John Rettaliata '32, PhD '36

Engineering's Engine of Change

On a warm spring morning this past April, John Rettaliata '32, PhD '36, reclined in a chair in his suburban Chicago home and recalled his days at Johns Hopkins Engineering—and the high points of his illustrious 70-year career. Over the decades, Rettaliata has witnessed the ends of wars, helped usher in the beginnings of eras, and has, time and again, made significant and long-lasting contributions to the advancement of technology and society. Among his many accomplishments are the 21 years he served as president of the Illinois Institute of Technology, a position on President Dwight D. Eisenhower's first aeronautics committee, and the distinction of being one of the first humans to fly in a jet aircraft.

As a teenager, Rettaliata attended Baltimore Polytechnic Institute, which prepared him to enter Hopkins Engineering as a sophomore in 1929. He studied under the advisement of Professor Alexander Graham Christie. "He only had about three or four pupils," Rettaliata recalls. "We'd sit around his table and that's how we'd conduct our courses, studying steam and gas turbines." Those tableside conversations led to enhancements in the ways the turbine could extract thermal energy from pressurized steam, converting the energy into mechanical labor, he recalls.

When Rettaliata left Hopkins in 1936 with his freshly minted PhD, Christie helped him secure a job in Milwaukee at Allis-Chalmers, a leading manufacturing company in the Midwest. He worked in the Steam Turbine Department for eight years building turbines for military destroyers, and his diligence earned him a position on the U.S. National Advisory Council's subcommittee on aeronautics gas turbines. During World War II, he continued his work with the United States Government; he joined a group of government-contracted aerospace experts on a tour of British aeronautical research facilities—work that ultimately led to America's first jet aircraft and dominance in aeronautical research. The work also had a personal pay-off: Rettaliata became one of the first people ever to fly in a jet.

As World War II came to a close, the U.S. Navy's Bureau of Ships dispatched him to Europe to, as he puts it, "see what the Germans were doing." For weeks he was delayed in Paris, waiting for the war to end, and when it did, he accompanied the U.S. government into Germany. Rettaliata was one of the first to inspect the factories in which the opposition had built their submarines. What he found was astonishing.

At the time, submarines were powered by diesel engines when they sat on the surface of the ocean but had to resort to battery power

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J.B. SPECTOR

Now 96, Rettaliata was one of the first to fly in a jet.

when they went below the surface, a switch that decreased their power and limited their speed. However, Rettaliata says, the German submarines could travel at up to 20 knots, more than twice the speed of their American counterparts that ran at 9 knots. When Rettaliata, by then a recognized expert in steam and gas turbines and engines, inspected the now-defunct military's U-boat factories, he discovered that the Germans weren't zooming along at 20 knots on battery power; they had devised a way for their motors to run within the ocean's depths.

As he made his way through the factories, Rettaliata learned the German engineers' secret. "We called it a Hydrogen Peroxide Machine, because that's what they ran it off of," he says. To store the liquid, they filled the space between the inner and outer hulls with it. They could then disassociate it, remove the oxygen, and use it to run their engines underwater.

Returning to the U.S., Rettaliata joined the faculty of the Illinois Institute of Technology (IIT) in 1945 and relocated to Chicago, where he still lives today. At IIT, he rose quickly to become its dean in 1948, vice president of academic affairs in 1950, and president in 1952 at just 40 years old. As president, he led the school for more than 20 years, overseeing an explosion of growth for the school. "If you don't have good faculty, you'll go out of business," he says now. Therefore, he set out to make IIT a place where people would love to teach. He initiated ambitious fundraising efforts that secured a $20 million annual budget, oversaw the construction of a new downtown campus center (along with architect Mies van der Rohe), and guided IIT to national prominence.

Seven years into his tenure as president, Rettaliata was asked to join President Dwight D. Eisenhower's National Aeronautics and Space Committee. "We'd meet twice a month in his Cabinet room. We were drawing plans for space exploration," Rettaliata says. That committee eventually evolved into NASA. And, 40 years ago, his brother gave me a very illustrious award," he says, referring to one of the university's first Distinguished Alumnus Awards, bestowed upon him in 1963 by university president Milton S. Eisenhower.

