injuries caused by unauthorized or unintended users, including suicide victims, especially youths, and children who encounter loaded guns in the home, and criminal suspects who get their hands on officers’ weapons.

Dual:Lock already has a working prototype, a patent, and letters of intent from eight national distributors. The team expects to sell the device at about $250 each and is working on versions to secure holster-mounted handguns as well as a model to safely secure rifles.

The team has also worked with the Los Angeles Police Department and law enforcement, military, and civilian gun owners. Dual:Lock did beta testing of its product with the Los Angeles Police Department this summer.

BIOCATALYSIS AND METABOLIC ENGINEERING

Advancing Metabolic Engineering

Discovery of rules that govern a variation of the CRISPR/Cas9 gene-editing method makes it possible to use living cells to manufacture valuable metabolic compounds like pharmaceuticals and nutraceuticals. Researchers working in the Center for Biotechnology and Interdisciplinary Studies have developed new tools for controlling the signaling pathways in cells to manufacture compounds, dialing down production of unwanted compounds, and increasing production of valuable compounds.

The research describes an aspect of the CRISPR/Cas9 gene-editing method, which makes use of dCas9, a disabled protein. Specifically, the researchers describe how to vary a snippet of RNA to create multiple tools that use dCas9, each with the ability to block activity at a single site along complex multi-step signaling pathways, with no crosstalk.

“The pathways are complex and we must be able to hit multiple parts in any pathway to keep the cell alive and control output,” says Robert Linhardt, Ann and John H. Broadbent Jr. ’59 Senior Constellation Professor of Biocatalysis and Metabolic Engineering. “So now we can create a significant number of tools—in the dozens—which are based on the same promoter and can be controlled independently.”

The CRISPR/Cas9 system is derived from a natural defense bacteria employ against familiar viruses. “Clustered regularly interspaced short palindromic repeats,” or CRISPR, is bacterial DNA that contains segments of viral DNA from previous exposures. When known viral DNA invades the cell, bacteria use CRISPR to produce a snippet of “guide RNA” that will match with, or complement, the viral DNA. The guide RNA is coupled with the Cas9 protein complex, which can cut DNA. Thus equipped, the Cas9 is able to unzip, latch on, and cut the complementary viral DNA, thereby disabling it.

CRISPR/Cas9 has been used in health applications, such as disabling specific genes to produce transgenic animals for research. It also holds enormous potential as a means of controlling signaling pathways, the complex chemical communications by which cells perform most functions and make necessary substances.
Burt Swersey Inventor’s Studio

Honoring an “Entrepreneurship Guru”

Rensselaer has received a significant gift from The Lemelson Foundation to establish the Burt Swersey Inventor’s Studio, reinforcing the next generation of inventors and entrepreneurs. The studio was formally dedicated at a campus ceremony May 6.

Burt Swersey, who served as a lecturer in the School of Engineering’s Department of Mechanical, Aerospace, and Nuclear Engineering for more than 25 years, passed away in March 2015. Swersey was an innovation and entrepreneurship guru—a legendary teacher and mentor who lit the flame in many Rensselaer students to make a positive difference in the world. He believed that innovative technological solutions led to a better and more sustainable world.

His ability to motivate and engage students, and his dedication to advising, counseling, and mentoring, was unequaled. He taught the next generation of innovators how to identify problems and seek creative solutions so that they can have a positive impact on people’s lives.

“Burt Swersey believed in the power of Rensselaer students to change the world,” says President Shirley Ann Jackson. “He was a truly magnificent teacher, who inspired many talented young men and women to push beyond their perceived limits, and to address, with confidence and courage, the grandest of challenges. We are so pleased that The Lemelson Foundation has ensured that his great spirit lives on at Rensselaer in the Burt Swersey Inventor’s Studio.”

The endowment of $500,000 from The Lemelson Foundation will establish the Burt Swersey Inventor’s Studio, supporting activities that pay tribute to Swersey’s work and his vision. The studio will host classes that focus on innovation, and students will have access to maker/tinker tools, such as 3-D printers, computer-aided design systems, and more, which are located across the campus.

“Jerry Lemelson, founder of The Lemelson Foundation, believed in the potential of young inventors to improve lives by solving the big social and economic challenges of our time,” says Carol Dahl, executive director of The Lemelson Foundation. “Burt Swersey made that vision a reality. We are pleased this vision will be extended through the Burt Swersey Inventor’s Studio, providing opportunities for Rensselaer to cultivate inventors and innovators for generations to come.

We can’t wait to see how these students change the world.”

Sanguine: A Low-Cost, Self-Testing Blood Storage System

Adequate and equitable access to safe blood remains a global issue. In developing countries, high costs associated with testing and shipping blood prohibit millions of people from receiving blood. Further, according to the World Health Organization, the prevalence of transfusion-transmitted infections (e.g., HIV) in low-income countries has been over 50 times higher than that of high-income countries. Attempting to tackle this critical problem, a student of the Rensselaer Inventor’s Studio has designed and formed a startup company around a blood donation storage bag combined with key diagnostic components targeted for blood donation.

Inexpensive, reliable, industry-standard safety features incorporated into this point-of-care diagnostic platform could more readily provide universal access to a life-saving resource while decreasing the risk of donating transfusion-transmitted infections.

To learn more, go to www.rpitechnology.com or email otc@rpi.edu.

3-D Cell Chirality Culture System

Chiral structures are consistently observed throughout nature, from the spiraling of snail shells to the looping of cardiac tissue during early development of the heart. Chirality, also referred to as left-right asymmetry, is an intrinsic property of multiple mammalian cell lines, yet studies conducted on two-dimensional culture systems may not fully represent the complexity of tissue development within three-dimensional (3-D) beings. A team from the Rensselaer Department of Biomedical Engineering has created a robust, cost-effective, 3-D culture system to study cellular behavior mimicking a more natural tissue environment.

Combining this new system with different imaging modalities enables biomedical research in several applications, including toxicity screening, birth defect screening, high-throughput screening, cancer diagnostics, and several other developmental biology areas.

Burt Swersey and family attended the ribbon-cutting for the new classroom in May.
Nanophotonics expert and physics professor Shawn-Yu Lin has been selected to receive the 2016 Institute of Electrical and Electronics Engineers (IEEE) Nanotechnology Council Pioneer Award in Nanotechnology “for pioneering contribution to the development of 3-D optical photonic-crystals and the discovery of the darkest nano-material on Earth.”

The darkest material was discovered by Lin and his team in 2008. The material, a thin coating comprised of low-density arrays of loosely vertically aligned carbon nanotubes, absorbs more than 99.9 percent of light and could one day be used to boost the effectiveness and efficiency of solar energy conversion, infrared sensors, and other devices. The research has been recognized by the Guinness Book of World Records.

The total reflectance of conventional black paint, for example, is between 5 and 10 percent (or absorptance of between 95 and 90 percent). The darkest man-made material, prior to the discovery by Lin’s group, boasted a total reflectance of 0.16 percent to 0.18 percent (or absorptance of 99.84 to 99.82 percent).

Lin’s team created a coating of low-density, vertically aligned carbon nanotube arrays that are engineered to have an extremely low index of refraction and the appropriate surface randomness, further reducing its reflectivity. The end result was a material with a total reflectance of 0.03 percent (or absorptance of 99.97 percent)—more than three times darker than the previous record, which used a film deposition of nickel-phosphorous alloy. Lin’s darkest material has a higher absorptance than the recently reported value of 99.965 percent by Surrey Nanosystem. The original darkest material from Rensselaer is still the darkest man-made nano-material on Earth.

“Shawn is richly deserving of this award that recognizes his work toward generating an extremely unusual—and up to that point, what was expected to be unattainable—material that has applications in photonics, electronic materials, and solar energy capture,” says Jonathan Dordick, vice president for research and the Howard P. Isermann Professor of Chemical and Biological Engineering at Rensselaer.

“Shawn’s work represents a clear example of Rensselaer research excellence at the confluence of physics and engineering, which is transformative in pure scientific knowledge generation with real-world applications.”

Lin has earned international recognition for his pioneering work in developing photonic crystals. His recent scientific breakthroughs include the discovery of extreme light-bending by negative-refraction for solar harvesting and the discovery of super-Planckian thermal radiation in 3-D photonic-crystals.

Results show that the tailored light treatment significantly improved sleep, significantly reduced depression, and significantly reduced agitation in Alzheimer’s patients. Both depression and agitation scores remained significantly lower after removal of the intervention, suggesting a beneficial carryover effect of the light.
MAKING A DIFFERENCE
Together, Alumni Are Supporting Students

On campus and across the globe, aided by alumni, Rensselaer students contribute to a vibrant student experience and devise innovative solutions to larger problems, including clean water and sustainability. Gifts to Let’s Go Red, the Rensselaer Alumni Association, and the weR Gold microgrant program position Rensselaer students to make a big impact.

In its fourth year, the weR Gold crowdfunding platform connects donors with student projects. Sonia Reigles ’03 and her husband Damon Reigles ’99 have supported 10 projects, including an interdisciplinary speaker series for the American Society of Civil Engineers, and new chairs and tables for the Clubhouse Pub, where they relaxed as undergraduates.

One project—the Rensselaer Chapter of Engineers Without Borders’ work designing, implementing, and monitoring a rainwater catchment system to provide a sustainable source of clean drinking water for a small community in Panama—has resonated deeply with the couple. Growing up in Ecuador, Reigles recalled that her mother boiled their drinking water daily. “It was very touching to see how RPI students could apply what they learned in the classroom and actually go and solve a problem,” says Sonia.

Last year, a team of six Rensselaer students spent 10 days in Panama working on the system, and testing the water. More than 75 alumni have provided needed funds to cover travel costs and to prototype biosand filters residents will use to reduce bacterial content in the water.

On campus, another recently completed weR Gold project addresses a different global challenge: reducing waste. “We can really make a difference here in our community just by promoting refillable water bottles,” says Alex Fox ’16. This semester, students have access to new water bottle-filling stations in the Student Union Building, Sage Laboratory, and the Darrin Communications Center, funded by alumni.

Through Let’s Go Red—a sports booster organization at Rensselaer—alumni help cover the cost of team travel, indoor practice facility fees, and equipment for Rensselaer’s 23 intercollegiate athletic teams. Sondra Pacey ’05 directs her donation to her former team, explaining, “I appreciate what RPI Field Hockey and Coach Bridget LaNoir ’99 brought to my college experience.” To date, approximately $250,000 has been raised through Let’s Go Red. “The Let’s Go Red Fund provides a better athletic experience for students,” says Jason Kasdorf ’16, now an NHL goaltender with the Buffalo Sabres.

Marshaling the strength of the nearly 100,000 alumni base, the Rensselaer Alumni Association (RAA) recently donated $250,000 for a new scholarship, with the goal of growing the fund to $1 million by December 2017.

“This scholarship fund acknowledges that Rensselaer is a leader in providing an excellent and rigorous technological education, and allows us to support students as they pursue and complete their education with much-needed financial support,” says Theresa Kozikowski ’85, president of the RAA.
PATRICIA SEARCH, professor of communication and media in the School of Humanities, Arts, and Social Sciences, has been selected as an inaugural member of the Fulbright Ambassadors Program, a flagship initiative established by the Australian-American Fulbright Commission to enhance the academic and cultural exchange between the U.S. and Australia through alumni of the Fulbright Program. As a Fulbright Ambassador, Search will work with international scholars to build professional networks that foster discussion and collaborations that enhance research and academic programs.

LINDA SCHADLER, vice provost and dean for undergraduate education and the Russell Sage Professor, has been elected to the Class of 2016 Materials Research Society Fellows. She was recognized for her "seminal research in the field of polymer nanocomposites and for leadership in materials education." Schadler’s research has focused on the mechanical, electrical, and optical properties of two-phase systems, primarily polymer composites. She is the author or co-author of more than 140 journal publications, several book chapters, and one book, *Nanocomposite Science and Technology*.

Five faculty members have been inducted into the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE). The AIMBE College of Fellows includes the top 2 percent of medical and biological engineers in the country. SUVRANU DE, the J. Erik Jonsson ’22 Distinguished Professor of Engineering and head of the Department of Mechanical, Aerospace, and Nuclear Engineering, has been selected for "outstanding contributions to developing computational algorithms for virtual surgery and for leadership in engineering education." MARIAH HAHN, professor of biomedical engineering, has been cited for "pioneering work on biomaterials for vocal cord reconstruction and cell adhesion studies leading to low thrombogenicity materials." XAVIER INTES, associate professor of biomedical engineering, was selected for "outstanding contributions to Biophotonics through the development of innovative functional and molecular imaging techniques in industry and academia." MATTHEOS KOFFAS, the Dorothy and Fred Chau ’71 Constellation Professor in Biocatalysis and Metabolic Engineering, was cited for "outstanding contributions at the interface of metabolic engineering and synthetic biology through integrated modeling and experimental studies on metabolism."

ASSAD OBERAI, professor of mechanical, aerospace, and nuclear engineering and associate dean for research and graduate studies in the School of Engineering, has been selected for "pioneering work in the field of biomechanical imaging, and its application to breast cancer diagnosis and care."

AMY CORRON, assistant director of student activities, received the Revis A. Cox Memorial Award at the Association of College Unions International (ACUI) 2016 Conference. The award recognizes ACUI members committed to multicultural education in the field of college unions and student activities.

JIM HENDLER, director of the Rensselaer Institute for Data Exploration and Applications (IDEA) and the Tetherless World Professor of Computer, Web, and Cognitive Sciences, was a featured panelist in the session "New Science Roadmaps for Global Research" at the American Association for the Advancement of Science meeting in February. He talked about the importance of socio-technical modeling in cybersecurity research.

MICHAEL SYMANS, associate professor of civil and environmental engineering, was elected national vice president of Chi Epsilon, the national civil engineering honor society. Symans has served as the Northeast District Councillor since 2010 and the National Marshall since 2012. He served as the faculty adviser of the Rensselaer chapter from 2002 to 2010, during which time he received the Chi Epsilon Arthur N.L. Chiu Outstanding Faculty Adviser Award for the Northeast District.

THE HON. ARTHUR J. GAJARSA ’62, chairman of the Rensselaer Board of Trustees, received the 2016 John Carroll Award from the Georgetown University Alumni Association. It is the highest honor bestowed by the association and is conferred upon alumni whose achievements and record of service exemplify the ideals and traditions of Georgetown and its founder. Gajarsa earned a J.D. at Georgetown in 1967. He served 15 years on the U.S. Court of Appeals for the Federal Circuit.

MILES KIMBALL, professor and department head in communication and media, received the 2016 College English Association Professional Achievement Award, which recognizes an association member who has significantly contributed to teaching and scholarship at the college level. Kimball received his Ph.D. in English from the University of Kentucky and has worked as a technical writer and knowledge management consultant in the defense and telecommunication industries.

MARIANNE NYMAN, associate professor of civil and environmental engineering, was selected by the Phalanx Honor Society as the 43rd recipient of the David M. Darrin ’40 Counseling Award. The award was established by David M. Darrin ’40 to recognize a faculty member who has made an unusual contribution in the counseling of undergraduate students. The award was presented to Nyman at Commencement 2016.

LIRONG XIA, assistant professor of computer science, has been recognized by IEEE Intelligent Systems magazine as one of “AI’s 10 to Watch.” The biennial honor celebrates scientists in the field of artificial intelligence (AI) and promotes cutting-edge research among next-generation researchers, industry, and the general public. Xia’s research focuses on “social choice”—the analysis of individual preferences used to reach collective decisions or social objectives.
Rensselaer aeronautical engineer Matt Patricia ’96 followed an unusual path to NFL coaching.
Sprinkled throughout sportswriting about today’s NFL football games are references to how coaches “engineer” a complex scheme to win games that require an increasingly sophisticated approach.

For one Rensselaer graduate whose atypical career path has carried him into the upper echelons of pro football, the word “engineer” goes well beyond describing game plan preparation. Matt Patricia ’96 is an actual engineer. After coaching stops at Rensselaer, Amherst College, and Syracuse University, the Rensselaer aeronautical engineering graduate now prowls the sidelines at Gillette Stadium in Foxboro, Massachusetts, calling the shots for a defensive unit that helped the New England Patriots win two Super Bowls since he went to work for coach Bill Belichick in 2004.

Most famously, a previously unknown and part-time player on Patricia’s squad, cornerback Malcolm Butler, executed a stunning play to win Super Bowl 49 in the closing seconds. He slipped between blockers to intercept a goal-line pass from Seattle Seahawks quarterback Russell Wilson to clinch the victory. If the pass had been completed, Seattle would have won.

“From where I sit, that’s where you want to be when the game’s on the line: You want your guys on the field trying to make something happen,” Patricia says. “We worked hard to prepare for that situation. There were only 26 seconds left, but I preach playing for every second in the full 60-minute game, and it paid off.

“As that play unfolded it was almost like time slowed down, and then everything went as we planned it. It’s a moment in time I will never, ever forget.”

As he ascended the ranks from coaching assistant to defensive coordinator in Foxboro, Patricia drew widespread attention for having a degree rarely found among those who coach 300-pound linemen and design plans to thwart intricate offensive systems. Coach Belichick—perhaps half joking, half serious—has even told sports reporters he thinks his defensive coordinator is so smart “he could probably build a plane and fly it.”

Regardless of whether that’s true, Patricia is quick to credit his Rensselaer education for giving him the tools, acumen, and overall approach to problem solving and leadership that have made him so successful.

“RPI was not an easy college,” he says. “It was the type of
place where you had to put your head down, grind it out, and work hard, really hard to be successful. In addition to learning aeronautical engineering, there were some simple yet effective techniques I learned there that I still use today.

“For example, I learned how to take detailed, printed notes really well. If you didn’t keep up with class and lectures and find a way to retain or recall information, you’d fail. Today, some 20 years later, I still use that same note-taking method to absorb what I hear in meetings or see in videos.”

AN UPBRINGING IN FOOTBALL, AVIATION, AND ENGINEERING

Now 42 and the married father of three, Patricia embarked on the serpentine road to his coveted spot in pro football coaching during his youth in the Syracuse, New York, suburb of Sherrill. The son of two teachers, he received his first taste of athletics and coaching when his father, who also coached high school wrestling earlier in his career, drove Patricia to school every day. The younger Patricia played football and wrestled at Vernon-Verona-Sherrill High School, lettering in both. At the same time, his eyes wandered skyward.

“Everyone was into the movie Top Gun back then,” Patricia says. “I fell in love with all sorts of military aircraft, including fighter jets and helicopters. It was then I started to think about studying what made those things work. And I often thought about how thrilling it would be to fly in some of those aircraft.”

As he approached high school graduation, Patricia began to think about how he could keep playing football and attend a top-tier school where he could get a degree that would lead to a successful career. He even considered some of the military academies as a pathway to aviation. He was recruited by Division III schools, including Worcester Polytechnic Institute, but it was a visit to his house from longtime Rensselaer head football coach Joe King that sealed the deal.

“Sitting in my living room, coach King and assistant coach Bob Jojo sold me and my parents on the high-level academics of the school and the football program,” Patricia says. “From there, all it took was a visit to campus and meeting a lot of the coaches and players. I fell in love with the school and the people. On top of that, I had an uncle who went there and loved it.