Today that award hangs in Rettaliata's study, on the second floor of his office in his Chicago home. The walls of his office are covered with other illustrious awards— from mayoral proclamations to military commendations to the Chicago Gold Medal of Merit and a fellowship from the American Society of

Vikram Aggarwal and Linda Wan are both grateful for the Student Initiatives Fund.


JAY VAN RENNSSELAER


WILL KIRK

Mechanical Engineers. He also holds six honorary doctorates, from De Paul University, Chicago-Kent College of Law, the Michigan College of Mining and Technology, Rose Polytechnic Institute, Valparaiso University, and Loyola University.

Rettaliata retired from IIT in 1973 ("Twenty-one years as president was a long time," he says chuckling), then became the chairman of Chicago's Banco de Roma, which he led for six years. From there he continued to sit on at least 15 various boards, ranging from Johnson Wax and Western Electric to Sante Fe Southern Pacific and the International Harvester Company.

Now 96, this kind and unassuming man is happy once and for all to be fully retired. "Oh, I try to stay out of trouble. I'm off all the boards, but I keep busy," he says. Along with his wife, Caryl, Rettaliata now spends half his year at home and the other half on their yacht, which stays docked at Chicago's Burnham Harbor. "I'm mainly attracted to the yacht because of the engine. There's always something to do in the engine room of a boat," he says with a contented smile. "I could live in an engine room." *—Angela Roberts*

Rewarding Student Initiative

For a start-up, cVision Medical Solutions™ is racking up an impressive track record. Founded in 2007 by Johns Hopkins researchers and graduates, cVision's flagship product cVein™ began as a senior design project of students Vikram Aggarwal, Aniruddha Chatterjee, Jason Chiang, Yoonju Cho, and Wai Yim Lam. Today, the device is in clinical human trials at Hopkins' Bayview Medical Center Cardiac Catherization Lab and will soon expand to a cardiology group in Denver.

But getting to this point wasn't easy, recalls PhD candidate Aggarwal, MS '07. After he and his team had created a second-generation prototype cVein (a low-cost, noninvasive solution for measuring central venous pressure, safely, accurately and in real-time by a handheld, ultrasound-guided probe), they were eager to compete at the 2007 Boomer Venture Summit Business Plan Competition at Santa Clara University.

They lacked just one thing: the money to travel to California. "Funds were scarce at that point," he recalls. Then they learned of the WSE Student Initiatives Fund (SIF). "Without it, we would not have been able to go," says Aggarwal. "We were selected as one of five finalists in the competition, and the contacts and exposure we made there have catapulted us to the stage we are now."

Established by Dean Nick Jones in 2006, the Student Initiatives Fund supports both individual students and student groups. Awards are used as seed money for projects that are so often essential to taking a student's education and experiential learning to the next level.

Society of Engineering Alumni (SEA) Council executive board member and University Alumni Council member Carl Liggio '96, MS '00, PhD '01, is an enthusiastic donor to the fund. After a presentation about the Student Initiatives Fund during an October 2006 SEA Council meeting, Liggio, the founder of the energy industry's Systems Analysis, offered a challenge on the spot to all in attendance. "I said I would donate $500 and by the end of the day, the fund had $2,000," he recalls proudly. "I give every year. Without funding, student groups have to struggle to do things well. A little money from the fund goes a long way."

Just ask Linda Wan '09, who is beginning her yearlong tenure as president of Hopkins' Engineers Without Borders (EWB) chapter and is a veteran of two EWB trips abroad. As leader of Hopkins' EWB Ecuador project—the chapter currently focuses on engineering projects in Ecuador, Guatemala, and South Africa—Wan traveled in January 2006 to the rural community of Santa Rosa de Ayora, Ecuador, to assess the development and construction of a much-needed daycare center.

Typically, the Student Initiatives Fund supports "in country" living expenses for students, such as room, board, transportation, and interpreters. "It aids us in places where grant money or our own fund-raising falls short," Wan says. "Because of the SIF, we're able to complete our assessments and projects, so we can go back home and do our design." As a result of her experience in EWB, Wan changed her major from chemical engineering to civil engineering, and she's planning to apply to Michigan Technological University's Master's International program, which includes a year of course work followed by two years in the Peace Corps. "At Hopkins, it's all about opportunity," she says. "EWB has inspired me so much that I want to continue to use my skills to help people."

Like Aggarwal and Wan, Liggio believes students gain far more than just engineering experience from the activities supported by the SIF: "It's a great training ground. The projects make them better problem-solvers, innovators, and leaders," says Liggio. "Students learn to create new ideas and think on their feet—that's what they'll need to be successful." *—Sarah Achenbach*

The Student Initiatives Fund Challenge

Supporters of the Student Initiatives Fund challenge fellow engineering alumni to join with them to raise $10,000 for the fund by end of June 2009. This larger scale funding will enable more student groups to pursue their passions, spurring innovation and leadership opportunities on campus for engineering students.

To make a gift or obtain additional information about the fund, please contact the Whiting School Development and Alumni Relations Office at (410) 516-8723.

Fischell Awarded Honorary Degree

Robert Fischell, widely recognized as the father of modern medical stents, lifetime pacemaker batteries, and implantable insulin pumps, was presented with the Doctor of Humane Letters at Hopkins Commencement ceremonies on May 22. The honorary degree, presented by President William R. Brody, recognizes Fischell's extraordinary contributions to society through his many medical device inventions, generous support to biomedical engineering education, and medical research.

Before embarking on a 38-year career with the Johns Hopkins Applied Physics Laboratory (APL) as a space scientist and medical device inventor, Fischell earned his bachelor's degree in mechanical engineering from Duke University and a master's in physics from the University of Maryland. During his career, he has been recognized with a U.S. Inventor of the Year Award and induction into the Space and Technology Hall of Fame as well as the National Academy of Engineering. Fischell now holds over 200 patents.

Throughout his lifetime, Fischell has founded several medical device companies including NeuroPace, which is developing a new implantable device for ending epileptic seizures and NeuraLive, which is developing a magnetic pulse device to stop migraine headaches. Another of his companies, Angel Medical Systems Inc. (named by his granddaughter), has developed a pacemaker-sized implantable computer that provides the earliest possible warning of an impending heart attack.

Fischell's passion for medical devices prompted him, this past May 6, to serve as a judge for the Department of Biomedical Engineering's annual Design Day, held at the Johns Hopkins medical campus. Fischell is slated to present the keynote lecture at next year's design day on Monday, May 4, 2009, at the Homewood campus. —*AR*

A Boost for Tech Transfer

Nurturing emerging technology into the marketplace is something Anton "Tony" Dahbura '81, MS '82, PhD '84, knows more than a little about. He spent 15 years in basic research at AT&T Bell Labs and ran Motorola's research center, where he developed software for massively parallel supercomputers. In the mid-1990s, he joined Hub Labels, Inc, his family's commercial printing company in Hagerstown, Maryland, and today he holds the title of corporate vice president.

With his solid background in both research and business, Dahbura has led the National Advisory Council's (NAC) Committee on Technology Transfer Management since the committee's inception in October 2005. The Tech Transfer committee is advising Hopkins on the process of technology transfer, a process Dahbura says has been evolving over the past few years at Hopkins. "Knowledge is best when it is used," he says. "Johns Hopkins' mission of 'knowledge for the world' guides the work of our committee, but getting the technology to market is only one aspect. Getting the technology used is the ultimate goal."

Fini: "There is great science going on here."

He and his eight committee members of alumni and friends represent venture capital, engineering, technology management, intellectual property law, and business. "Our mission is to understand the tech transfer process and identify primary challenges and opportunities at Hopkins," Dahbura explains, adding, "John Fini's appointment is a huge triumph for the process."

Fini, who joined the university last January as director of intellectual property for the Whiting School of Engineering and the Krieger School of Arts and Sciences, brings a wealth of experience in tech transfer—and great enthusiasm for the work of the NAC.