“It would have been easy to choose someplace else to attend college and have a good time. But the simple fact is I knew RPI was going to be hard, and it was,” he adds. “But everything I learned there—including the bonds I formed with my Theta Chi fraternity brothers—has helped me each step of the way in my career.”

Patricia’s four-year aeronautical engineering program, part of the School of Engineering’s Mechanical, Aerospace, and Nuclear Engineering (MANE) Department, was heavy with challenging mathematics, science, and engineering courses. When he talks about the curriculum today, he’s quick to drop lines about important aeronautical physics laws, such as Bernoulli’s principle—the complex fluid dynamics equation that helps explain why an airplane flies. It was named after Swiss mathematician and physicist Daniel Bernoulli, an 18th-century scientist who made significant contributions in mechanics, probabilities, and statistics. It would be difficult to find many NFL coaches who could explain the principle.

Patricia also explored the notion of actual flight during his days on campus. He recalls with a laugh the time some of his classmates invited him to nearby Saratoga County Airport to take a demonstration flight in a small Cessna. Before taking Patricia up, the flight instructor quizzed the Rensselaer student about his weight.

“The initial plan was to go up in a little two-seater, so he asked me about my weight because I was not a small guy,” Patricia says. “He was trying to determine if we should take a bigger, four-seat aircraft. When I told him my weight, he started asking what I had for breakfast. At that point, I got a little frustrated and said, ‘Dude, if the type of airplane we take depends on whether I had a bagel for breakfast, let’s just take the bigger airplane.’ Still, he persisted and said he could offload some fuel from the smaller airplane to make up the difference. We ended up taking the larger airplane.”

When he wasn’t in the classroom or lab—earning grades that landed him on the dean’s list—Patricia worked his way up the ladder on the Engineers football squad. Back then, games were played on ’86 Field in the middle of campus. He played center and guard on the offensive line, helping the squad win at least eight times each year from 1994 to 1996, topping the Eastern College Athletic Conference standings. After graduation, football still exerted a pull on Patricia, even as he started to look at careers in engineering. He chose to stick around Rensselaer to pursue an MBA and assist coach King as a graduate assistant.

“It was during that year I received my first taste of how thrilling it was to see a player you were helping coach make a fantastic play. That feeling—focusing on the players and their potential, not just the plays and plans—never left me.”
The search for a career and income to “buy some toys and lead a good life,” as Patricia puts it, prevailed. He left Rensselaer after the fall 1996 coaching stint, and went back home. He accepted an engineering job at Hoffman Air and Filtration Systems in Syracuse. By all accounts, he was successful and well-liked on the job. After two years earning about $50,000 annually at Hoffman, he was approached about a position at Westinghouse, where his starting salary would have been close to six figures.

“But here’s the problem,” Patricia says. “Every time fall rolled around, I’d start noticing the smell of fresh-mown grass at area football fields. I’d start thinking about football again. To stay involved in the game, I approached the coach of the nearby Liverpool High School football team and asked if I could help out. Knowing my background, he was kind enough to say ‘yes,’ so I did that for a few years. I also spent some time helping the coach of a local semi-pro football team.”

Patricia adds that one of his stretch goals was to find a way to work in the nationally ranked Syracuse University football program nearby, led by successful head coach Paul Pasqualoni. But there were no positions available. The job offer at Westinghouse—which involved maintenance engineering for nuclear submarines and aircraft carriers—was a career path that interested Patricia.

As he considered the offer, he called old friend and former Rensselaer assistant coach Don Faulstick, offensive coordinator on the football team at Amherst College. Faulstick told Patricia about an assistant football coaching job there, at an annual salary of $5,000. Patricia spent some time wrestling with both offers, talking at length to family and friends. Football won out, and his road to Foxboro and coaching got underway in Amherst.

“I was surprised to hear from him about coaching,” Faulstick, now the athletic director at Amherst College, says. “Here was a guy who was doing well in his first engineering job out of college and who could probably go on to work at NASA or become an astronaut. But knowing Matt and his intelligence and commitment to working hard, I went down the hall and said to our football coach, "WE SAW IT RIGHT AWAY...AS A GRADUATE ASSISTANT...HE WAS SMART AND HE WAS GREAT AT ABSORBING AND RETAINING INFORMATION, BUT MOST OF ALL HE KNEW HOW TO TREAT PEOPLE RIGHT."”
“This is a no-brainer—we have to hire this guy now.’ ”

“...times when I wondered what the heck I was doing,” Patricia says. “I was riding a bike to work in Amherst, and every time a car almost hit me I questioned my decision. But I just loved being around football and the coaching guys.”

He never strayed far from the academic world, though. While coaching at Amherst, he enrolled and completed a master’s degree in mathematics education at the University of Massachusetts-Amherst. If he failed at coaching, Patricia reasoned, he would be able to follow his parents into teaching.

But he received a call from Syracuse University after two years at Amherst, accelerating his coaching career. He returned home where coach Pasqualoni—impressed with a resume Patricia had submitted—assigned him a job as a graduate assistant. He also worked with the offensive line. In Amherst and Syracuse, Patricia also used some of his Rensselaer classroom smarts to help in technical areas. For example, he helped upgrade the video collection and review systems at both schools.

After three years in Syracuse, Patricia received a call from an assistant Patriots coach. Constantly yearning to participate in the next level of competition, Patricia had circulated his resume to several NFL teams. The Patriots offered him an entry-level job collecting and reviewing video, but gave him only 24 hours to accept. And off he went to professional football in 2004.

“Many of the traits he displayed at Rensselaer stayed with him and helped him make his way to Foxboro,” says old friend, former teammate, and past Rensselaer assistant football coach Ray Moran ’95. “I would describe one of these traits as ‘stick-to-it-tive-ness.’ Once he sets his mind on something, he stays on track until he succeeds. He was never the biggest of our offensive linemen, but he always found a way to execute plays so that he remained part of our starting lineup. No one could out-work Matthew then, and no one can now.”

COACHING IN THE PROS

Patricia fit in quickly with coach Belichick’s approach to the game. The son of a football coach at the U.S. Naval Academy, Belichick had over the years developed a technical, meticulous approach to designing intricate game plans—something he looked for in his coaching staff. Many of his assistants have gone on to head coaching jobs in the NFL and Division I football, spreading the Belichick coaching gene pool far and wide.

It’s easy to spot Patricia on game days. He sports a thick, dark beard and, like his boss, he usually dons a hoodie sweatshirt. He wears a baseball cap backward with a set of headphones on top, through which he talks to coaches perched high atop Gillette Stadium near the press box. His attention, displayed in a steely-eyed stare, rarely strays from what is happening on the field and sidelines. One of his most famous game-day accessories is a simple pencil inserted above his ear, under the right side of the cap. It seems like an anachronism in an era of high-tech, computerized approaches to managing games.

“Football is a game played outside, where you’re often exposed to rain and snow,” he says. “I always have to have something handy to write down an idea or a note to review after the game.

As an engineer I favored mechanical pencils, but they and most other writing instruments don’t work well when they’re wet. That’s how I started using pencils.”

Patricia started at the bottom in Foxboro. In addition to collecting and reviewing video, he accepted numerous extra tasks and was promoted to linebackers coach in 2006. Six years later, he succeeded Dean Pees as Patriots defensive coordinator—one of the two highest coaching positions beneath the head coach on an NFL team.

Along the way to his current position, he retained the focus on hard work that began during his days in Troy. He often sleeps on an air mattress in his Gillette Stadium office and is usually among the first into work and last to leave—except for, perhaps, coach Belichick.

As he conducts exhaustive research on opponents and prepares game-day lineups and plans, Patricia keeps one theme in mind. “I am going to make it impossible for anyone to fire me because I’m going to outwork everybody. Quite honestly, one of my goals is to make sure my key access card still works when I show up at Gillette every day.”

That day might not be far off. Earlier this year, several national news media outlets reported that Patricia was being considered for head coaching positions at two NFL teams.

THE FUTURE

Patricia is candid about future opportunities. He knows that as part of Belichick’s staff there will always be rumbling about head coaching jobs. “That stuff will take care of itself,” he says. “I’ll stick to what I’m doing now.”

A major part of his success, Patricia says, is his family. His wife, Raina, and children Dominic, Dante, and Giamina form a life core that grounds him in what he feels is really important. “My family has sacrificed so much for me to be able to coach at this level,” he says. “I could not have come this far without them.”

This realization of the critical role of family today reflects what Patricia has been taught from the beginning, according to coach King.

“I’ve been asked a lot of times about what helped Matt go so far so quickly in football coaching,” King says. “It’s an easy answer: Yes, he received a great education at RPI and yes, he’s smart and his work ethic is amazing—but so much of what he is today and what he does I attribute to his parents. They instilled in him the right values from the beginning.”
Robert Linhardt, the Ann and John H. Broadbent Jr. ’59 Senior Constellation Professor of Biocatalysis and Metabolic Engineering at Rensselaer, and James Iatridis, professor and vice chair for research in the ISMMS Leni and Peter W. May Department of Orthopaedics.
THROUGH A PIONEERING PARTNERSHIP, RENSSELAER AND THE ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI ARE BRIDGING MEDICAL RESEARCH WITH COMPUTATIONAL AND ENGINEERING KNOW-HOW TO RADICALLY ADVANCE HEALTH CARE.

BY
JODI
ACKERMAN
FRANK

INNOVATION
OVER THE LAST FEW DECADES, there have been unprecedented advances in clinical research, from targeted cancer therapies to new discoveries of how proteins and other molecules affect the body to cause or prevent illness.

But the speed of science can often be excruciatingly slow. It often takes a decade or more and a cost approaching $2 billion for a new drug candidate to advance from discovery in a lab to a fully FDA-approved medicine.

Consider also today’s unprecedented capabilities in computer and engineering technologies—from data analytics and computational sciences to the cognitive sciences and bioengineering. These fields are often studied separately in technological institutions, most of which don’t have easy access to clinical knowledge and medical facilities, making it difficult to contribute efficiently and effectively to health and medicine.

Yet, combining big-data capability and engineering with medical research is becoming paramount in curing illnesses, diagnosing and treating diseases, avoiding preventable death, and improving quality of life. In realizing this increasingly critical connection, Rensselaer and the Icahn School of Medicine at Mount Sinai (ISMMS) have established a formal partnership to capitalize on each other’s unique strengths in such areas as neuroscience and neurological diseases, genomics, imaging, orthopaedics, cancer, and cardiovascular disease.

“This affiliation is the perfect marriage. In today’s world, we are dependent more than ever on the kinds of computational and engineering know-how that Rensselaer offers, and Rensselaer is benefiting from Mount Sinai’s leadership in biomedical research,” says Scott Friedman ’76, M.D., dean for therapeutic discovery at ISMMS.

Friedman, who earned a degree in biology at Rensselaer and then went on to medical school at Mount Sinai, has been instrumental in establishing this affiliation between Rensselaer and ISMMS. As chief of the Division of Liver Diseases at ISMMS, Friedman is a distinguished doctor known for his pioneering research into the underlying causes of scarring, or fibrosis, associated with chronic liver disease.

“The affiliation is designed to foster educational and research collaborations and to stimulate the development of new technologies that will radically improve human health and drive down health care costs,” says Deepak Vashishth, director of the Center for Biotechnology and Interdisciplinary Studies (CBIS), which interweaves life sciences, physical sciences, and engineering into the fields of biotechnology and medicine. CBIS is working closely with ISMMS as part of Rensselaer’s institutewide efforts in this formal partnership.

The Rensselaer/ISMMS affiliation has built on the initiatives that the two institutions have engaged in together to promote both fundamental and translational research, resulting in millions of dollars of external funding as well as combined academic programs.

Courses are being developed and a new M.D./Ph.D. program has been established in which students can obtain both doctoral degrees at the end of seven years. Rensselaer and ISMMS are also developing other joint graduate educational programs, including a master’s degree in biomedical informatics and joint Ph.D. programs in neuroscience and other areas of shared research interests.

“The affiliation provides a more competitive environment that affords our students much more opportunity to learn skills and gain experience to prepare for their eventual careers,” says Stanley Dunn, vice provost and dean of graduate education at Rensselaer.

“Medicine is increasingly a broad set of quantitative disciplines that builds on human biology but requires the scientific and engineering skill set that is at the heart of a technological university,” says Jonathan Dordick, vice president for research at Rensselaer. “Through Rensselaer’s investment at the nexus of life sciences, computational sciences, and engineering, we have set ourselves up to provide unique complementary strengths to a major medical research institution, such as Mount Sinai. The resulting partnership embodies the principles of the New Polytechnic, which guides Rensselaer forward into its third century.”

**combining expertise >> new discoveries**

One of the earliest, and still ongoing, Rensselaer/ISMMS affiliation collaborations is a project between Robert Linhardt, the Ann and John H. Broadbent Jr. ’59 Senior Constellation Professor of Biocatalysis and Metabolic Engineering at Rensselaer, and James Iatridis, professor and vice chair for research in the ISMMS Leni and Peter W. May Department of Orthopaedics. The researchers are working toward developing novel therapeutic agents and strategies to limit spinal disc degeneration, restore vertebrae structure, and reduce the pain associated with degenerative disc disease.

“Back pain caused by spinal disc degeneration is the number one cause of mobile disability, so it’s a hugely important problem that needs to be addressed,” says Iatridis, who has long specialized in spinal disc degeneration.

Linhardt is a biochemist internationally known for his research on bioactive carbohydrates, particularly heparin, a clinical anticoagulant used for preventing blood clots. Heparin is a class of molecules called glycosaminoglycans, or GAGs, which are found in abundance in connective tissue throughout the body. In cartilage, which largely makes up the discs of the spine, GAGs serve as the glue in a protein matrix called proteoglycans.

Iatridis has found that the earliest changes in the intervertebral disc degeneration are a loss of GAGs, which cause the unraveling of the proteoglycans. As a result, the cartilage becomes less hydrated and more prone to injury and disease. Iatridis turned to Linhardt to determine the biochemistry behind these changes. Linhardt has conducted the chemical analysis for the
“THIS IS A REAL POSTER CHILD FOR OUR RELATIONSHIP WITH RENSSELAER IN THAT THERE ARE DIFFERENT BUT COMPLEMENTARY SPECIALTIES AND KNOWLEDGE AROUND UNDERSTANDING AND TREATING DISC DEGENERATION.”

SCOTT FRIEDMAN ’76
“EXPERTISE IN DATA SCIENCE AND ONTOLOGIES WAS A REQUIREMENT, AND THESE ARE AREAS THAT WE DON’T SPECIALIZE IN. DEBORAH MCGUINNESS FIT THAT GAP IN OUR EXPERTISE.”

SUSAN TEITELBAUM
proteoglycans in diseased cartilage from people and in healthy cartilage from animals.

“We’ve known for a long time that the loss of GAGs is the first sign of disc degeneration in humans. What Dr. Linhardt brings to the table that is novel is the distinction between different types of GAGs,” Iatridis says. “We are learning that certain types of GAGs could prevent nerve ingrowth, which ultimately could prevent painful spinal conditions.”

“The goal is to create a diagnostic tool and ultimately develop a GAG-based therapy to repair disc damage,” Linhardt says.

As a result of the initial $60,000 seed grant funded through the affiliation, Iatridis and Linhardt have received external grants, including $163,437 from the National Institutes of Health (NIH). The NIH grant was awarded as additional funding to build a novel interdisciplinary research team to enhance a larger NIH grant of $2,757,968, which Iatridis’ team received to develop cell-derived therapies for disc degeneration.

“This is a real poster child for our relationship with Rensselaer in that there are different but complementary specialties and knowledge around understanding and treating disc degeneration,” Friedman says.

Such collaborations have evolved into bigger funding opportunities, such as the recent $2.7 million NIH grant for research that Iatridis will be conducting with Vashishth to explore the connection between Type 2 diabetes and intervertebral disc degeneration.

Research suggests that the accumulation of advanced glycation end products (AGEs) causes structural deterioration and increases in inflammation that could lead to painful disc degeneration. AGEs are proteins or lipids that become sugarcoated, with the addition of these sugar molecules damaging protein function.

Research also indicates that a diet high in heat-processed foods, including fried foods, plays a role in AGE formation, which can be a factor in the development or worsening of many degenerative diseases, such as diabetes, atherosclerosis, and Alzheimer’s disease.

“We are very excited to partner with Deepak Vashishth both because of his experience in AGEs and his ability to measure them in precise ways that we haven’t been able to do,” says Iatridis, the project’s principal investigator.

“I have had a long-term interest in investigating AGE-accumulation in bone, and with Dr. Iatridis’ specialized expertise in spinal research, we knew this would be an ideal collaboration,” says Vashishth, a global leader in the biomolecular science and engineering of extracellular bone matrix.

**CHEAR >> accelerating the study of children’s health and development**

As the affiliation between ISMMS and Rensselaer continues to evolve, larger collaborations are coming to fruition that leverage Rensselaer’s computational and data analysis capabilities.

In fall 2015, ISMMS and Rensselaer received major funding from the Children’s Health Exposure Analysis Resource (CHEAR), a program established by the National Institute of Environmental Health Sciences (NIEHS) to advance the understanding of the impact of environmental exposures on children’s health and development.

Mount Sinai received grants for two of CHEAR’s three components, totaling more than $20 million. One grant supports the Data Repository, Analysis, and Science Center (Data Center), of which Rensselaer is a part.

A second grant supports a Mount Sinai “lab hub,” the CHEAR National Exposure Assessment Laboratory Network, in which six NIH-funded labs provide access to state-of-the-art infrastructure for analyzing biological samples to study environmental exposures, which include well-known pollutants (such as mercury and lead), as well as performing immune-response and other assays. The coordinating center, as the third CHEAR component, is led by Westat, a statistical survey research corporation in Maryland.

The Rensselaer/ISMMS collaboration of the CHEAR Data Center is led by Susan Teitelbaum, an epidemiologist and research professor at ISMMS, and Deborah McGuinness, the Tetherless World Senior Constellation Chair and professor of computer, cognitive, and web sciences at Rensselaer.

“The opportunity to be involved in CHEAR is an extension of the research I’ve been doing for the past 12 years,” Teitelbaum says.

Teitelbaum specializes in endocrine disruptors, early puberty, and their relationship to breast cancer risk. Over the last decade, she has been part of the Growing Up Healthy Study, which involves more than 1,000 children, starting from childhood through puberty, to better understand the link between the environments in which children are raised and their growth and development. The multi-institutional initiative is supported by NIEHS and the National Cancer Institute.

For her part, Teitelbaum focused on minority girls ages 6-8 in East Harlem and followed them over a 10-year period to monitor their growth and development. The study is now in its final stages of analysis.

When the chance arose to apply for the CHEAR grants, Teitelbaum knew the opportunity would be a natural progression of her work. But she also knew that she and her colleagues did not have the data science expertise required to successfully compete for the funding.

“Expertise in data science and ontologies was a requirement, and these are areas that we don’t specialize in. But Deborah McGuinness is a renowned scientist in these areas, and we wouldn’t have necessarily known about her if our connection with Rensselaer didn’t exist,” Teitelbaum says. “She fit that gap in our expertise that we knew we had.”
THE GOAL...IS TO PROPEL BOTH INSTITUTIONS TO THE FOREFRONT OF THERAPEUTIC DISCOVERY AND DEVELOPMENT BY ACCELERATING MEDICAL DISCOVERY FROM THE LABORATORY TO THE MARKETPLACE.