"There is great science going on here," says Fini. "It's very helpful to give the Whiting School an outside perspective on how we should be doing things better. You couldn't ask for a better honest-broker relationship. The ad hoc committee's interest is only to make sure that we're doing a good job and could do things better."

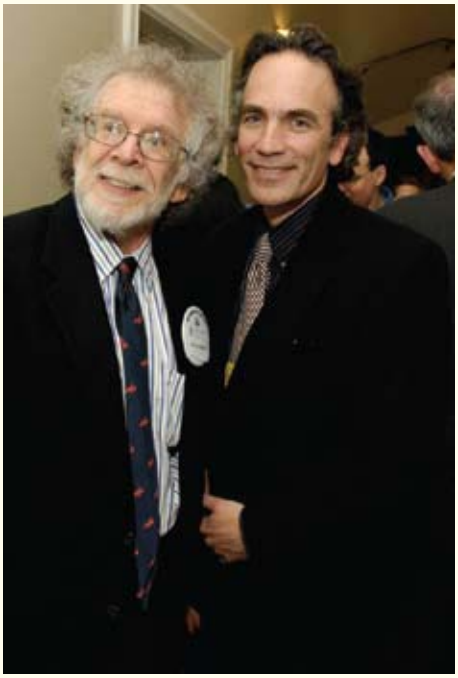
Working closely with Fini, the ad hoc committee meets three to four times a year to advise Hopkins on the development of a permanent tech transfer infrastructure. This infrastructure will include a committee to evaluate the commercial viability of faculty-driven emerging technology, and to offer recommendations on next steps.

"We had a pilot session where a few faculty members presented their research, and we gave them feedback, which is something we want to do more of in the future," says Dahbura. "Even to play a small role in some idea that was created at Hopkins and makes its way into the world and has some small benefit is one of the best things that I could do." —*SA*

2008 Reunion: *Homecoming at Homewood*

From April 11 to 13 more than 4,200 alumni and friends returned to campus to celebrate their reunions and the 2008 homecoming. It was an exciting weekend packed with 72 events, which ranged from small class dinners to a Saturday afternoon pre-game lunch where 2,827 crab cakes were served! The Blue Jays were victorious over local rival Maryland Terrapins, holding a 10-4 final score. Here are photos from a few events hosted by the School of Engineering.

BME Alumni Reception & Department Chair Celebration On Friday afternoon the Department of Biomedical Engineering hosted a reception for alumni, faculty, and students to celebrate the career of recently retired department chair Murray Sachs. Several people spoke about Sachs' distinguished career with the school and Dean Jones led a toast in Sachs' honor. Elliot McVeigh, the department's current chair, was formally welcomed and gave remarks about his excitement to be a part of the community.



Murray Sachs (left) and Elliot McVeigh

Jai Madhok, Jason Yang '05, Tara Johnson '02, and Minnan Xu gather at the BME reception.

Please save the date for Reunion 2009: Homecoming at Homewood, April 17–19, where the Blue Jays will take on Navy and there will be events for alumni and friends of all ages!

Dean's Breakfast The Blue Jay stopped into the Dean's breakfast for engineering alumni on Saturday morning. Here he is pictured with James Pitts '73 '77 and Frank Krantz '49 (top) and Cecilia & George Hudgins '58 '71 (bottom).

Alumni College **Are U.S. Infrastructures Safe?** Whiting School of Engineering Dean Nick Jones, along with Civil Engineering professors Ben Schafer and Tony Dalrymple, led a discussion on problems, solutions, costs, and the politics involved in improving our nation's infrastructure.

Alumni Awards

Distinguished Alumnus Award

Established in 1978, this award honors alumni who have typified the Johns Hopkins tradition of excellence and brought credit to the university by their personal accomplishment, professional achievement, or humanitarian service.