The Data Center provides a data repository and support for statistical analysis and interpretation. The CHEAR resource is expected to begin accepting applications from researchers in the fall of this year.

“The center will lead the development of community-based data standards and support the development of technologies and metadata standards,” says McGuinness, a leading expert in computational knowledge representation and reasoning languages. She leads the data science effort and is collaborating with Patricia Kovatch, ISMMS associate dean for scientific computing, who leads the data resource effort.

A large part of McGuinness’ role is to develop foundation and methodologies for combining data from a wide range of environmental health studies. These methodologies include creating precise vocabularies and ontologies for use in integrating the data and ontology-enabled services.

Ontologies define a set of concepts and the relationships among them. For example, the term “infant” is not defined the same as “child,” but could be considered a subclass of “child.” The same holds true for different types of interrelated chemicals. These ontologies will be essential to creating the smart search and browsing capabilities that scientists in the CHEAR program will have access to.

With Mount Sinai’s $3 million investment to build the Minerva supercomputer and the Center for Computational Innovations at Rensselaer, which features an IBM Blue Gene/Q supercomputing system, the two institutions will implement some of the most advanced high-performance supercomputing in the world to support the CHEAR initiative.

translating research >> real-world application

The goal of the synergetic affiliation between Rensselaer and ISMMS is to propel both institutions to the forefront of therapeutic discovery and development by accelerating medical discovery from the laboratory to the marketplace. In the medical field, this bench-to-bedside approach is referred to as “translational science,” moving discoveries and knowledge into clinical practice.

Conduits—the Institutes for Translational Sciences serves as an important vehicle through which ISMMS fosters the translation of basic scientific discoveries into clinical practice. Conduits, which provides consultation, oversight, and facilities for clinical and translational research, was established in 2009 when Mount Sinai received a prestigious Clinical and Translational Science Award (CTSA) from NIH. Last year, Conduits was awarded new CTSA funding, a five-year grant of $34.6 million.

“Rensselaer played a critical role in our successful renewal of our CTSA grant,” Friedman says.

Promoting collaboration among institutions and new student training mechanisms are major foci under the new grant in which students and faculty are involved in multidisciplinary research and product development.

In one CTSA project, Janice Gabrilove, the James F. Holland Professor of Medicine, Hematology and Medical Oncology at ISMMS, is collaborating with Ben Chang, director of the Games and Simulation Arts and Sciences program at Rensselaer, to develop an educational video game to help medical students understand the translational therapeutics process.

“The goal is to raise awareness and to educate medical students in greater depth about the pharmaceutical process that begins with discovery and ends with a therapy or treatment that benefits society. The average medical school trainee has no idea what goes into developing a drug and the complicated process by which it is approved,” says Gabrilove.

Gabrilove, who has been involved in drug discovery for more than 20 years, holds a composition of matter and use patent for a certain type of white blood cell growth factor called granulocyte colony stimulating factor or G-CSF, which can be used to reduce the risk of infection after chemotherapy. Human G-CSF is now used worldwide as a supplement to cancer treatment.

The video game will initially be developed for tablets, with an initial target audience of a student who is at least at the second-year level of medical training. The theme-based game will include episodes and levels of difficulty to demonstrate the trials and tribulations of drug discovery and development. Gabrilove’s and Chang’s teams have begun the task of outlining all of the specific learning objectives that will inform specific gaming modules.

“The development of a game around translational therapeutics brings together a range of clinical and basic science expertise including molecular, systems, computational and structural biology, medicinal chemistry, biostatistics, regulatory science, experimental design, human subjects’ research, and so on,” Chang says.

“We also need to understand the regulatory process, and the importance of intellectual property, innovation, and entrepreneurship,” adds Chang, who noted that his gaming team is in essence going through a mini medical school boot camp.

“Then we determine what is interesting and compelling that can be structured into an interactive learning experience.”

For Gabrilove, she is learning the different gaming genres and the depth of story narrative and art that is required for an engaging gaming experience.
“When we first started this new venture, we did not fully appreciate the time involved in educating each other about our respective fields in order to develop a meaningful game,” Gabrilove says. “But as a result, we hope to create an innovative method of learning that is engaging and relevant for future students receiving training in medicine.”

Rensselaer’s affiliation with Mount Sinai through the CTSA program also includes training minority postdoctoral students to address the lack of diversity within the translational sciences.

This year, graduate students Keith Fraser and Stacyann Morgan, who were both awarded van Auken fellowships from Rensselaer, will participate in this initiative. Fraser, a biologist who specializes in biosensors, will focus on protein mechanisms associated with various types of cancer to identify therapeutic opportunities.

“The partnership with Mount Sinai will benefit us tremendously,” Fraser says. “The work that we will be doing in the field of data science and big data analytics in collaboration with clinicians will be of great value to the biomedical field.”

Morgan, a biomedical engineer, will be conducting research in bone quality as it relates to spinal cancer. “The partnership provides us with that translational experience,” says Morgan, “giving us hands-on exposure to direct patient application, which is indispensable and an achievement as a postdoctoral researcher.”

“With both institutions committed to a culture of innovation and collaboration in research and education,” says Vashisht, “we are building the blueprint for transformation in health care delivery.”
Where Classroom Meets Workplace

For more than 70 years, Rensselaer students have been exploring their fields of study in depth through the Cooperative Education program.

By Pam Allen
Jennifer Keyes ’02 is still awed that NASA trusted her to perform such fascinating aeronautical research during her early years at Langley Research Center. For her first assignment, she coded for lidar data from the Space Shuttle Discovery, creating plots of data that had never been made before. Next, she worked in subsonic aerodynamics, where she studied the flow of air over airplane wings.

After that, the woman who was “willing to try everything” worked in atmospheric sciences writing data analysis for an A-band spectrometer, reviewed proposals for small spacecraft, and designed “Tumbleweed” rovers for Mars. Finally, she wrote flight code for a sounding rocket that blew a nose cone so it could see into space.

Then NASA hired her.

“I did some tremendously cool stuff during my co-ops. It was different every day. Even now, it's still always different,” says Keyes, an aerospace engineer and systems analyst at NASA Langley in Virginia. With dual majors in mechanical engineering and aeronautical engineering, Keyes jump-started her NASA career with a summer internship in 1998 and four subsequent cooperative education stints. NASA hired her in March 2002, midway into her fourth co-op and eight months before she graduated.

Fourteen years into a successful and fulfilling career, Keyes remains mindful of the significant role the Cooperative Education program at the Rensselaer Center for Career and Professional Development (CCPD) played in shaping her future. To repay those efforts, Keyes passes along opportunities at NASA for co-ops and entry-level positions that are a good match for the Rensselaer community.

“I had academic advisers that were absolutely key to helping me arrange my classes to fit everything in and still be away for a semester. Without them, I would not have had the opportunities I've had. This is a way to pay it forward to other folks,” says Keyes, who is also active with the Rensselaer Alumni Association. She regularly posts available NASA “Pathways” co-ops and full-time openings to Rensselaer’s JobLink online recruiting system, and full-time job positions to the Rensselaer Alumni Association’s Alumni Connect page.

“I firmly believe that Rensselaer students and alums are of such high caliber—why wouldn’t NASA want them?” Keyes says. She estimates that as many as 40 of Langley’s 1,800 employees are Rensselaer graduates.

EXPANDING OPPORTUNITIES
Cooperative education placements can be key to a university experience. A co-op typically runs between six and eight months, or a semester and a summer term, giving students the opportunity to explore their fields of study, develop on-the-job skills, grow personally, establish professional contacts, and even offset college debt. And, should they choose to accept, co-op students are well positioned for full-time jobs with their co-op employers, given that so many of them tap their co-op pools to fill entry-level positions.

More than 170 organizations recruit co-ops from Rensselaer’s five schools in just about every major field. These co-ops work all over the country, with a small number finding placements internationally. United Technologies Corp., Hasbro, GE, Edgewell, Cisco, IBM, JPL, NASA, American Airlines, Apple, FM Global, GlobalFoundries, and General Dynamics are among the top employers.

“They love the quality of our students, who are brilliant and evaluated highly. Employers know they benefit from their energy, insights, and their ability to hit the ground running,” says Dawn Cairns-Weaver, director of Cooperative Education at Rensselaer.

Approximately 25,000 students have participated in co-ops through Rensselaer’s Cooperative Education program since it began 71 years ago, with the majority doing more than one co-op. The program began with a single objective in 1945: to replenish scientists at General Electric after World War II. Since then, these placements have grown to create a network of 270,000 co-op alumni who are employed in 56 countries around the world.
"THERE’S ALWAYS A PRODUCTIVE OUTCOME FROM A CO-OP EXPERIENCE. THERE IS ABSOLUTELY NO DOWNSIDE. EVEN IF IT’S A TERRIBLE EXPERIENCE, THEY FIND OUT WHAT THEY DON’T WANT."

DANIEL WALCZYK

Grayson Twigg ‘17, who was part of the Rensselaer Formula Society of Automotive Engineers team, did a six-month co-op at Tesla Motors’ design studio in 2015. He is currently doing a 12-week internship with SpaceX.

War II. That year, 12 engineering students took part in a semester-long program at GE in neighboring Schenectady. Now, as many as 300 Rensselaer students a year head off to co-ops at tech companies, financial institutions, nonprofits, airlines, toy manufacturers, biomed firms, energy companies, and dozens of other industries.

Each co-op experience brings unique value to the participant. But the program shares a common goal of providing on-the-job training in real-life work environments that students cannot access in the classroom. Some co-op students come away confident of their career decisions. Some discover that the industry is not a good fit for them. Others access multiple co-ops, allowing them to explore as many fields as possible.

“There’s always a productive outcome from a co-op experience. There is absolutely no downside. Even if it’s a terrible experience, they find out what they don’t want. Conversely, sometimes they are on the fence about engineering, and the co-op solidifies their commitment to getting an engineering degree,” says Daniel Walczyk, professor in the Department of Mechanical, Aerospace, and Nuclear Engineering (MANE) and director of the Center for Automation Technologies and Systems at Rensselaer.
About one-third of MANE students take part in co-ops. Walczyk, whose own co-op experience while an undergrad at Syracuse University led to his first engineering job, would like to see that number rise. Some students avoid the semester-long program because they don’t want to delay graduation, but many are able to make up the courses and graduate in the spring, as they originally planned.

Beginning in 2017, Rensselaer will expand on its successful co-op program with the addition of Summer Arch. Under this new experiential learning approach, students will attend a full summer semester at Rensselaer between their sophomore and junior years, followed by either a fall or spring “away” semester during the student’s junior year. During this “away” semester, students will take advantage of off-campus internships or co-ops, research opportunities, community service, international experiences, and other approved programs.

The first of two Summer Arch pilots will launch in 2017, when members of the Class of 2019 in the School of Engineering and the Lally School of Management can opt to stay on campus and participate in the pilot. Rensselaer will launch a second pilot in 2018, when all members of the Class of 2020 can opt in to Summer Arch. The ultimate launch will take place in 2019, when all members of the Class of 2021 and beyond will be required to participate. Completing a four-year degree is not expected to take more than eight terms, and students do not pay tuition during the “away” semester.

FROM CO-OP TO WORK
Relevant work experience weighs heavily in the hiring formula. Companies are more apt to offer jobs to former co-ops who are intimately familiar with their culture, expectations, and work habits.

“More and more employers are using co-ops as a tool for entry-level positions. Co-ops provide a nice retention rate for them because the co-ops already know what to expect,” says Jennifer Walters, director of the Center for Career and Professional Development. Up to 75 percent of Rensselaer’s co-op employers offer those students full-time positions, Walters says. That percentage bears out nationally as well.

According to the 2016 Internship and Co-op Survey by the National Association of Colleges and Employers (NACE), an organization of 7,300 college career services professionals, 73 percent of employers make full-time job offers to their co-ops. Eighty-five percent of the co-ops offered a job accept those offers.

Others, like mechanical engineering major Grayson Twigg ’17, opted for multiple co-ops so he could test different industries. Twigg’s first co-op in 2015 was a six-month gig at Tesla Motors’ design studio in California. Tesla liked Twigg’s work and offered him a 12-week internship at one of Tesla’s other facilities as well as a recommendation for full-time employment. Twigg declined the internship, opting instead to expand his horizons.

“I would have gone back to Tesla, but I didn’t want to pigeonhole myself in a specific industry. This way I’ll be more informed as a senior as to which industries I want to target myself to,” Twigg says. While a co-op at Tesla, Twigg worked on a single prototype, the details of which he could not disclose because the product is still under development.

Twigg found the highly coveted co-op after a Rensselaer graduate who worked at Tesla suggested to a company recruiter that he access Rensselaer’s Formula Society of Automotive Engineers (FSAE) team for co-op hires. The club builds race cars for competition, and automakers such as Tesla and Honda and a host of other industries access the club for job prospects because the members’ skills closely align with their mission. Neither Twigg nor the Tesla employee knew each other, but both were active members of FSAE.

Then, while the Tesla co-op was winding down, Twigg leveraged one of the many relationships he established there to secure a 12-week internship with SpaceX. The aerospace manufacturer operates from the same industrial park as the Tesla design studio where Twigg worked in Los Angeles, and Twigg saw through LinkedIn that a co-worker at Tesla had some great contacts at SpaceX. The co-worker was happy to make the introduction. Twigg’s internship with SpaceX runs through December. He says the experience gained from two very different companies will equip him to make informed career decisions.

“I’m a huge advocate of the co-op program. It makes me a really, really competitive applicant. And I don’t have to hope that my resume finds its way through thousands of others,” Twigg says.

Timing a co-op experience so that it aligns with the student’s course studies is critical to get the most from the program, says Charles Malmborg, professor of industrial and systems engineering at Rensselaer and director of the Industrial and Management Engineering undergraduate program.

Employers generally begin recruiting co-ops six months before their start date, according to the NACE 2016 Internship and Co-op Survey.

Many employers looking for industrial engineering co-ops in particular prefer candidates with course credits in the program’s three core skill areas of data science, mathematics, and computation, says Malmborg.

“I always encourage students to exploit the program if it makes sense for them, but timing it with their plan of study is important. Many students are

“I’M A HUGE ADVOCATE OF THE CO-OP PROGRAM. IT MAKES ME A REALLY, REALLY COMPETITIVE APPLICANT. AND I DON’T HAVE TO HOPE THAT MY RESUME FINDS ITS WAY THROUGH THOUSANDS OF OTHERS.”

GRAYSON TWIGG ’17
excited to take on a co-op, but have not yet accumulated a lot of the hard skills associated with the major. This can prevent them from having the background to take full advantage of the program,” Malmborg says.

Shanmugam Thiagarajan ’17 had the necessary coursework under his belt when he undertook his first co-op in 2015. He worked as a sports action engineer at Hasbro with a team that designed a Nerf Blaster for Hasbro’s iconic line of foam toys. The team advanced the new Nerf Blaster model from prototype to mass production, exposing Thiagarajan to every aspect of the design process, from marketing and price points to liability and quality control. The toy was scheduled for release this fall.

“I never thought I would see something I actually made make it to the shelves while I’m in college. It’s really exciting,” Thiagarajan says. His second co-op was for eight months with Apple in Cupertino, California, where he helped design a product that is not on the market yet.

Students do not earn academic credit for the time they spend as co-ops, but the company pays them a full-time salary. Financial aid is not impacted, provided the student is registered full time at Rensselaer and the co-op is approved by the university. Because students do not pay tuition as co-ops, the full-time salary they earn during those experiences can help offset college costs.

“It can give them a lift if they’re financially fatigued and help them restore their finances to a point,” Malmborg says.

In the 2014-15 year, a Rensselaer co-op was paid an average hourly rate of $21.78, or $871 a week, according to Rensselaer’s most recent Co-op Acceptance Salaries survey. This rate is considerably higher than the national hourly co-op rate of $16.97, or $679 a week, reported by NACE.

PLAYING ON THE TEAM

Sonia Kumar ’17 is among the dozen or so Rensselaer students to benefit each year from the Hasbro co-op program. From January through June of this year, Kumar was a co-op working under the lead project engineer for Hasbro’s My Little Pony, a popular line of plastic ponies and accessories marketed primarily for girls. During her time there, Kumar helped develop the fall 2017 line with Hasbro designers in Pawtucket, Rhode Island, and manufacturers in China.

Hasbro hires up to 15 Rensselaer co-ops a year for six- to eight-month-long assignments, with most coming from the mechanical engineering discipline. The students are assigned to teams and contribute, typically as project engineers, to varying aspects of the project that can include everything from development to pitching it to the toymaker’s product development unit.

Kumar loved the fast-paced work and wide range of responsibility Hasbro gave her: One day she was meeting with the design team, the next she was reviewing vendor quotes for a mold, and on another she was eliminating an accessory item to drive down the manufacturing costs of one of the novelty figures by a penny or two.

“You learn to work quickly on your feet. I had to adjust things very quickly and apply my critical thinking skills. It was very cool,” Kumar says. In the beginning she was intimidated by the prospect of an engineering co-op because all of her previous internships involved research. But the casual, no-pressure nature of an information session that Hasbro hosted on campus gave Kumar the confidence to pursue a co-op with the company.

“What I like about their program is they respect their co-ops like employees. They give you great responsibility and help you step up and become a member of the team. All that made me work harder,” Kumar says. One important takeaway was a newfound understanding that engineering can be a social occupation. Before her co-op, Kumar looked on engineering as a field where people often worked independently. Instead, she learned how teamwork, collaboration, and compromise contribute to a project’s success.

“That was a very valuable lesson for me,” she says.

WIN-WIN SITUATION

The co-op/company relationship is reciprocal, as businesses gain advantages from the fresh perspectives that co-ops bring to their organizations. “It’s one of the unintended benefits. They have a different
idea of how something can work. They definitely add value to our program,” says Edwin Byun. He is co-op program recruiter and Space and Defense Group program manager for Moog, a motion-control designer for the aerospace, defense, and medical devices industries headquartered in East Aurora, New York. Moog employs 100 co-ops a year from as many as 20 schools, including Rensselaer.

Byun recalls the valuable contributions that Moog co-ops have made over the years, one of which included a more efficient report template for the company’s Defense Group. Another, a camera system that identifies manufacturing errors, can ultimately shave hours off the time-consuming metal layering process required for many of Moog’s devices.

“We expect people to speak up. If they see something that can be done better, certainly that is rewarded,” Byun says.

Started in 1982 as a way to attract mechanical engineers, Moog’s co-op program now offers opportunities in aerospace, chemical engineering, computer technology, electrical, manufacturing, software, and supply-chain management.

“The purpose of our program is to develop a talent pool that gives co-ops a truly hands-on experience,” Byun says. Moog’s co-op program is its greatest hiring resource, providing 85 percent of the company’s entry-level employees.

Lavin Hiranandani ’17 learned the importance of speaking up during a five-month co-op at Fortune 500 firm Ernst & Young (EY) LLP. Hiranandani was working with a team at EY’s New York City offices on a plan that would restore companies that are under stress, or resolve debts for those facing possible liquidation. During the process, he made suggestions that allowed him to take ownership of certain client deliverables. EY also offered him a job after he graduates. He’s “thinking about it.”

EY’s co-op taught Hiranandani, with dual majors in mathematics and management and a concentration in management information systems, to recognize the value of his opinions. “I have to be confident in my solutions, and I have to make sure they are voiced,” he says.

Thiagarajan doesn’t know what he wants to do yet. He does know, though, that the co-ops at Hasbro and Apple confirmed his desire to work on technology that has not reached the mass market yet. He also got a clear picture of what he should expect in the working world: “In college you have a very ideological sense of what work is about. Co-ops put that in perspective. Now I know what is possible, and that I have to work to get there.”

Sonia Kumar ’17 spent six months earlier this year at Hasbro, working under the lead project engineer for My Little Pony, a popular line of toys and accessories marketed primarily for girls. During her time there, Kumar helped develop the fall 2017 line with Hasbro designers.

“... THEY RESPECT THEIR CO-OPS LIKE EMPLOYEES. THEY GIVE YOU GREAT RESPONSIBILITY AND HELP YOU STEP UP AND BECOME A MEMBER OF THE TEAM. ALL THAT MADE ME WORK HARDER.”

SONIA KUMAR ’17
Rensselaer Society of Engineers Celebrates 150 Years

BY TOM KEATING ’75—RSE Board of Trustees president

J ust over 150 years ago, in January 1866, a handful of Rensselaer upperclassmen got together to establish a new organization. They were from several places in the world, including the United States, France, Cuba, and South America. The organization they formed was initially known as the Pi Eta Scientific Fraternity. They went on to be incorporated under the laws of the state of New York in 1873, and in 1883, the name was officially changed to the Rensselaer Society of Engineers (RSE). This name distinguished them from other nationally affiliated fraternities in the region, and demonstrated the organization’s close ties to Rensselaer and its overall mission. Things have changed over the last 150 years, but the RSE is still going strong. It is the only self-sufficient, local fraternity at Rensselaer. Contrary to what the name may imply, members not only major in engineering, but in such disciplines as science, management, architecture, and the arts.

The beautiful, centrally located RSE Clubhouse, owned by the RSE Alumni Organization and occupied by student members, was built in 1924. This historic house is an iconic image on the Rensselaer landscape, and has hosted a variety of both fraternal and academic functions over the years, including Greek ChowderFest, which was part of Reunion & Homecoming for several years. After a major reconstruction, a party was held to celebrate the building’s 90th anniversary in October 2014. However, that celebration will pale in comparison to the RSE sesquicentennial gala that is planned to coincide with the 2016 Reunion & Homecoming Weekend on Saturday, Oct. 8. Well over 200 RSE alumni are expected to return, representing more than 25 percent of all living RSE alumni from all over the world.

Members of RSE are well-known on campus for their philanthropic and community service efforts, and they donate many hours and dollars each year to local and national charitable organizations. In fact, at the recent Relay for Life, RSE raised the most out of more than 50 organizations and teams participating. RSE’s charitable entity, called The RSE Foundation Inc., offers a number of scholarships annually. There have been several notable RSE alumni from the ranks of both inducted and honorary members over its long history, and the organization is proud to say that it has more members in the Rensselaer Alumni Hall of Fame than any other group.

RSE is also proud of its long athletic heritage, both collegiate and intramural. Two alumni are in RPI’s Athletic Hall of Fame and three Inter-Fraternity Barker Trophies have been retired to RSE.

For more information about RSE’s 150th Anniversary Celebration, please contact Eric John ’95 at ericmjohn@gmail.com or Charlie Adkins ’94 at adkinschaz@gmail.com.
Experience the Tradition of Rensselaer, Oct. 6-9

Come back to Rensselaer for an extraordinary weekend of friendship, education, entertainment, sports, and more!

Classes ending in 1 or 6 will celebrate their milestone reunions. Athletic teams will host former team members for friendly competitions and to meet and cheer on our current student-athletes. Greeks take advantage of the weekend to gather for dinners and barbecues, and to celebrate various anniversaries. Former student groups will also be meeting to enjoy connecting to Rensselaer and each other.

In addition to the various groups who will be planning events and programs, there will be a National Medalist Panel Discussion featuring alumni led by President Jackson, sporting events, tours, open houses, and special programs for all attendees to enjoy.

The highlight of the weekend will be the Presidential All-Alumni Reception and Dinner: A University Transformed & Transformative, on Friday, Oct. 7, at the East Campus Athletic Village. This spectacular evening will begin with an exclusive reception for the 50th Reunion Class of 1966, followed by the All-Alumni Reception at 6 p.m., and dinner at 7 p.m. The program will feature dancing with a live band, Rensselaer Music Association student performances, and a delicious dinner. Join President Jackson for a celebration of the transformation of Rensselaer, and a look forward to the part we all play in the future of our transformative university. The evening will showcase the Institute’s rich history, and take a look at what the future holds for Rensselaer as the Institute approaches its bicentennial.

Visit the reunion website to register: alumni.rpi.edu/reunion.

RAA ANNOUNCES 2016 AWARD WINNERS
The winners of the 2016 Rensselaer Alumni Association (RAA) Awards have been announced. These alumni and friends are recognized for outstanding service and commitment to Rensselaer and their contributions to their professions, their communities, and the world. The Distinguished Service Award winner is Rensselaer Trustee Nancy S. Mueller. You may see the rest of this year’s winners online at alumni.rpi.edu/raawards.

RAA BOARD SEEKS NEW MEMBERS
The nominations committee of the RAA Board of Trustees is accepting nominations through the end of February for the upcoming RAA Board of Trustees year. Nominate yourself or a fellow alumnus or alumna. Typical terms last from one to three years. The RAA Board helps plan programs and services for alumni, and represents alumni interests to the Institute. If you are interested or have questions, contact Joyce Kelly Martin at martij@rpi.edu or (518) 276-6208.

LIBERTY MUTUAL INSURANCE PROGRAM
Liberty Mutual now offers auto, home, condo, and renter’s insurance for Rensselaer alumni. Watch your mailbox for more information, or visit alumni.rpi.edu/service.

RENSSELAER ALUMNI CAREER SERVICES
You can find help and support at any stage of your career at alumni.rpi.edu/career. Rensselaer Career Services offers assistance whether you are seeking a job, looking to make a change, hoping to hire a Rensselaer graduate, or simply need some advice or tips. Plus, the exclusive Rensselaer Alumni Connect online tool allows you to network with Rensselaer alumni, post and search jobs, and more. Visit the website and find all that the alumni network can offer you, or contact Kailah Borchers at borchk2@rpi.edu or (518) 276-4923.

Visit the reunion website to register: alumni.rpi.edu/reunion.
Most Amazing: I am still writing a column at the beginning of my 99th year!

Sad News: Chris T. Fazioli (BChE), age 99, passed away March 23, 2016. He was a member of Phalanx, and had letters in basketball and track. He worked for 55 years in the adhesives field, holding several patents. I had been in touch with him by phone when he was in rehab for awhile. He was a Notre Dame fan, having attended games there for 40 years!

It is a pleasure hearing from other graduates. Recently I received an email from a graduate (Class of 1959). He wrote that he was born in 1935 and was lucky to have been born in 1918!

Also heard from Antonio Borges '04, who also enjoys reading my column. I have been writing this column for almost 16 years and will continue as long as I am able!

Now for some personal remarks. Having seen the transition from iceboxes to electric refrigerators, etc., let me tell you readers what I predict for the future:

We will no longer use dictionaries or encyclopedias. Soon newspapers and magazines will be scarcer. We will have fighter planes (unmanned) landing on a carrier, self-driving cars, trucks, trains, and ships. Soon we will have a Hyperloop faster than a plane, but the thing to watch out for is AI (artificial intelligence). Robots will soon be taking over ordering and making hamburgers (due to the increase in labor costs). Most auto manufacturing is done by robots. But we must not let them get too smart as they could start destroying the people who made them!!

Send news to: Lou Shornick '39, 108 Royal Garden Terrace, Madison, MS 39110-7637; loudshort@mindspring.com; website: www.loushornick.com

Well, just as I was about to throw in the towel I received a nice note from Dick Schwartz, who now lives in the northern New York town of Peru in the Champlain Valley. His stepson is finishing his freshman year with a blazing 4.0 average. Dick’s community sounds a pleasant place for a relaxed retirement and he and his wife, Margaret, are doing just that. Dick had been in touch with Frank Hicks, but Frank seems to have moved. Anyone know where he is?

In June in St. Petersburg we had the season’s first tropical storm with more than 6 inches of rain; the pattern in summer is 90 F days with afternoon rain.

St. Pete is the lightning capital of the country.

With Dick’s letter encouraging me, I’ll stay on as class rep, but if I don’t get some news, we’ll assume that age has overtaken and we should quietly close. Happy fall to all.

Send news to: L. McD. (Mac) Schetley ’44, 6782 14th Ave. North, St. Petersburg, FL 33710; teichley@gmail.com

When I got the news about Donald Spraragen, it prompted me to look back through my “archives” of Class Notes, because I already knew that Don had worked for Boeing and left to go back and work with his father in the family business. I enjoyed the walk back through and realized how interesting those career stories are in telling the story of the Class of ’45. That will have to be my future lead story after I do an in-depth look at what those stories say!

Many in our class are not doing much responding these days, which is easy to understand, but the stories keep coming, even in obituary form. Enjoy the stories and say a prayer for those that we have lost.

Donald Spraragen, 93, of Tequesta, Fla., passed away on June 10, 2016. Born in Schenectady on March 17, 1923, Donald graduated from Scotia HS in 1941, and received a bachelor’s degree in aeronautical engineering from RPI in 1945. He served in the RPI V-12 Naval Program during WWII. Right after graduation (’44) he was with the Navy until the end of the war. After the war he worked for Boeing Aircraft in Seattle, Wash., for several years before returning to Schenectady to join the Spraragen family business, Schenectady Hardware and Electric Co., which was founded in 1923. Donald became president of the company in 1982, and was involved in the electrical construction of SPAC, Schenectady County Public Library, and the Albany Medical Center, among others. He was an avid golfer, boater, and fisherman, and had been a member of the Mohawk Golf Club, Shriners, Cypress Lodge, and the Temple Gates of Heaven, as well as a Paul Harris Fellow of Schenectady East Rotary. When he retired to Florida in 1993, his son, Lawrence Spraragen, became president and led Schenectady Hardware and Electric Co. to even greater heights. Larry died suddenly in 2008; then his son, Chris Spraragen, became president and has continued the outstanding company reputation. Donald is survived by his wife of 48 years, Nancy (Wyman), three sons, two daughters, 11 grandchildren, and six great-grandchildren.

If you feel a burst of energy some day or have a curious grandson or daughter come by and ask what you did during your career, tell them the story and...
Researchers in the Energy Materials and Devices Lab, part of the Center for Future Energy Systems, seek to move new technologies from the lab to the marketplace for an energy-sustainable future.
have them write it down and send me a copy. Often the obituaries don’t really tell the real interesting stories in your career!

Send news to: Herb Asbury ’45, 4435 Foxenwood Lane, Santa Maria, CA 93455-6718; asburyh@aol.com

70th Reunion: Oct. 6-9, 2016

Many thanks to Ed Miller who has announced his “retirement” as class correspondent. If someone else is interested in the job, contact Meg Gallien at gallim@rpi.edu.

Send news to: Herb Asbury, 1000 Troy Building, Troy, NY 12180; gallim@rpi.edu

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Building, Troy, NY 12180;
it in your sights, and if at all possible, plan to come to

many thanks to Herb Kee who is stepping down as class correspondent. If someone else is interested in the job, contact Meg Gallien at gallim@rpi.edu.

Send news to: Fred Grob ’49, 4 Albatross Lane, Smithtown, NY 11787; fredgrob78@gmail.com

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Many thanks to Herb Kee who is stepping down as class correspondent. If someone else is interested in the job, contact Meg Gallien at gallim@rpi.edu.

Send news to: Fred Grob, Troy, NY 12180; gallim@rpi.edu

Building, Troy, NY 12180;
troy.in your sights, and if at all possible, plan to come to

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65th Reunion: Oct. 6-9, 2016

Send news to: Fred Williamson ’51, 23 Briarwood Drive, Old Saybrook, CT 06445; john_f_williamson@comcast.net

As I prepare to attend Reunion & Homecoming this fall, I keep thinking about Reunion 2017. That will be our 65th. I hope that many of you will keep that date in your sights, and if at all possible, plan to come to Troy.

In keeping with that, C.J. Nager sent me the following: “We have set up a Reunion Committee for our 65th gathering in Troy as follows: Reymann Branting, John Crush, Hans Gruenberg, Al Krause, our president, Joe Mansfield, John Margenot, C.J. Nager, Bob Sy, and John Winter. Classmates, come join us. God willing we’ll have a good turnout. If you have any questions, comments, or suggestions for the Reunion, pass them on to any of the committee members. We hope to see you there.”

If you need help getting a message to the committee, send it to me and I will forward it to C.J.

The Spring Class Notes were edited by RPI to reduce the size of Rensselaer, so to see the whole version, go to rpi.edu/magazine and click on lower right corner of the cover to open the contents page and click on Class Notes.

I learned that Dick Boyle passed away on April 22, 2016. In the Winter 2014-2015 issue of Rensselaer, you can find a write-up about Dick’s career in the Navy. If you would like to see the obituary that Gerry Weeks, wife of Bob Weeks ’51, sent, please contact me, and I will either send you an email or USPS mail with the obit.

If you have any news before the next issue—probably Spring 2017—please send it to me as soon as possible.

Send news to: Harry (Bud) Howey ’52, 15 Sylvan Lane, Troy, NY 12180-8542; bud@uf2bk.com

Our own “Iron Man,” Dick Opsahl (opsahl@mac.com), recently ran in the San Francisco half marathon. He and his wife, Judy, are planning a week’s walk on the west coast of Wales. At their Sequoias Community in Portola Valley, Calif., they teach computer use and chair the campus lawn bowling league.

Keep going; you are great!!

Phil Brock ’52 (phlbrock@optonline.net) organized a Phi Sigma Delta alumni reunion dinner with wives and friends at Hampshire CC in Mamaroneck, N.Y., recently. Those attending included Howard Bittman ’50, honorary trustee of the RPI Board (bittman@optonline.net), Richard Greenberg (rich9830@aol.com), Carl Puchall (carlpuchall@aol.com), Arthur Goldstein, Howard Alkoff ’54 (malaikoff@aol.com), Chet Vogel ’58 (cvoegel@verizon.net), and Phil Brock. Others who almost made it were Lee Pomeroy ’54, Joe Weber ’52, Noel Siegel ’52, Lee Kirsch ’52, Paul Spindel ’56, and Jerry Reinert ’56. Catching up, remembering, and future plans made up for a delightful evening. Howie Alkoff swam varsity at RPI and is swimming competitively in the 80-84 age group. He recently won several gold and silver medals.

Some names we attempted to catch up with were Bill Shoop (lacrosse All-American), Herb Fishman ’51, Bill Moller, Jack Kinstlinger ’52, Don Flaks ’56, Norm Zelvin ’51, Sam Wait, Len Teitelbaum, Michael Rose, Stan Amberg ’56, and on and on.

I joined a senior men’s group called “Next Steps” and as soon as I mentioned graduating RPI, others spoke up. They were David Bleich ’64 (dbleich@aol.com), Don Levin, M.M.G. ’58 (donlevin@gmail.com), and Paul Spindel ’56 (pspindel@gmail.com). Can’t go far without meeting an alum.

Go on to the RPI home page on the internet and download “Commencement Colloquy” for excellent speakers discussing “The Unity Underlying Diversity: Multi-Cultural, Intellectual, and Geographic.” This will stimulate you with answers and endless questions. Let me know at agaent@aol.com: What do you think?? The site is a great way to keep up with doings at school.

Send news to: Arthur Goldstein ’53, 940 Sylvan Lane, Mamaroneck, NY 10543; agaent@aol.com

Palm Beach Gardens, Fla., is loaded with RPI alumni! I recently had dinner with Adrian (Tiny) Salee ’57; regularly play bridge with Martin Rogers ’56, Mel Hirsch ’57, and Jerry Schneider ’59; occasionally run into Lee Kirsch ’52 (a player on that year’s championship lacrosse team); and have dined with Zev Rosen ’54 and Larry Hefter ’57.

Obviously, our successful careers, the result of our excellent RPI education, have resulted in comfortable retirements.

Sad to report the passing of John Lane ’53 on June 15, and of Ron Hildreth on June 21. Ron lived in Montrouge, Long Island, and had achieved success as a patent attorney.

Send news to: Bob Meyers ’54, c/o Class Notes, RPI, 1000 Troy Building, Troy, NY 12180; bobmeyers@aol.com

In March Lloyd Bauer met in Florida with three other members of RPI’s 1954 NCAA championship hockey team—four of the ten surviving members. “We recounted and exaggerated many fond memories both on and off the ice.” He and Janet also met with Ann and Chuck Ringland. “In four hours we reviewed 60-plus years of activities.”

Joel Godston writes: “Annmarie and I are living in Seattle in a Horizon House community of about 500 ‘folks.’ It is walking distance to the center of downtown Seattle—convenient to theater, restaurants, and stores—really nice. While no longer flying, I chair a group interested in photography, a group interested in aviation (about 25 of us aviation nuts), and am with Chapter 26 of the Experimental Aircraft Association—ages ranging from 30s to over 100. Yes, I am having lots of fun in retirement.” Joel and Willy Lick, friends since RPI lacrosse and football, keep in touch.

Chuck Higgins wrote that he has been reading our Class Notes. “I see there is a lot going on in ’55 and years around. I guess people talk more in this time of life. I live in Ocean Township, N.J. I spend most of my time with kids and grandkids now. Hope to keep in touch, I see how short life can get. Bit of a surprise all of a sudden.”

Richard Knapp divides his time between Bronxville, N.Y., and his summer house on Long...
On the Bookshelf:

RECENT BOOKS BY ALUMNI AUTHORS

Heat 30:1
Douglas Congdon ’69 • CreateSpace, 2015

The year is 2025. Earth is cooking. Water is scarce. Food riots are common. And the government has imposed rigid food-to-people ratios. In Dodge City, Kansas, farmers are besieged on all sides. The government making unreasonable demands.

Faceless billion-dollar corporations sacrificing all for profit. Helper robots on the fritz. Guns everywhere.

Can one man make a difference? John Henley thinks so and intends to save his farm—or die trying.

A futuristic Western, Heat 30:1 blends politics, farming, and humor in a picture of life in 2025.

Douglas Congdon ’69 is an author and lawyer living in the Virginia suburbs of Washington, D.C.

The Passion of Dolssa
Julie Berry ’95 • Viking Books, 2016

The Passion of Dolssa is a historical young adult novel set in medieval France. Bottille is a matchmaker who struggles to run the family’s tavern in the small seaside town of Bajas. Dolssa is a young woman with a secret that she can’t help but share—she speaks to God regularly.

Branded a heretic, she’s on the run. When the two young women cross paths, both deep friendship and mortal peril await them.

Julie Berry ’95 is the author of several young adult books including the award-winning All the Truth That’s in Me.

Untethered: Problem Solving Unshackled by Rhyme or Reason
Roy Wepner ’68 • AuthorHouse, 2016

Untethered explores problems that are large, small, trivial, and imaginary, and provides solutions that are free from the restraints of logic and practicality. The author’s solutions are way beyond outside the box. He solves problems from the world of politics and the workplace; he promotes the general welfare with a variety of best practices for producing and watching television, and even a way to assure that we take our meds every day. He even conjures up several ways to improve baseball.