Gilbert F. Decker '58

A member of the Whiting Legacy Circle and the National Advisory Council, Gilbert F. Decker was also honored with a Heritage Award in 1998. He currently serves as a co-chair of the Whiting School's Campaign Leadership Committee. Service to his alma mater inspired, no doubt, by his own undergraduate experience of attending Hopkins on a full trustee scholarship while earning a B.S. in electrical engineering. In 1966, Decker earned a master's degree from Stanford University in operations research, and then attended the U.S. Army Command & General Staff College and Industrial College of the Armed Forces.

Currently a private consultant to the technology industry, Decker's former positions include executive vice president at Walt Disney Imagineering, Inc., president and CEO of three technology companies, and assistant secretary of Research, Development and Acquisition for the U.S. Army. He has also served as chairman of the Army Science Board, the Army Acquisition Executive, the Senior Procurement Executive, the science advisor to the Secretary, and the senior research and development official for the Army. For his service, Decker's honors include the Distinguished Public Service Medal from the Department of Defense and the Distinguished Civilian Service Medal from the Department of the Army.

He is the former director of Anteon Corp. and Alliant Techsystems, Inc. Currently, he is the director of the Allied Defense Group, Digital Fusion Inc., and CoVant Technologies, LLC, trustee for the Hertz Foundation and the Association of the U.S. Army, and a board member of the Board of Army Science & Technology at the National Academy of Sciences.

The Heritage Award

Established in 1973, The Heritage Award honors alumni and friends of Johns Hopkins who have contributed outstanding service over an extended period to the progress of the university or the activities of the Alumni Association.

Carl E. Heath Jr., PhD '52

Carl E. Heath Jr. enjoyed successful careers as a research engineer and executive in various ExxonMobil domestic and foreign affiliates, and as a consultant after founding Corporate Transformations International (CTI), a management consulting firm. Now retired as CTI president, Heath, who has a PhD in chemical engineering from the University of Wisconsin, holds numerous patents and is the author of 20 papers. He is listed in the *American Men and Women of Science* and *Who's Who in the East*, and is a member of the Engineering Management Society, the Organization Development Network, American Society for Training and Development, American Society for Quality, American Chemical Society and American Institute of Chemical Engineers.

Concerned with the lack of women in the engineering field, Heath established the Heath Fellowship for Graduate Women in Engineering at Johns Hopkins in 1995 to provide support for women engineering graduate students. Last fall marked the end of his six-year, two-term membership on the Society of Engineering Alumni (SEA) Council, though he continues to be an active participant in the SEA Communications Committee. A current member of the University Alumni Council and Community Service Grants and Student Services Grants committees, he also has served on his class reunion committees, including his 50th Reunion Committee in 2002.

Willis C. Gore '48, DrEng '52

The 44 years that Professor Emeritus Willis C. Gore spent in the School of Engineering's Department of Electrical and Computer Engineering—twice serving as its chair—are legendary. One of the Whiting School's most loved and respected professors, Gore's gift is his talent for recognizing and nurturing the potential in his students. During his career, he mentored many engineering alumni and advised more than 20 PhD and 35 master's degree students. Gore taught 10 different undergraduate and 10 different graduate courses and received a Hopkins Distinguished Teaching Award.

His career started during World War II and continued through the Cold War, during which he made significant contributions to national security. While a Hopkins undergraduate, Gore was an instructor at the Radio Material School at the Naval Research Laboratory in Washington, D.C. His research evolved from power, electronic and control systems to the computer age with special interests in computer engineering, operating systems, information theory, and new classes of codes and new methods of decoding, which have greatly aided the field of cryptography. Gore's more than 25 publications range from information theory and coding to current arc detection, ultrasonics, nonlinear systems, and even models of mutation frequency in DNA sequences. He also holds a U.S. patent known as the Gore Automatic Frequency Locking Circuit.

A member of four honor societies and the Institute of Electrical and Electronics Engineers (he served a term as chairman of the IEEE Baltimore Section), Gore is a Registered Professional Engineer in Maryland and enjoyed an active consulting role with more than 15 companies—among them, AAI Corporation, Litton Industries, Aerojet, Martin Marietta, Leeds and Northrup, and Westinghouse—and two government agencies: the State of Maryland and the NASA Goddard Space Flight Center.