Roy Wepner ’68 is an intellectual property litigator in New Jersey and the author of The Postwarriors: Boomers Aging Badly.

Tau Ceti: The Immortality Conspiracy
George T. Hahn ’69 • Amazon Digital Services, 2016

The Tau Ceti colony supplies Earth with critical medicine, supports scientists from Earth, and operates a library ship that gathers petabytes of valuable data. But, for mysterious reasons, the Western Alliance tried to undermine the colony’s control over itself in pursuit of mysterious goals. The colonists resisted. Now, battling intrigue and unfamiliar technology, the Tau Ceti colonists will face the overwhelming power of the Western Alliance, leading to a deadly confrontation in deep space.

George Hahn ’69 is a retired software engineer and former aerospace engineer. This is the third volume of his Tau Ceti science fiction trilogy.

CORE 4 of Wellness
Kaushal B. Nanavati ’92, M.D. • CreateSpace, 2016

The path to total wellness begins at your core. Nutrition, physical exercise, stress management, and spiritual wellness are the roots of health, peace, and contentment.

CORE 4 of Wellness provides exercises to help you handle stress, models for improving your eating habits, routines for physical activity, and guidance toward achieving the life you desire. The author helps you learn to manage stress, find balance and peace, inside and out, discover how to stay calm and positive in any given situation, and be happy and healthy and stay that way.

Kaushal B. Nanavati ’92, M.D., is a motivational speaker, an integrative family physician, and an author.

Energy Economics
Roy L. Nersesian ’61 • Routledge, 2016

The bulk of energy demand for electricity generation and transportation will continue to be fulfilled by conventional means (fossil fuels, hydro, nuclear). Yet fossil fuels are finite with perhaps a century or so at best left. A main thrust of this book concerns the transition from fossil fuels to renewables (nuclear, hydro, wind, solar, geothermal, wave, and tides). We have time to make this transition, but we are also running out of time. This textbook provides detailed examinations of key energy sources and summarizes how the current economics of energy evolved.

Roy Nersesian ’61 is professor of management and decision sciences at Monmouth University.

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60th Reunion: Oct. 6-9, 2016

performing design and maintenance engineering for the Naval Sea Systems Command. “While in Monroeville, I was active in Little League and Boy Scouts, served briefly on the city’s Planning Commission, and was elected to a six-year term on the board of the Gateway School District. Pat was very active in the community and was named Monroeville Woman of the Year in 1988. After 26 years in Monroeville, Westinghouse offered me the opportunity to be QA manager at the Westinghouse Hanford Co. in south-central Washington state, and so began our “Great North-west Adventure.” The position was responsible for the quality assurance oversight of 10,000 employees engaged in the post-operation cleanup of the 550-square-mile site. I was subsequently promoted to director of environment, safety, health, and QA reporting to the president, directing a staff of 700 engineers and technicians, responsible for all compliance programs at Westinghouse Hanford Co. I retired in 1994 at age 60, earned the Certified Financial Planner designation, and worked as an investment adviser for 10 years on a part-time basis for a local firm. We’ve now lived in Richland, Wash., as long as Pittsburgh and I’ve served six-year terms on several charity boards (Catholic Family and Child Services, Hope Home) and been an active supporter of United Way. Pat and I have five children, 11 grandchildren, and three great-grandchildren in diverse locations. When not traveling to visit family, we have enjoyed many international trips with a preference for cruising. We continue to be active and, despite the usual signs of aging, can report that life is good!”

I got a press release about Jack Hubbard from the Jamestown Press in Rhode Island. Jack has been a coach for years for a middle school team that enters a competition sponsored by the FIRST Lego League. Every year the League selects a topic the teams must address. He was named the most outstanding coach by the FIRST Lego League in 2016. Google Jamestown Press and Jack Hubbard to read the news release.

I got a nice email from Walt Schoh, who wrote: “Hey, we made it to 82 and with luck will be 83 when we celebrate our 60th from RPI. I live in Morro Bay, Calif.—am a PiKA—got a BAeroE from RPI in ’56—got an Aero master’s from Princeton in ’63. I married a Samaritan nurse, Lee Bordeaux (still married to her—great 58 years)! After RPI ROTC, spent 21 years in USAF flying jet fighters and spent the next 31 years as an aerospace safety consultant while teaching aviation safety courses at USC in LA. I scuba dived for years until the tanks and weight belts got too heavy for an aging back. I’m still breathing and have kept track of four of my fraternity brothers, one no longer with us.”

I talked with Richard Schmidt and he sent me a summary of his experience post 1956. He wrote: “As for what I’ve done since school, pretty much had fun. I loved doing the stuff, and they paid me to do it. I felt guilty of taking the money, but I needed it, since I didn’t have an alternate source.”

“Transistors were available, but design techniques were primitive. A fellow at Sperry had come up with new concepts that he taught to a group of us, then we taught to 400 fellow engineers. He then formed a circuit review department that all designs had to go through prior to manufacture release. I became one of his managers. As a result, the need for design corrections after release plummeted. “We won a contract for a search radar using a design purchased from a Dutch firm. I spent a few weeks in the Netherlands learning their techniques and understanding their drawings that had to be translated into English. Next was building a demonstration Marine air-search field radar. I was in charge of the transmit/receive portions, but then had to also handle the high power solid state transmitter-antenna. That was a real challenge—one coupling mismatch could destroy the whole system. We were able to put on a terrific show on schedule. “After 18 years at Sperry I was recruited to Dynell by the founder who had worked with me at Sperry. We worked on 3-D photography. I spent a couple of years traveling the nation to market the technology, and handled the processing of about 50 patents of which 49 were granted (I was told the average grant rate was 50 percent). I was the inventor or co-inventor of 12 of those. We spun off from Dynell as Robotic Vision Systems and I was responsible for development of a 3-D inspection system for diesel engine castings, and automation of attaching doors on cars on the assembly line. The latter entailed creating the equations to define beauty, a necessary requirement for selling cars. “I rejoined Dynell to work on radar and then on submarine sonar. I was responsible for developing the automatic classification of sounds heard by the sonar system to identify target ships from friendly ships, marine life, and torpedoes. That job dried up with the end of the cold war. I was fortunate to find a need for artificial intelligence at the Chase Manhattan Bank research facility in Brooklyn. Following a few mergers I ended up in Manhattan heading the group providing the daily statistics of


If your name is not here, we would urge you to attend. We are planning the biggest, maybe, and best, hopefully, Reunion yet. Try to be there!”

Jerry Reinert, our class president, writes, “Hi, to all the members of our June 1956 class. As of now, we are graduates of Dear Old RPI for 60 years. I find that unbelievable; I’m sure that you do as well. ’3 Score’ With no way to know how much more time we have, hopefully to our 70th, I ask each and every one of you to please, please, please make every effort to attend the Reunion weekend on campus.

Frank Griggs, chairman of the Reunion Committee, along with all the members including myself, are working diligently to make this, the 60th, as great as our 50th and to try and convince as many of our class members to attend as we can. As class president I look forward to greeting you, registering you, and helping you to have a wonderful time. Please take my urging to heart, pack up, and see you in Troy!”

Jerry also writes: “Remo J. D’Ortenzio served as class president for 35 years. He died Jan. 29, 2016, of kidney failure. Remo lived with his wife, Joyce, in Rochester, N.Y. Their family includes four children and five grandchildren. He was a member of the Lambda Chi Alpha fraternity. He was an officer of Xerox Corp. for many years, and he was also at Harris RF Communications/Redcom Labs. As a member of our class, he was liked and respected by all who knew him. To quote Remo: ‘The Rensselaer experience was one of the most significant of my life experiences. I was rewarded with a great education, significant personal growth, and many deep friendships, all of which continue to impact my life even now.’ All of us who knew him, know that he was a gentleman and a man of honor. He was a wonderful friend to us and RPI. May he rest in peace.”

Ken Jordan sent me an email updating his career as follows: “After marrying my Phalanx blind date, Pat Michel, we lived for two years in Niagara Falls (Union Carbide) followed by three in Schenectady (GE-KAPL). We then moved to Monroeville, a Pittsburgh suburb (Go Steeler!), where I worked for Westinghouse for 26 years in various technical and management positions. After three years in Pittsburgh I took a leave of absence to return to RPI to complete my doctoral work (materials engineering). Technical challenges in Pittsburgh included managing groups involved with fuel rod design and fuel failure mechanisms in Westinghouse commercial power nuclear reactors. My organization resolved many fuel issues over the years. In later years I was in charge of several reactor licensing groups. Westinghouse sponsored me in a program through which I earned an Executive MBA from the University of Pittsburgh. Additional management assignments included a position reporting to the general manager of a new division
the retail internet business of JP Morgan Chase for upper management.

“I retired in 2004 and moved to a continuing care facility in Springfield, Va. I help people at the facility with computer problems, teach computer courses, head a Sudoku group, and give lectures on cosmology. I also volunteer as a judge for school science fairs in Maryland, Virginia, and D.C.”

Send news to: Frank Griggs ’56, 30 Bradt Road, Rexford, NY 12148; fgriggsjr@verizon.net

Art Goldstein ’57 Honored for Lifetime of Board Service

Art Goldstein ’57 was presented the Lifetime Achievement in Governance Award from the National Association of Corporate Directors New England Chapter at a ceremony held in May at the Seaport Boston Hotel.

Goldstein is a technology pioneer with more than 40 years of experience as a director and executive. He led Ionics Inc., a water desalination, purification, and supply company, to remarkable growth in his positions as chairman, president, and chief executive officer. Ionics was purchased by General Electric in 2005. He was also a founder and chairman of the board of Sun Catalytix Corp., which is now part of the Lockheed Martin Corp.

Goldstein’s achievements as a director span the fields of technology, health care, finance, and higher education. He is a member of the board of trustees at the California Institute of Technology and the Massachusetts General Physicians Organization.

His previous directorships include Cabot Corp., State Street Corp., A123 Systems, Jobs for Massachusetts, and Dana-Farber/Partners Cancer Care. He has served as a director and committee chair of Partners HealthCare System, and as chairman of the Massachusetts High Technology Council. He is a former member of the Visiting Committees at the Harvard Business School and the Harvard School of Public Health, and was president of the Rensselaer Council.

Long active at Rensselaer, Goldstein has been recognized with the Alumni Key Award, the RAA Fellows Award, and the Demers Medal. In 1997 he received the Rensselaer Entrepreneur of the Year Award.

Goldstein is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. He is an emeritus member of the Energy Initiative External Advisory Board at MIT and is chairman emeritus of the board of overseers of the International Business School at Brandeis University. He received a B.S. in chemical engineering from Rensselaer, an M.S. in chemical engineering from the University of Delaware, and an MBA from Harvard University.

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Some hot news: Art Goldstein has been honored with the 2016 Lifetime Achievement in Governance, by the National Association of Corporate Directors, New England Chapter, for his more than 40 years as a technology pioneer, director, and executive. His achievements are too many to cover here, but include “top gun” at Ionics, which he sold to GE in 2005, and founder and chairman of Sun Catalytix, now part of Lockheed Martin. He is still on the board of Caltech, a member of the National Academy of Engineering and the American Academy of Arts and Sciences, and with significant past and current activities at MIT, Brandeis, and RPI. He has also served on the boards of Cabot, State Street Bank, Dana-Farber/Partners, Mass General Hospital, and Partners HealthCare. Art, your classmates congratulate you for your outstanding accomplishments and your service to your many interests!

With the shift towards a combination of Alumni News in print and digital, part of the last column omitted some news from the following members of the 60th ’57 Reunion Committee.

Doug Hashbrouck: Having raised three daughters and a son (RPI ’89/’92), Marilyn and I now find our nine grandkids are moving on way too fast….three out of college, two working, and one in med school, three in college, two graduating HS this year, and the youngest, two years later. Life has generally treated us very well, still in our home of 28 years, do our own gardening, housekeeping, maintenance, lawn care, etc. Love golf and bowling. Lots of volunteer work since retiring (the first time!) 25 years ago, for RPI, church, our local HOA, etc. Put Reunion 2017 on your calendar now.

Rex Krueger: Karin and I are almost 20 years in Oregon. We have three children, seven grandchildren, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian children, and one great-grandchild. We are active in our church. Annually I teach in an Indonesian

Harry “Bud” Lindner: Marge and I still reside in Latham, N.Y., and have three children and seven grandchildren. I retired from General Electric Silicones in 2000 after a 39-year career in process engineering and various management positions. I fill my retirement hours playing in a community orchestra, serving in my local church, and working with the Full Gospel Business Men’s Fellowship. I continue to represent the Class of ’57 on the board of the RPI 50 Year Club.

Buzz Campbell: Caroline and I are still in Wayland, Mass., wintering in Naples, Fla. 2016 will see us moving to North Hill, a seniors complex for purposeful living in Needham, Mass., next to Wellesley, where we grew up. We are blessed with Lori and Jack, seven grandkids (20 to 30), and a very cute and intelligent great-granddaughter. We sold our journal, CryoGas International, after starting it 25 years ago, and continue with our M&A business and our international cryogenics consulting business, Intelligas.

And Burt Liebowitz has also joined the committee since this was written.

Dick Portnoy let us know that after a Caribbean cruise, he and his wife, Alice, visited Skip Schatz and Joanne in Palm Beach Gardens, Fla., together with Marty Meisel, Bob Rubinstein, and their wives Bette and Joan. During that time Skip and Dick, together with Jerry Reinitz ’56 and Stu Werner ’54, attended the RPI luncheon in Boca Raton on Jan. 4, where Dr. Shirley Ann Jackson was speaker and amazed them with the future plans for RPI.

Think Troy, Oct. 12-15, 2017, for our 60th! It looks like we’re on track for a very good class turnout.

Send news to: J.R. “Buzz” Campbell ’57, 888 Washington St., Ste. 302, Dedham, MA 02026; jrcampbel2@gmail.com

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I’m in need of classmate news for the next issue of Rensselaer. Please provide some if you can.

This spring I received the following note from Richard Haus: “We are getting pretty long in the tooth now, at least I am. Upon browsing the Fall 2015 issue of Rensselaer the thought occurred to touch base with you and bring you up to-date.

“My wife, Anne, and I spent the past 13 years of retirement at a boating and golfing community in northeast North Carolina. It was great fun within a great community, in very rural Hertford, N.C., about 60 miles south of Norfolk, Va., on Albemarle Sound.

“With the passing of the years, I had both hips replaced, both shoulders fixed, and two spine surgeries. Considering all that, I feel pretty good, but am no longer golfing or boating. We wanted to get a lot closer to more densely populated civilization and the medical facilities that includes and we moved to Covenant Woods (a continuing care retirement community) in Mechanicsville, Va., last September. We expect this to be our last move and plan to spend our remaining years here. We have found many new friends, good entertainment, lots of good doctors and hospitals, and fine dining. We also have a close access to public transportation to visit our three grandchildren and their parents in Connecticut. What more could anyone ask? My best wishes to all our classmates.”

It sounds like Richard and Anne have made a wise choice. Best wishes to them.

Send news to: Jim Augstell ’58, 22 General’s Way, Clifton Park, NY 12065; augstj@juno.com

Send news to: John Lindsay ’59, c/o Class Notes, RPI, 1007 Troy Building, Troy, NY 12180; britcards@alum.rpi.edu
I heard from Roberto Silva that his old and good friend Pedro Kubes died on April 8, 2016, in Guatemala. Pedro worked in the U.S. and Guatemala during his long career. His most recent job was teaching at the University of San Carlos de Guatemala in the Engineering School.

Roberto and Pedro were roommates in the old Church Dorms and according to Roberto, Pedro "was a man of integrity, complete honesty, and great common sense."

My memories of our days at Rensselaer include many Latino students. We were blessed by their joy, studious efforts, and good will.

A recent note from Michael Bushell sent the sad news that Harvey Blomberg died.

Harvey was my freshman roommate. After Rensselaer he received an MBA from Hofstra and according to Michael was a "financial wizard." Harvey was a joy as a friend. Always happy and interesting.

His most recent work was as regional director of the Connecticut Small Business Development Center. Had a nice chat with Dean Shekhar Garde of the School of Engineering at a recent Rensselaer function. Dean Garde is one impressive fellow. The Engineering School has many new opportunities for student and faculty projects. I offered to help raise some money for them. If any of you are interested and wish more information, please contact me.

The Alumni News is being bifurcated between print and online versions. An inevitable move to a more cost-effective system but I will miss the aesthetic beauty of the print version. The images were stunning.

Stay well, old friends.

Send news to: Bill Blanchfield ’60, 2610 Sunset Avenue, Utica, NY 13502-6009; bblanchfield@hsettlement.com

55th Reunion: Oct. 6-9, 2016

Send news to: Brian McManus ’61, 2109 Hidden Creek Road, Fort Worth, TX 76107-3510; brian44@sbcglobal.net

Some of the social organizations on campus sponsored boy-meets-girl events during our freshman year. I had high hopes of meeting a nice young lady. So I attended one of the events. Unfortunately for me, most of the women were husband hunting, and they gravitated toward upperclassmen. What was a poor freshman to do?

Dick Lundgren is in the news. Dick is a retired commercial real estate broker with a passion for historic preservation. Early this year, he tried to save a historic 18th-century house in Lancaster County, Pa., from demolition. Dick received his bachelor's degree in management from RPI. He also holds master's degrees in real estate finance, public administration, and city planning. He says he has won seven golf championships. I have a question: What's a nice Brooklyn boy doing in Lancaster County? Then again, Brooklyn-born Bernie Sanders lives in small town Vermont.

I have some news to add. My wife and I celebrated our 45th wedding anniversary on March 21. Also, our second-grade granddaughter, Mia, entered an exhibit in her school's science fair. She proved that if electricity can cause a motor to spin, the reverse must be true: A spinning motor can generate electricity.

Send news to: Jay Windermann ’62, 1868 Bridgeway Avenue, Claremont, CA 91711-2520; jburke@earthlink.net

Last year in February, Dennis Powers retired as the operating partner of Nova Capital Management. That was Dennis' third career. He consulted for management for 10 years, working in New York and London as well as in Massachusetts. Thirty years were dedicated to running eight B2B technology-based manufacturing companies. His time in private equity as the operating partner and board member included 11 portfolio companies.

In retirement Dennis does volunteer work with Mentoring Corps for Community Development in Connecticut. Dennis and his wife, Verity, now devote considerable time to their grandchildren, golf, sailing on Long Island Sound, and travel. Dennis particularly enjoyed the 2015 RPI Reunion and the final band party at Sigma Chi, where the house band from the early ’60s, Oedipus and The Mothers, performed for the last time.

Mark Gordon is still working at Iowa State University as a Distinguished Professor of Chemistry. Mark was awarded the Schrödinger Medal at the meeting of the World Association of Theoretical and Computational Chemists in Santiago, Chile, and the very prestigious ACS Award in Theoretical Chemistry at their annual meeting. He earned his Ph.D. at Carnegie Mellon, where his doctoral adviser was Nobel laureate John Pople.

Mark and his wife, Joan, are Yankees fans even in Iowa. They get to the stadium every year. Leisure time is spent at their place in Kauai where Mark gets in some snorkeling time. Mark and Joan have a son who is a computer engineer with Microsoft. While most of us are retired, Mark tells me that the fun and excitement of research and working with very bright young people keeps him on the job.

Ken Manning retired from Sensient Technologies Corp. after 18 years as CEO and 19 as board chair.

I have had the honor of writing our class notes for the last 28 years. There has been some success in getting classmates to send updates on careers and life's experiences. Write when you can!

Send news to: Jack Titley ’63, 151 Hamilton Ave., Watertown, CT 06795-2402; rpi63@sbcglobal.net
als. And right about now he should be driving through Troy, en route to a New England cruise out of Boston. He signed off noting that “Dancing Feet Are Happy Feet, Keep Them Feet Happy.”

Neil Brooks wrote in to say that he and his wife, Sandi, are about to celebrate their 50th wedding anniversary; hard to believe! For the last two years Neil has been a professor at the Frank Netter School of Medicine at Quinnipiac University. He teaches first- and second-year medical students and it is the most enjoyable thing he has ever done. He actually tried retirement for one month but failed it badly. His son, daughter-in-law, and granddaughter live in Phoenix, so he goes there as often as possible. And he’s still doing some consulting work; all in all, life is great.

Rick Medzig reports that he and his wife, Carol, have relocated from Pahoa, Hawaii, to Palm Springs, Calif., after five years on the rainy, rural, windward (east) side of the Big Island. From the rain forest to the desert; quite a change! Rick’s daughter Emily met a law student in a bar in Sydney and then spent two weeks in Iceland—great trip (I met up with old friends and then sailed (on a catamaran) to Seattle, where they visit their daughter and granddaughter, who live in Phoenix, so he goes there as often as possible. And he’s still doing some consulting work; all in all, life is great.

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Dick Vennett wrote in to say that he and his wife, Mary Ann, took a 15-day cruise (on Oceania Cruise Lines) from Sydney, Australia, to Auckland, NZ, back in February and March. It was their first time south of the equator. They spent four days in Adelaide before the cruise with friends from Dick’s working days. But the highlight of the trip was running into none other than Earl Sedlik onboard the ship! They shared a few pleasant meals after that chance meeting. As they say, it is a small world and you should always behave yourself even when thousands of miles from home! You never know who you will run into. Dick heartily recommends Australia and New Zealand to all who have not been there. Dick and Mary Ann celebrated their 50th wedding anniversary this past July 9.

My old buddy Tom Luciano wrote to say that he thought that he would put his 50 years of aviation experience to use. He is currently working part time for Metis Technology Solutions, a subcontractor to NASA that administers the Aviation Safety Reporting System for the FAA. The office is close to Moffett Field and Ames Research Center in Sunnyvale, Calif. They processed 92,000 reports last year.

Bob Asam sent in a note to report that he is coach for a youth (age 7-11) lacrosse team and assists with the varsity (or high school). He also volunteers with the Crane Foundation and has gathered seeds to plant prairie plants in addition to burning off old growth and replanting areas. His two grandkids are ages 12 and 14 and growing up fast. He enjoys all kinds of fishing and boating and living in Wisconsin.

Had a note from Barry Wintner to say that he and his wife, Gisela, recently sailed from Seward, Alaska, to Vancouver. In addition to stops in Haines, Juneau, and Ketchikan, Alaska, they also sailed (on a catamaran) to Seattle, where they visited with Charyl Kay and Earl Sedlik. Barry reports that the Chugach Mountains, the Inland Passage, and Puget Sound have scenery of indescribable beauty. The way the light at dawn and dusk highlights the trees and water of the Inland Passage, and the way the clouds build up over the Olympic Peninsula are really special. There was plenty of wildlife, two- and four-footed, and numerous finny species available for viewing.

And, finally, I received an actual snail-mail letter from Jane Slezak, who earned her Ph.D. in chemistry, studying with Sam Wait. She reports that she has spent most of her career in education—first spending time in a postdoc program at the University of Pittsburgh (quantum chemistry), then Synace (structural mechanics), and then back to Troy for her third postdoc studying biomedical engineering with the late J. Lawrence Katz. Jane has taught chemistry and math at St. Rose, Schenectady County Community College, and recently retired after 25 years at Fulton Montgomery Community College. She now tutors at the Amsterdam Literacy Zone and also co-manages her family business, Slezak Petroleum Products. Jane continues to support the "Tute with a graduate fellowship in memory of her parents. It was so nice to hear from her after all these years.

In early June I received an email from Mary Esther Parker, the wife of Alton Brooks “Bud” Parker, who was among a contingent of Air Force, Navy, and Marine officers who completed a master’s program at RPI in 1965. She said that she and Bud have received and read the Rensselaer magazine ever since and would welcome learning the whereabouts of any of their former military classmates. Mary’s email address is ms65@aol.com.

50th Reunion: Oct. 6-9, 2016

The class correspondent can connect with bright, creative, technologically savvy people doing important work in the world. That’s why I like the job. Preparing for the 50th Reunion has expanded the possibilities. After 10 years, though, I might be induced to retire, should someone else want to seize the gauntlet and take up the challenge.

Face it, guys, by the time you read this we’ll legitimately be old-timers. Remember when we were students and the 50-year-reunion people doddered onto campus? We are they now. Despite some shuffling and shaking and occasional time out for chemo, we’re still a vibrant lot able to make a difference. If not now, when?

Frank Buckman loves taking motorcycle trips. He’s ridden well over a quarter of a million miles in 47 of the Lower 48. Bikes are primarily Triumphs—two 2005 Rocket IIs, a 2009 Bonneville 50th Anniversary, and a 1995 Sprint 900 currently. He packs two canine travel buddies into a small trailer and answers the call of the road. A box of dog food, a kick-start stomp (on his earlier bikes), and he and Linda are off. The poodles are our age in dog years.

Wright Aldridge still works part time as a civil engineer for the Georgia Department of Transportation. He’s seeking adventure in the northern straits this year, just not too much of it. Wright and Mary will be on the first cruise ship to navigate the Northwest Passage. The Passage will probably be open then. Open waters are exceedingly important since the vessel is single-hulled. The trip from Anchorage to NYC takes 32 days. When home in Atlanta, Wright enjoys his family and hockey-fanatic grandson who live one mile away.

Your correspondent—Bonnie Hepburn—has been in a hurricane in December in the Barents Sea above the Arctic Circle, so she chose transcontinental air crossing over polar maritime passage to visit her son in the one state Frank intentionally excluded. NPR describes Portland, Ore., as the city which morphed from Lumberjack Central to Hipster Heaven without residents needing to change
clothes. Sure enough, the Prince (son Jameson) and his lady love wear mostly plaid flannel shirts, jeans, and boots. She adds pearlized white nail polish for sparkle.

From Portland we jaunted up to Tacoma for the Glass Museum and the Glass Bridge and to Vancouver, BC, for the virtual reality conference. We also journeyed south to Bandon, Ore., where new-born sea otters basked on rock pillars with their mornies.

For years I’ve dreamed of visiting the Glass Bridge. What might it look like? How was supportive structure hidden and glassian beauty highlighted? Most importantly, was I prepared to move Santiago Calatrava to second place on my favorite-bridge-designers list?

No need. The Glass Bridge is an ugly metal pedestrian bridge over a busy freeway. A series of display cubbies with glass objects on one side justify its name. Think skew bridge from freshman engineering drawing class with some vases in cubbies added. Double Humph.

Highlight of the trip was spending mucho time with Amyn Sunderji and wife Nargis in Vancouver, BC. Chef-owner Amyn has sold his African restaurant and is managing his real estate investments now. Primarily, though, he’s enjoying life. He’s not changed from college days and is still a joyful bon vivant with soul. Nargis, the love of his life, procures investment funding for startups.

They were about to jaunt off to Lisbon. We hope, after that, they’ll join us in Troy.

Richard Ross retired from a career in government and subsequent years with SAIC and is now traveling the world with Jean. Current travel is personal and fun. They recently returned from two weeks in Alaska where they were lucky to get into Denali shortly after it opened. Opening date varies with snow and accessibility. Before our 50th Reunion they’ll fit in a boat trip from Prague to Budapest. When at home in Virginia, they attend many events at nearby Wolf Trap.

Appointed mathematician Paul Davis is working to make the world a better place. He earned B.S., M.S., and Ph.D. degrees from RPI and then moved to WPI where he taught for 45 years. Now directing the WPI London Centre, he will be featured in an upcoming column.

Send news to: Bonnie Hepburn ‘66, 549 S. Palm Ave. #4, Sarasota, FL 34236-6760; hepbum@moneyensewin.net

Don Drew spent 40 years in the Department of Mathematical Sciences at RPI, retiring in 2013. He was appointed as the Ricketts Professor of Applied Mathematics in 1994, and was head of the Department of Mathematical Sciences from 2002 to 2012. He worked with Richard T. Lahey Jr. ’64, contributing to the development of the equations for multiphase (bubbly) flow as applied to nuclear reactor safety. This work changed the state of the art from empiricism to computationally correct and efficient models.

Don married his college sweetheart, Peggy, and had two daughters and six grandchildren. Don and Peggy recently celebrated their 50th wedding anniversary. They are looking forward to attending Reunion 2017, since they live just around the corner. Don would be happy to hear from friends and classmates. His email is drewd3@rpi.edu.

Our own Nicholas M. Donofrio, chairman of the board of regents of the Connecticut State Colleges and Universities System, was elected to the Connecticut Academy of Science and Engineering, Class of 2016. Donofrio, a longtime Ridgefield, Conn., resident and retired IBM technology executive, was elected to the National Academy of Engineering in 1995. That’s normally an automatic trigger for nomination to the Connecticut academy, but his achievements were in New York and his name did not surface on the list until this year.

Send news to: Stu Berg ‘67, 99 Hickory Circle, Ithaca, NY 14850-9610; stuartberg@alam.rpi.edu

Steve Litchfield was one of the Alumni Assn. Boston Chapter volunteers at the BAA Boston Marathon Pasta Fest at Boston City Hall the day before the race last April. He is now retired from working in the corporate information technology software field at companies including Gillette and Fidelity Investments. Steve’s interests include being a trustee of the Scituate Historical Society and using his engineering skills to review design options for a pumpkin-firing trebuchet.

Roy Wepner has published his second book titled Unraveled: Problem Solving Unshackled by Rhyme or Reason. The book explores solutions for a wide range of problems that include large, small, trivial, and imaginary problems that are unrestrained by logic and practicality. Solutions far outside the box are developed for problems such as sure-fire ways to remember if you’ve taken your medications today and how to avoid being fired from your job. When not solving problems, Roy is still practicing law as a partner of a law firm in New Jersey focusing on intellectual property litigation. After completing bachelor’s and master’s degrees in mechanical engineering at RPI in 1968 and 1969 respectively, he received his J.D. in 1974 from the U. of Pennsylvania Law School.

Classmate Lou D’Amario was recently given a Distinguished Alumni Award by the Classical High School Alumni Association. Classical is a highly ranked public high school in Providence, R.I., that is devoted solely to college preparatory studies. The award was for Lou’s work at the Caltech Jet Propulsion Laboratory in the fields of energy-saving interplanetary trajectories for spacecraft and the robotic exploration of the planet Mars. After completing a B.S. degree in aeronautical engineering at RPI, he received master’s and Ph.D. degrees from MIT in 1970 and 1973 in aeronautics and astronautics.

Lou retired from JPL in 2012 and lives in Rhode Island with his wife, Maria.

Hank Nusbaum posted a short announcement on the “Submit & Read Class Notes” section of the Alumni Association webpage saying he completed an MBA degree from the U. of Connecticut this year. This latest degree is in addition to his B.S. in biomedical engineering from RPI, and M.S., Ph.D., and M.D. degrees. Hank is practicing medicine in Connecticut and is board certified in the specialty of obstetrics and gynecology.

An email with photographs from Steve Davidson came in at the deadline. Steve, Charlie Erdrich, and their wives took a two-week vacation trip to Peru and Ecuador that included stops at Machu Picchu and the Galapagos Islands. Steve and Charlie first met as freshmen living on the first floor of Bray Hall and graduated with degrees in the same major of aeronautical engineering and astronautics. Charlie and his wife, Nancy, are recently retired and are loving the active lifestyle of Boulder, Colo. Steve retired in 2011 and is celebrating living the last 25 years in Hawaii with his wife, Liane.

Send news to: Mal Crawford ‘68, 19 Ellision Road, Lexington, MA 02421-7407; KIMC-Mal@earthlink.net

What ever happened to our RPI classmates from the late ’60s? I asked, and many of you responded, as follows:

John Silletto: In a little more than a month I will be retiring after 20 years with PHOENIX Process Equipment Co., the last 16 as the company’s VP of operations. In retirement I am looking forward to playing more golf, improving my Texas Hold’em play, and spending more time with my three grandchildren. My wife, Zina, and I plan to do some traveling—we will be making a visit to Quito, Ecuador, at 9,000-plus feet above sea level.
Haven Eaton (MgmtEng): Upon graduation from RPI, I started my first job with Pratt & Whitney Aircraft in Hartford, Conn., as a quality engineering trainee. I routinely worked with people who had 20-plus years with the company and given my age when I started I expected to retire from the company with 40 years of service. For the most part I enjoyed the various positions I had and rose steadily through the ranks into supervision and middle management. In 1977 the company moved us to Florida. The business became very competitive, which led to efforts to reduce costs (insert lay-offs here) and I was laid off in 1993.

After eight months and just before my benefits ended, I got a job as a quality manager in Oklahoma for a company that repairs jet engine parts. After the sudden death of my wife (life is too short) I made the decision to “retire” early, sell the house, and move back to Florida.

I married for a third time in 2000 and shortly thereafter began the long and difficult process of adopting her two grandchildren. My plans had not included a second family, particularly when the oldest was only 7 and the youngest 3 when the adoption was final in 2003. Consequently, here I am at 69 with a 16-year-old still under our roof. Their teenage years have been a challenge! My plans also did not include working, but I started my own home repair and remodeling business. Most of the time I’m the only employee and most of the work is what most people would consider handyman work, but I have done a number of bathroom remodels. I find the work very satisfying and it keeps me in reasonably good shape.

Steve Abrams: Married to Malva Rabinowitz (also an RPI grad) 8/16/80. Three kids, 31, 27, 23. Worked at Chemical Bank (1974-1982), Chase Manhattan (1982-1990), MasterCard (1990-2010). At MasterCard I was responsible for the Global Commercial Payments Division from 12/1993-4/2010 when I retired from MasterCard. After about five months I formed a consulting company focusing on commercial payments strategy, search, and advisory services. Currently I am consulting, active in business development, and on the advisory boards of a few emerging software companies. Malva retired from Deloitte in 2014 after 38 years and also formed a consulting company.

Greg Matthews: I spent 23 years in the U.S. Navy as a helicopter pilot and operations analyst. Then I taught high school physics and math for 19 years (reconnecting with my B.S. degree in physics). I also coached high school and club soccer for many of those years while mostly living in Virginia. I retired five years ago and am now enjoying a variety of sports, traveling, gardening, and reading. I’m looking forward to our 50th Reunion in three years.

Next issue we’ll hear from Mike Bergamini.

Send news to: Rick Hartt ’70, 192 North Lake Avenue, Troy, NY 12180-6518; harttrm@aol.com

Send news to: James Watt, an RPI physics major (not surprisingly), was recently appointed president and CEO of Warren Resources, a Denver-based oil and gas exploration firm. James previously was president of Dune Resources, and worked for various energy companies over the years. Congratulations to James!

Dave Ritchie (track and cross-country manager for four years), now retired from SUNY Cortland, drove his nephew’s car across the country to Palo Alto, visiting family and friends. He took his bicycle and toured the Southwest on his way to California. I’m glad to hear you’re staying active and enjoying your retirement, Dave.

Speaking of staying active, Bill Pollock ran the 2016 Boston Marathon, finishing in 4 hours, 4 minutes, good for 124th place among men 65-69 years old.

Former RPI visiting professor of mathematics and distance runner Tom Osler is still teaching at Rowan University. At age 76, Dr. Osler is still one of the sharpest profs at Rowan, and stays in shape by jogging and running road races.

On April 17, I ran the Valley Forge, Pa., 5-mile race, finishing in 36:11, good for first place among men 65-69 years old.

Let me know what you’ve been up to.

Send news to: Seth Bergmann ’71, 410 Villa Nova Road, Glassboro, NJ 08028-1558; bergmann@rowan.edu

Around five years ago I developed a neurological issue that induces severe chronic pain. If I’m not waiting for that to subside, the Vacoind that does the trick causes me to approach things like Alumni Notes with all the alacrity with which I ran down the hill to Linear Algebra. If you send me something and it doesn’t appear (there’s also up to a six-month lead time), either hang on, or send me a reminder.

The champion loser in the “oops” category is Bob Zitik, who’s waited over two years to see his name in print. Bob retired in July ’14 after a 43-year career. He was sponsored by Western Electric in their co-op program as a mathematics undergraduate, and, following an MSCS, he accepted their job offer and a 30-year career with the Bell System. His work in international network applications enabled him to travel extensively throughout Europe and Asia.

Upon leaving Bell, Bob moved on to Medco and Express Scripts, working with mid-to-large employers in developing and managing prescription drug benefit plans. His last business trip was, ironically, to Albany, at which time he visited Troy. No, Not Manory’s. RPI. In the two-plus years since his retirement, he’s rediscovered his golf game; he’s engaged in some charitable endeavors; and he’s almost caught up on house projects. As he was approaching retirement, his wife, Debbie, received her clinical doctorate in occupational therapy; she teaches at Mercy College in Dobbs Ferry, N.Y. They celebrated their milestones with a 2014 summer trip to London and Paris. Another “lost in my inbox” is Robert Valen-
tine, PE. He earned his master’s from RPI-Hartford in 1978. He describes his career as “eclectic” but the detail notes only that he retired (2014) from the Ellwood National Forge in Irvine, Pa., his last position being chief engineer. In retirement he’s traveling in a motor home, a vast improvement over the “two-man tents of the Rensselaer Outing Club.”

Bob Vetere received the Rolf C. Hagen Hall of Fame Award this past March. This award is presented annually by the pet products industry in recognition of the support of organizations and individuals dedicated to improving the lives of pets and people, and for innovative design in pet products. Bob spent enough time in Troy to go beyond his Management B.S. and acquire an MBA in marketing from the Lally School of Management; he went still further at Seton Hall University, receiving a JD in business law. He is the president and CEO of the American Pet Products Association, in Greenwich, Conn. Going a bit further beyond the APPA, he was also instrumental in the creation of the Human Animal Bond Research Initiative, Pets Add Life, and the Pet Leadership Council. His mission has been “to encourage and facilitate cooperation among all sectors of the pet industry,” as reported by Pet Product News.

Bob also found time to author From Wags to Riches: How Dogs Teach Us to Succeed in Business & Life, and he sits on the board of Green Chimerneys (Brewster, NY., providing animal-assisted therapy for special-needs children) and the Morris Animal Foundation (Denver, Colo.). He began his career as an industrial engineer at Union Carbide, eventually moving on to Oil-Dri Corp. of America, and then to First Brands Corp. If you count a pet among your family members, she may have been helped through life by one of our classmates, who has dedicated his recent years toward improving the industries behind their care and feeding, and the lot in life of the animals themselves.

At the last, Ken Adamo was the subject of a notice from John Marshall Law School (Chicago, Ill.), stating that he was to speak this past March at John Marshall about recent changes in U.S. International Trade Commission law. Ken received his B.S.Che from RPI, and a JD from Albany Law School. He also studied intellectual property law at JM, receiving an LL.M. from them in 1989.

Ken is a partner in the IP group at Kirkland & Ellis LLP, he is based in Chicago. His practice focuses on all aspects of IP law, including patents, copyrights, trade secrets, etc.; he has extensive trial experience as lead counsel in both jury and non-jury cases before state and federal courts.

It’s probably time to start thinking about our 45th Reunion. I’m presuming next fall, 2017, I hope to recognize a few of you there. In the meantime, send me news and I promise it will show up in this column, sooner or later.

Send news to: Bob Dvorak ’72, 12 Mill Lane, Saugerties, NY 12477-1128; bobdvorak@hvc.rr.com

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Chris de Graffenried retired as a director at the New York Power Authority several years ago to accept a senior engineering position at Consolidated Edison NYC reporting to the chief engineer. More recently and after nearly eight years of defense, he received a pair of related U.S. patents for (1) a plasma-based carbon pre-capture device (#9,212,058), and (2) a plasma array apparatus (#9,284,503). Most recently, he filed a third related invention for carbon pre-capture with co-firing—to reduce carbon dioxide emissions from electric power generating plants burning hydrocarbon fuels (patent pending). He and his wife, Kathie, have been blessed with two beautiful energetic granddaughters, Ali, age 2½, and Charlotte, six months.

Chris has several relatives who attended RPI: His wife, Katherine (Kathie) Sack de Graffenried, RPI ’75 (Comp.Sci.), a one-woman computer help desk and assistant teacher, Wampus Elementary School, Armonk, NY.; his son, Christopher Jr., RPI ’01 (pre-med, and Albany College of Pharmacy, Pharm.D.), supervising pharmacist, Rite-Aid, Troy, NY.; his father, Albert L., RPI ’42 (Aero & E.E., former RPI assistant professor), deceased at 93 on April 22, 2014; and his nephew, Brian Sanders, RPI ’07, (Chem.E.), working in Arizona.

Last fall, the board of trustees of Coleman University elected Norb Kublius president and CEO of this San Diego-based IT and business technology university. Norb had been a member of the board of trustees of Coleman since 2012 and interim president since May 2015. Norb has an M.S. from RPI in computing and technology management.

Alan Greenberger, former deputy mayor (2009-2015) of Philadelphia, joined the teaching ranks of Drexel University this spring as a professor in the Department of Architecture & Interiors in the Westphilal College of Media Arts & Design. Alan was instrumental in developing a comprehensive plan for Philadelphia, called Philadelphia 2035, and oversaw the rewriting of the city’s zoning code.

David Borton, professor emeritus from the Tuite, demonstrated how a solar-powered vessel could proceed along in the Erie Canal last October. “Solar Sal” transported 4 tons of recycled cardboard cargo from Lockport to Mechanicville. Think we can revive an old song about Solar Sal on the Erie Canal?

In other news...and now these are important...

Dr. Larry McKeen has added a new role to his illustrious career: golf ranger for the Founders Club in Myrtle Beach. As you may remember, Larry is the longtime expert on plastics at DuPont, publishing over 21 articles, including the well-known “Tribological Properties of Plastics and Elastomers” (Elsevier Press). Larry also holds 17 patents. Hit’em straight, Lar.

Finally, Steve Norton, our faithful webmaster of www.rpi73.org, is looking for his band. If anyone would like to apply, contact him on our website or at stevenorton@aol.com.

Send news to: Gary DiCamillo ’73, 477 Wianno Avenue, Osterville, MA 02655-1924; garydicamillo@gmail.com

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Send news to: James C. Wernicke, PE ’74, 5485 David Blvd., Port Charlotte, FL 33981; wernickejc@yahoo.com
Kevin Hamburger '75 wins Daytime Emmy

Veteran television executive Kevin Hamburger '75 won a Daytime Emmy Award as senior supervising producer of The Talk on CBS at the 2016 awards ceremony in May. The Talk, which had earned six previous nominations, won the Daytime Emmy for Outstanding Talk Show/Entertainment.

Hamburger was previously senior vice president, production, at Fox Television Studios, where he oversaw such shows as Burn Notice, the White Collar pilot, and The Wanda Sykes Show. Prior to joining Fox, he served as senior vice president, production, at Warner Bros. Telepictures Productions, overseeing hit network and syndicated shows including The Ellen DeGeneres Show and The Bachelor.

Hamburger launched and worked on the first two seasons of Jimmy Kimmel Live, serving as supervising producer. He also spent seven years at Politically Incorrect with Bill Maher, the last two as executive producer, earning seven Primetime Emmy nominations and one CableACE award.

Over the years Hamburger has worked for various production companies, and was part of the launch team for the groundbreaking cable channels MTV, VH1, and Nick at Nite. He started his career as a systems design engineer at WNET (PBS) and ABC Television in New York.

Hamburger earned his bachelor's degree in electrical engineering at Rensselaer, where he was active in WRPI.
in any hurry. Bob can be reached at bob@WeldingEngineer.com.

Rich Packer is now the primary executive officer of Asahi Kasei, leading the global Health Care Business Unit. Melanie Brown sends news that in 2015 she was named chief intellectual property counsel of Cytec Industries Inc. and has global IP responsibility for the corporation. She also serves as a trustee on the board of BRICK Academy, a nonprofit devoted to improving the elementary education of low-income families in Newark, N.J. She also serves as an outreach leader in her church, North Branch Reformed Church, Bridgewater, N.J., to help serve local poor families.

So where did you go on an interesting vacation this summer? Drop a note. Can anyone beat Mike McCabe’s recent trip to New Guinea?

Send news to: Paul Sicard ’79, 1424 Kenilworth Parkway, Baton Rouge, LA 70808-5737; psicard@entergy.com

Send news to: Kathy Pratt Harrington ’80, 179 Wyman Road, Groton, MA 01450; kpaharrington@gmail.com

35th Reunion: Oct. 6-9, 2016

Dan Dunlap was nominated for a Rotary National Award for Space Achievement (RNASA) Stellar Award in two categories, the Team (STAR 48GXV) and Late-Career categories. These awards serve to encourage, recognize, honor, and celebrate U.S. space achievement.

Rebecca Smith-Keven retired at the end of May after 30 years of federal service with the Department of Energy (DOE) and the Tennessee Valley Authority. For the past 10 years, she served as a senior executive with DOE, most recently as the director for light water reactor technologies, leading the Small Modular Reactor Licensing Technical Support (SMR LTS) Program and the Light Water Reactor Sustainability Program. Prior to the SMR LTS Program, she directed the Nuclear Power 2010 Program, which supported the development and licensing of the latest generation of nuclear reactors and led directly to the ongoing construction of the new nuclear plants in Georgia and South Carolina. After retiring, Rebecca, her husband, Tom, and cat, Mango, relocated from the D.C. area to Gilbert, Ariz., a suburb of Phoenix. She can be reached at rsmithkeven@verizon.net.

Send news to: Marc Glasser ’81, 14689 Wood Creek Court, Perrysburg, OH 43551; marcglasser@gmail.com

Please join us on Facebook at www.facebook.com/groups/RPIClassof82/

Tammy Ellis Bloomer provided this update: “I have been working at the Nuclear Regulatory Commission for the last 16 years, where I am currently the chief of staff and materials policy adviser for one of the commissioners at NRC. I married Charles Bloomer—a graduate from Siena who I met at an RPI party at the Union. I have a 28-year-old son with a master’s in administration of criminal justice who is a drug and alcohol counselor in Pittsburgh. Still enjoying life!”

Phil Lamoreaux reported that he is alive and well in the Boston area. Phil recently released one of the first 100 apps for Amazon’s Alexa voice interface (Doc Rogers).

Marci Sindell has been promoted to chief strategy officer and senior vice president of external affairs for Atrius Health. Marci is now leading the ongoing work of articulating the Atrius Health strategy, facilitating the change initiatives required for its execution, and working with managers to align decisions with strategy.

Dave Stern was recognized with a Georgia Bio Community Award for significant contributions to Georgia’s life sciences industry—specifically, his dedication to the growth of Georgia’s medical device sector, as well as his leadership within Georgia Bio. Dave was the first employee of CardioMEMS, an Atlanta-based medical device company that successfully developed a wireless sensing and communication technology designed to improve the management of heart failure.

Rick Schuett was appointed senior vice president of worldwide sales at Echelon Corp., a leading independent control networking company for the industrial internet of things (IIoT). Rick’s 20-plus years of leadership, core lighting, and sales experience will drive Echelon’s market strategies in the lighting and the embedded systems lines of business.

Send news to: Mark Bowers ’82, 4344 N. Witchduck Road, Virginia Beach, VA 23455; mark.bowers@lighthouse-one.com

The Daily Gazette named Tobi Saulnier (B.S., Ph.D. ’94) to its board of directors in a move that will help the Schenectady, N.Y., newspaper develop a stronger online presence. Tobi is the CEO and co-founder of 1st Playable Productions, a video game studio in Troy, N.Y., that develops mostly educational video games for children. After graduating from RPI, Tobi started her career at GE Research, then spent five years at Vicarious Visions, before starting 1st Playable in 2005.

Katherine Dewkett, PE, has been promoted to senior associate and department manager of site/civil transportation in Dewberry’s NY office. Dewberry is a privately held nationwide professional services firm. Katherine earned her B.S. at the University of Massachusetts and her M.E. at RPI, both in civil engineering.

Joseph Betz (B.S., B.Arch.) was appointed chair of the Department of Architecture & Construction Management at Farmingdale State College, SUNY. He is also this year’s recipient of the Presidential CARES Award (Commendation and Recognition for Exceptional Service) for his exemplary work on behalf of students, faculty, and staff. The award is given out to one faculty member each year.

Where the time goes, I have no idea, but my youngest son, Andrew, is heading to RPI as a freshman this fall, so I plan on attending Reunion/Homecoming. Hope to see some of you there.

Send news to: Diane Updegrove ’84, 3002 Colonial Ridge Drive, Brandon, FL 33511; kupde@sbcglobal.net

Greetings, readers! For those interested in supporting the students, you may be interested in knowing that the Rensselaer Alumni Association has established a scholarship fund, now in the endowment phase. If you wish to participate or become a founder, contact the Office of Alumni Relations for details.

Maybury ’89 Honored for Role in Government IT

Mark Maybury, MBA ’89, was honored at an Armed Forces Communications & Electronics Association (AFCEA) international conference in July. He received the AFCEA Distinguished Award for Excellence in Information Technology for “his immeasurable contributions to the understanding and advancement of the role of IT in enhancing our nation’s security.”

Maybury is chief security officer of The MITRE Corporation and vice president and director of the National Cybersecurity Federally Funded Research and Development Center, which MITRE operates for the National Institute of Standards and Technology.

The AFCEA commended Maybury for his leadership of an independent MITRE R&D program that resulted in more efficient technology transfer, leading to more affordable products for government agencies. In recognition of this work, earlier this year he received Federal Computer Week’s prestigious Federal 100 Award, given to those “who have played pivotal roles in the federal government IT community.”

From 2010 to 2013, Maybury served as chief scientist of the Air Force, where he provided assessments on a wide range of scientific and technical issues. He also served on the Executive Committee of the Air Force Scientific Advisory Board, where his contributions included studies on commercial space, rapid on-orbit checkout, and operating in contested cyberspace.
In December 2015, Tredegar Corp. announced that Jennifer Aspell (B.S., E.E.) was named president, engineered polymer solutions, of its PE Films division. After joining Tredegar in 2010, she assumed the leadership role for Bright View Technologies, a Durham, N.C.-based manufacturer of highly advanced optical management products.

Lin Hartung Chambers (B.S. & M.S. in Aero. Eng) was named a fellow of the American Association for the Advancement of Science (AAAS) this past February. As the lead for education and communication at NASA Langley’s Science Directorate, she is the principal investigator for the MY NASA DATA project, where she makes NASA’s large collection of scientific data of our Earth accessible to a broad academic audience. Chambers is director of the Students’ Cloud Observations On-Line (S’COOL) Project; this is a program she created using K-12 student data for validation of NASA’s Clouds and the Earth’s Radiant Energy Satellite instrument cloud measurement products. Additionally, Chambers serves as project scientist for NASA Global Change Education Project working with a multi-agency community of climate change education funders and awardees.

Mike Manning (B.S. & M.S. in Materials Eng.) was sworn in as mayor of Watervliet for his third term beginning in January 2016.

In December, DeVry University appointed Joe Mozden (B.S., E.E.) as vice president of workforce solutions, where he will identify how the university can best prepare its graduates for today’s most pressing workforce challenges. Mozden will be responsible for developing a portfolio of services designed to help its employer partners improve team performance.

Last December, Pamplona Capital Management, a global specialist investment manager, appointed Justin Perreault (B.S., Mech. Eng.) as a partner in its growing U.S.-based private equity presence. Based in Boston, he will focus on investing in the technology, media, and telecom sectors.

Send me your news!

Send news to: Patricia DeLauri ’85, 478 Winthrop Street, Medford, MA 02155; pdelauri@sbc.com

Greetings, Class of 1990; I trust all are well! Congratulations are in order for Daniel T. Pickett III (B.S., MgmtEng), who was recently welcomed to the RPI Board of Trustees. Daniel started his career with KeyCorp, founded ACE Software Sciences, then joined ALLTEL when it acquired ACE, rising to become senior vice president and general manager of enterprise banking solutions. Daniel is currently the CEO and chairman of the board of infrastructure, a company he co-founded that designs, builds, and operates technology infrastructure and applications for large enterprises. Daniel serves on the boards of Vanguard Behavioral Solutions, Albany Medical Center, and Albany Medical College.

Mark Barlow (MBA), who previously worked with Xylem Inc. and ITT Corp., has been named director of Catholic Cemeteries of the Roman Catholic Diocese of Syracuse in addition to remaining treasurer of the board of directors for the organization.

Another MBA from the Class of 1990, James Martin, was inducted into the Canton H.S. Wall of Fame for his exceptional service to the community of Windsor, Conn. James has served as chair of Windsor’s Economic Development Commission for the past 15 years; has been a board member and past president of First Town Downtown; and is active with the Windsor Historical Society. In his “spare” time, he is a certified financial planner and managing partner of Sagemark Consulting, managing the firm’s team of more than 60 financial planners.

In other news, John Bayne (M.S., Mech.E.), a vice president at Corning Glass Technologies, recently joined the board of directors of The Food Bank of the Southern Tier.

I heard from Bianca (Haspel-Habif) (B.S., Math) and Paul Mancinelli (B.S., Physics), who are well!

Gregg Bresner, CFA, has joined CION Investment Corp. as senior managing director and chief investment officer. He will oversee origination and investing activities for CION and its affiliates and play a key role in developing new business opportunities and strategic initiatives.

Paul Pysher joined Choate, Hall & Stewart LLP as partner. He joins a team of nearly 40 intellectual property attorneys, patent agents, and staff scientists at Choate and will focus on electronic circuits, computer hardware and software, network architecture, and medical devices technologies.

Send news to: Joseph Hom ’89, 342 Westchester Ave. 3E, Port Chester, NY 10573; johom@flashnet.com

Additional information about the 89th Reunion:

30th Reunion: Oct. 6-9, 2016
Alec Gallimore, the Eleanor A. Tower Professor and a professor of aerospace engineering at the University of Michigan, became the university’s Robert J. Vlasic Dean of Engineering July 1. He has served in multiple academic and leadership positions at Michigan’s College of Engineering for almost 25 years.

Send news to: Jane LaGoy ’86, 28 Nashua Rd., Pepperell, MA 01463; 73taitaham@gmail.com

Send news to: Peter Quinones ’87, 30 Marie Heights, West Sand Lake, NY 12196; ppmquinones@yahoo.com

Alyce Brady (M.S., Ph.D.) has been selected to hold the Rosemary K. Brown Professorship in Mathematics and Computer Science at Kalamazoo College effective September 2016. She has taught in those departments at KC for 22 years, teaching a variety of computer science courses from introductory classes to advanced courses on programming languages, data structure, dynamic internet apps and software development in a global context. Her research interests include the application of computer science to social justice (Alyce served as the Arcus Center for Social Justice Leadership Faculty Fellow from 2013-2015), the development of more effective computer science education exercises and opportunities for students, software design, academic computing applications and human-computer interfaces. In 2007 she co-authored a seminal article in computer science education, “A 2007 model curriculum for a liberal arts degree in computer science,” and in 2010 she co-wrote the article “Case studies of liberal arts computer science programs.”

Mukta Farooq (Ph.D.) has been named an IEEE fellow recognized for contributions to 3-D integration and interconnect technology. The IEEE grade of fellow is the highest grade of membership conferred by the Institute of Electrical and Electronics Engineers’ board of directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. Less than 0.1 percent of the membership get conferred this designation. Farooq has more than 180 patents. She joined GlobalFoundries in 2015 when it acquired IBM’s microelectronics business. While with IBM, she was named a Lifetime Master Inventor as well as a member of the Academy of Technology. She received an IBM Outstanding Technical Achievement Award for leading the 3-D-integrated circuit technical development. She currently is the technical leader for advanced silicon packaging and for 3-D integration and interconnect technology. She is also an IEEE Electron Device Society Distinguished Lecturer.

In April 2016, David Frey (B.S., Biomed. & MBA) completed an 18-month investigation together with two members of the NYPD that resulted in the arrest, prosecution, and plea of Robert Costanzo, the infamous “Ninja Burglar” who was responsible for at least 200 residential burglaries in New York, Connecticut, and New Jersey over a 10-year spree. In May 2016, Frey was named the new Investigations Bureau Chief for the Richmond County District Attorney’s Office where he has worked for over 18 years.

Send news to: Grace Vitagliano Roth ’88, 917 Fanwood Avenue, Westfield, NJ 07090-4212; grace@abcworldvacations.com

Mark Barlow (MBA), who previously worked with Xylem Inc. and ITT Corp., has been named director of Catholic Cemeteries of the Roman Catholic Diocese of Syracuse in addition to remaining treasurer of the board of directors for the organization.

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In other news, John Bayne (M.S., Mech.E.), a vice president at Corning Glass Technologies, recently joined the board of directors of The Food Bank of the Southern Tier.

I heard from Bianca (Haspel-Habif) (B.S., Math) and Paul Mancinelli (B.S., Physics), who are well!
were married just two days after graduating in May 1990. Five years later at SUNY Stony Brook, Bianca got her M.S. and Paul got his Ph.D. in astrophysics. Twenty-five years later, they feel blessed in celebrating their 25-year anniversary along with their two daughters, Chiara and Lucia, and son, Dante. They are proud to announce that Chiara has joined the family legacy this past year as a freshman at RPI and add that bringing her up to RPI has brought back a flood of memories!

I heard from Craig Pine (Materials Eng.), another Hall Hall alum, who reached out to say hello. Craig is currently quality manager at Crystalis in Green Island, NY.

While we just missed overlapping each other on campus, Lou Russo (Ph.D. Chem.Eng., 1996) and I enjoyed a brief trip down memory lane at a meeting here on the ExxonMobil campus in Spring, Texas, where we both now work. Fond memories of wing nights and Professor Wayne Bequette, who often joined us on a wing night, were recalled.

As for Dianne and me, we celebrated the high school graduation of our daughter this past June. We anticipate several trips out to Pullman, Wash., while we’re out West. As the “nest” is now empty, and in the wake of our daughter’s graduation this past June, we are looking forward to several trips out to Pullman, Wash.

Thomas Hood stepped down June 30 following a 10-year career at MMI Preparatory School in Freeeland, Pa., including eight years as head of school. He is leaving to become president at St. Agnes Academy and St. Dominic School in Memphis, Tenn. Hood became MMI’s head of school in August 2003, and had previously served as MMI’s vice president for two years. He joined the MMI administration after a 22-year career in the U.S. Army, including four years as an assistant professor at the United States Military Academy at West Point.

Christopher Holmes has been named chief executive officer of Channel Technologies Group LLC, a manufacturer of piezoelectric ceramics, transducers, and complex sonar and navigation systems used in the defense, medical, and energy industries. Prior to joining Channel, he was CEO at RM Technicron, which focuses on electronic systems supplied primarily for aerospace and defense communications applications.

Send news to: John Trammell ’92, c/o Class Notes, RPI, 1000 Troy Bldg., Troy, NY 12180; johntrammell@gmail.com

Shorya Awtar ’00 Launches FlexDex Surgical

Shorya Awtar, M.S. ’00, associate professor of mechanical engineering and director of the Precision Systems Design Lab (PSDL) at the University of Michigan-Ann Arbor, is the inventor of a new minimally invasive surgery technology called FlexDex. The startup he co-founded with James Geiger and Greg Bowles, FlexDex Surgical, is based on research and innovations in parallel kinematics, virtual center, and flexure mechanisms at the PSDL.

FlexDex Surgical’s laparoscopic instruments precisely translate the surgeon’s hand and wrist motions to an articulating end-effector inside the patient’s body via a simple, elegant, and purely mechanical design, providing intuitive control that is similar to expensive robotic surgery systems, yet is priced with existing affordable laparoscopic instruments.

“The widespread adoption of laparoscopic surgery has been limited by the functionality or affordability of the existing technology solutions,” says Awtar. “Our goal is to democratize advanced laparoscopy around the world.”

FlexDex Surgical is launching its first product, an articulating Needle Driver for suturing and knot-tying, at select U.S. sites this fall. In the long term, the company plans to apply its technology platform across all laparoscopic and endoscopic instruments.

Awtar earned his B.S. at IIT Kanpur, M.S. at Rensselaer, and D.Sc. at MIT. He has three dozen inventions that are patented or patent-pending and has received numerous awards, including the American Society of Mechanical Engineers’ Leonardo daVinci Award for the invention of FlexDex, the SAE’s Ralph Teetor Award, and multiple R&D100 Awards.

“Upon landing in the U.S., I was an M.S. student in mechanical engineering at RPI from 1998 to 2000, and that experience had a transformative impact on me,” says Awtar. “It helped set the course of my subsequent professional trajectory.”

Send news to: Rob Sherman ’90, 9927 Hawthorne Garden Way, Katy, TX 77494; robsherman@hotmail.com

Send news to: Ileana Gonzalez ’93, 86 Riva Ridge Lane, Newnan, GA 30263; igonzalez@alum.rpi.edu

Send news to: Bill Wheeler ’94, 832 W. Agatite Avenue, Unit IN, Chicago, IL 60640; william_wheeler@yahoo.com

Please keep the updates coming. Brian Sheehan will be inducted into the Section 4 Hall of Fame as a 1991 graduate of Elmira Notre Dame High School who earned 10 varsity letters in football, basketball, and baseball.

Julie Berry is launching another novel, The Passion of Dolssa.

Wendy Goetz has been chosen as the new administrator of the residential health care facility at Rome Memorial Hospital.

Edward Russavage joined the intellectual property law firm Wolf, Greenfield & Sacks, P.C., as a shareholder.

Tony Artino and Mike Van Poots have been selected to the rank of captain in the U.S. Navy. Please join me in congratulating our colleagues on these achievements.
**20th Reunion: Oct. 6-9, 2016**

Tim Dominick was nominated for a Rotary National Award for Space Achievement (RNASA) Stellar Award in the Mid-Career category. These awards serve to encourage, recognize, honor, and celebrate U.S. space achievement. Tim is senior principal mechanical engineer in the Missile Defense and Controls Division of Orbital ATK.

**Send news to:** Hank Carbone ’96, 701 Cottage Avenue W, St. Paul, MN 55117; hcarbone@hotmail.com

For the first time in forever someone sent in an update—yippee! Mary (Rooney) LaChance wrote with a great update:

“The last several years I have been a coach of a FIRST Lego League team. Whenever I mentioned to people that I coached a team, the most common response I would get was ‘My kid would love that! Do you have any space on your team?’ However, each team can only have 10 kids on the team and mine was already full. So I decided to try to expand the number of teams in our town.

“Last year, a friend of mine who graduated from MIT and I applied for and got a grant to start the nonprofit Glastonbury Robotics and Engineering Club. The goal of this club is to create a community for Glastonbury students to participate in the FIRST programs (www.firstinspires.org) and inspire young people to be future science and technology leaders. We had overwhelming interest in the club. We started 12 new FLL teams and 19 new FLL Jr. teams with about 250 kids participating. The response from the participants was extremely positive with most of them planning to participate again this year. If anyone is interested in learning more about the FIRST programs or how to start their own team, they can contact me at mary.lachance@gmail.com.”

Thanks for helping keep the next generation excited about learning, Mary! And to the other ’97ers out there...it’s been almost 20 years; I know something has happened in the past two decades that is worth sharing with the class, so drop me a line!

**Send news to:** Kristen Fitzpatrick ’97, 57 Union Street, Watertown, MA 02472; kf Fitzpatrick@mba 2003.hbs.edu

**15th Reunion: Oct. 6-9, 2016**

Shilpan Amin, M.S. ’01, a GM executive director, Global Purchasing Program Management, was named a 2016 Automotive News “Rising Star.” The award recognized his increasingly influential efforts as a young executive leader, mentor, and champion for organizational excellence. He leads a global team of more than 450 people and is responsible for ensuring that GM’s vehicle development planning meets the company’s international objectives for high quality and profitability of new-product launches.

**Send news to:** Mike Cooke ’01, 906 Lake Shore Ranch Drive, Seffner, FL 33584; themike Cooke@yahoo.com

**Send news to:** Elizabeth Trawinski Atkhen ’02, 921 S. 8th Ave. #PCD4, Pocatello, ID 83209; ejelldo@alum.rpi.edu

William Barnes was recently awarded his New York State PE License in Electrical Engineering. Will is the president of FES Installations Inc., a privately held security integrator located in central New York. In addition, he holds the rank of major in the United States Air Force Reserve and is currently serving at Hanscom Air Force Base in Massachusetts. He lives in Cazenovia, N.Y., with his lovely wife, Erica, and two daughters, Eleanor, 6, and Scarlet, 4.

**Send news to:** Ed DerGurahian ’03, 37 Clifford Read, Menands, NY 12204; dengue@alum.rpi.edu

Congratulations to Anya Jones, who in February was named a recipient of the Presidential Early Career Award for Scientists and Engineers, which is the highest honor bestowed by the U.S. government on science and engineering professionals in the early stages of their careers in independent research. Dr. Jones has been a member of the aerospace engineering faculty at the University of Maryland since 2010, and chairs a NATO Research Technology Organization task group on jet response and unsteady aerodynamics.

Jeff Alvarez and his wife, Janica, have designed a new water-based suction system for a breast pump that more closely resembles natural breast-feeding as opposed to the mechanical aspect of traditional pumps. Naya Health, the Silicon Valley-based business they co-founded, has raised $4 million in capital for the device, which also connects to a smartphone app to help gauge milk output, and they’re working on a similar “smart” baby bottle. That’s engineering design in action—building the better mousetrap, or in this case, the better baby technology!

Jillian Blake and Benjamin Werner were both recently promoted to managing engineers in their respective areas at Barton & Loguidice, an engineering consulting firm in Albany. Ms. Blake works in the Solid Waste Group at L&S, while Mr. Werner is in the Bridge Group.

**Send news to:** Tom Reale ’04, 54 Pointview Drive, Troy, NY 12180; realet@gmail.com

Our classmate Maj. Alex Turner acted heroically when he crash-landed a U.S. Air Force Thunderbird on June 2 in Colorado Springs. Alex saved lives as he maneuvered the jet away from homes and civilians before ejecting himself out of the jet. There were no injuries thanks to Alex’s expert flying.

John Blackburn was named one of the “40 Under 40” by the Albany Business Review for his work in commercial real estate development at Redburn Development. From the Review, “The 40 Under 40 program recognizes the young professionals in our community whose names you’ll want to know in the coming years. They have demonstrated leadership, business know-how, and community involvement in their careers so far.”

Jim Adams was recognized by the Heber Springs, Ark., Chamber Board for his work. He recently became president of the board. Jim works at GAR-BRO Manufacturing Co. GAR-BRO designs and manufactures equipment for mass transport of concrete. He lives in Arkansas with his wife, Megan, and son, Grayson.

Ricky Thibodeau, MBA ’05, was appointed chair of the Accounting, Entrepreneurship and Marketing Department at Hudson Valley Community College and will oversee the School of Business Advisement Center for students.

Meredith (Langille) (Enr. Eng., women’s ice hockey), and Bill Braverman (IT, Phi Sigma Kappa, and Res. Life) were married in October 2012 outside of Philadelphia, Pa., where they now live. They welcomed their first child, Brandon Llewellyn, on Jan. 6, 2016.

I am currently working as the student life director at a small arts college (PrattMWP) in Utica, NY, and married Jerome Schantz on May 7, 2016, at Hayloft on the Arch in Vernon Center, N.Y. Kerrissa Lynch ’06 was a bridesmaid and Ann (Valliyakalayi) Mallen ’07 attended.

**Send news to:** Shannon Hitchcock Schantz; realet@gmail.com
John Dorsey has been named a partner in the law firm of Ferrucci Russo. He joined the firm in 2010 and was named a “Rising Star” in the area of real estate law in 2015 by Super Lawyers. He is a member of the board of directors for the Quonset Development Corp., and lives in Exeter, R.I.

Send news to: Alex Salinsky ’07, 5209 Congress Ave., Oakland, CA 94601; aalexsalinsky@gmail.com

Wedding bells are (always) in the air for the Class of 2008: Devin Galvin married Caitlyn Charest ’09 in September 2015. During his time at RPI, Devin led the basketball team to some big wins over Williams, Middlebury, and Union, while Caitlyn was a four-year floor leader for RPI’s women’s team. Their love for basketball and success on the court continues as they battle for the ball on the same coed team in Washington, D.C., where they live now. Congratulations, you two!

And the Class of 2008 has a new baby to welcome to the family. Eric Redding and his wife, Ashley, welcomed their first child, Elijah, into their family, and signed him with a professional wrestling company under the ring name “The Big Barracuda.” Congratulations, you three!

As Joshua Reid puts it, “never stop dreaming because, if you do, then you are not living.” Physical fitness and ambition have always been constants in Reid’s life and, this past year, he decided to leave his job at Emerson Climate Technologies in Sidney, Ohio, to focus on creating his own business: Operation D.R.I.V.E.N (Dreams Require Intense Vision plus Endless Navigation). Congratulations on the new gig and continued success, Josh!

REMSA, the Regional Emergency Medical Services Authority, has named Dean Dow president and CEO of the organization. Before being appointed, Dean was the executive director of Care Flight, the emergency medical helicopter program of REMSA. Prior to joining REMSA, he was the owner of Drawing Board, LLC, where he assisted in the planning of strategic growth for ground and air medical services. Congratulations on the well-deserved promotion, Dean!

Please keep your updates coming and make sure to like our Facebook page at facebook.com/RPI06news@gmail.com

Devin Galvin and Caitlyn Charest ’09, 11 Nicholas Rd., Deerfield, NH 03037; RPI06news@gmail.com

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Congratulations to William Garrard (M.S., IT), who celebrated his marriage to Elizabeth Logue on July 2, 2016, in Buxton, N.C.

I also, have news to share. As of July, I relocated to Cincinnati, Ohio, to begin my journey on GE’s new leadership program XLP. In addition, I recently was engaged to fellow 2010 RPI alum Chris Moulder in Chicago.

It has been an exciting few months for me and I’m sure for many of you as well. Make sure to send your updates to me at my new address, below.

Send news to: Meghan M. Lenihan ’10, 2984 Linwood Ave. #2, Cincinnati, OH 45208; lenihan@alum.rpi.edu

5th Reunion: Oct. 6-9, 2016
Send news to: Michael Zwack ’11, 6 Washington Place, Troy, NY 12180; zwack@alum.rpi.edu

Class of 2012 Industrial & Management Engineering major Jessica Wong will be moving down to the West Palm Beach area in Florida this fall with her company, UTC CCS. Enjoy the warm weather, Jessica!

Ronald Adomako has found his calling in business technology, transitioning to the field after six years of computer coding and working as an engineer. He’s based in the NYC area currently.

Please continue to send your professional and personal updates. To stay connected with the Class of 2012, like our Facebook page, RPI Class of 2012, and follow us on Twitter, @rpi12class.

Send news to: Rob Sobkowich ’12, 15 Kessler Farm Drive #278, Nashua, NH 03063; sobkor@alum.rpi.edu

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We’ve got at least two new teachers in our ranks, as Jessica O’Neill began teaching biology and physics at Shawshen Valley Technical High School and Gaines Hubbell, M.S. ’13, Ph.D. ’15, was named a lecturer in the English Department at the University of Alabama, Huntsville.

For those in the Pacific Northwest—and I have a feeling there are many of you—Teresa Konopka started a “20s Friends Up-North” meetup to connect and socialize while also working for Boeing in Everett, Wash., as an airplane design safety engineer. Get in touch with Teresa for details.

In April, I caught up with a former roommate, Joe Frank. Joe alternates between his assignment in the Seattle area and U.S. Navy deployments to Guam. Thank you to Joe and other classmates who serve our cities, states, and the United States.

As we congratulate personal achievements, it’s time to celebrate other classmates’ shared life milestones.

Sara Jeffrey married Christopher Damp on June 12 in a beachfront ceremony, with Stephanie Lennon serving as maid of honor. Tony Certo was married to Jessica Sulbinski in April. Tony works as a biomedical engineer with Integra Life Sciences, also the workplace of Ariel Mingrone and Carlie Newcomb. Special congratulations to Sara and Tony on your adventures of marriage. (I’m great at eating cake if there are more weddings or anyone needs to taste test.)

Finally, our best wishes to Steve Wood who proposed to Erin Rice, and to Katelyn Goodwin who was recently engaged to Alex Fadeev.

I mostly dig this news up through not-so-sophisticated social stalking and asking your friends what you’ve been doing. Send me an email; write me a letter; or if you’re Nat MacDonald, who I recently learned lives down the street from me, just ring the doorbell.

Two exciting notes this time around about the Class of 2009. First, congratulations are in order for Jessica Perry, who landed an architectural designer role at Ashley McGraw Architects. This is the latest step in Jessica’s 11-plus-year career. Nice work!

Secondly, the business management consulting firm The Ranier Group recently announced that MBA alumna Rachel McCracken joined their firm as portfolio manager. Rachel was praised for her diverse background in wealth management and management consulting and deep industry experience. Congratulations, Rachel!

Send news to: Jordan Hagaman ’09, 117 Brookwood Ave., Wilmington, NC 28403; jhagaman@alum.rpi.edu

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Send news to: Stephen Nock ’13, 15A Dimick Street, Somerville, MA 02143; stephenknock@gmail.com

Send news to: Thomas Thayer ’14, 20 Detroit Avenue, Troy, NY 12180; t.thayer802@gmail.com

Send news to: Sarah Spellane ’15, 2 Prout Ave., Apt. 5, Troy, NY 12180; sarahspellane@gmail.com

Class of 2016: Congratulations, you have made it! Many of you are now moving on to the next chapter of your life, whether that is a new career, a new graduate school, or a new phase. I am here to remind you that no matter how far you may roam, you will always have a place to call home here at Dear Ol’ RPI.

Over the next few months, years, and decades, a lot of things are going to happen to each and every one of you, and this is the place where you are going to come to let us all know about your accomplishments! We want to know when you receive that master’s, put a ring on your college sweetheart, have your first future RPI grad, get that big promotion, or nab that Ph.D. So please keep my email and reach out to me when you are ready for all to know what you have done.

Thank you. Good luck. See you all at Homecoming!

Send news to: Maggie Murphy ’16, 23 Green Way, Mahwah, NJ 07430; magnnetmurphy1009@gmail.com
**IN MEMORIAM**


When I looked at the cover of the Spring 2016 issue of the alumni magazine, I thought, “That’s me over 65 years ago!” The image of the young man warming up on his French horn could easily have been me if the picture had been taken in 1949, after I had returned to RPI following a brief stint in the U.S. Navy as an electronic technician.

I began playing the horn when I was 12 years old and had been exposed to classical music by my best boyhood friend, Kenny Hughes, whose father was a master sergeant in the Army Air Corps, stationed at Mitchel Field near Hempstead, Long Island. In those simpler, pre-war days, I could ride my bike the two miles or so from my home in Williston Park to Mitchel Field, wave to the guards as I rode through the gate, and end up at Ken’s house, a big brick eight-room place on the base.

Sgt. Hughes always had classical music or opera playing on the record player, and I once asked Ken what instrument was making that lovely sound. He told me it was a French horn, and from that simple statement sprang a lifetime of playing and enjoyment. I told the music director at Mineola High School, Elwood “Buck” Schwann, that I wanted to play the horn, and he was delighted; there were never enough horn players, even for a school orchestra. He also directed the Glee Club, which was a quality group that won several awards.

My educational success, or growing lack thereof, convinced me that I needed a break, and I decided to enlist in the Navy for a short time. It was after this two-year break and my return to RPI in the fall of 1948 that I was able to resume active horn playing, and the RPI orchestra was one of the first places it happened. Imagine my surprise when I read the article about the current music scene at RPI, including the plan to introduce a B.S. in Music degree program, and saw that the horn player on the cover was getting ready for a concert that ended with Dvorak’s “New World” Symphony, No. 9. We had played this very symphony in 1949 under Prof. Dolven’s direction, and it was a real challenge, but also great fun.

RPI musicians were able to expand their horizons to other venues as well. Both Joe Schmieder, a fellow Engineer, and I auditioned and were accepted into the Albany Symphony, me as third horn and Joe as fourth. Before long, Joe was promoted to second horn and his place was taken by my wife, Jeanne, also a horn player. RPI-connected people now made up three-fourths of the horn section, and we played three seasons with Albany. We also played with traveling shows such as The Mikado when it came to Albany. In the spring of 1952, Edgar Curtis, the director of the symphony, offered me the first horn chair for the upcoming season. Unfortunately, I had to decline this terrific offer to accept a job on Long Island, but the musical experiences I had at RPI lived on in my continued playing for the next 40 years, although I never did get to play the Dvorak piece again.

Doug Heydon ’51 earned an aeronautical engineering degree and currently lives in Washington, D.C. He retired in 2011 after a 60-year aerospace career with TRW, GD, Arianespace, and Aerospace Corp.
“I remember holding my dad’s hand in the streets of New York City, looking up at the tall buildings and being fascinated by how they were built. I never would have thought I’d have the opportunity to actually build the buildings that I once dreamed about as a child. To my donor: Thank you for making my dreams come true.”
– Elijah Coley ’18, School of Architecture

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