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# Rutgers Revolutionaries

Rutgers people and innovations that have  
changed lives around the world



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Rutgers people and innovations that have  
changed lives around the world

Throughout our 250-year history, Rutgers University has produced world-renowned authors and artists, soldiers and scientists, governors, senators, and Supreme Court justices.

Among these men and women are individuals who have been truly revolutionary—courageous students, professors, and alumni whose ideas and actions have changed the world.

These Rutgers Revolutionaries include inventors, civil rights leaders, and other members of the university community who have been responsible for everything from medical breakthroughs and genome sequencing to prison reform and improving airplane safety.

They range from an 18th-century mapmaker who fought for our nation’s independence to a 21st-century undergraduate engineer who used a 3-D printer to build a “special hand” for a young girl born with a rare disability.

Being a member of the Rutgers community is being part of a proud tradition of visionaries who have had a profound impact on our state, our nation, and our world.

We hope their stories will inspire others to follow their lead.

The Editors, Rutgers Today

# Rutgers Revolutionaries



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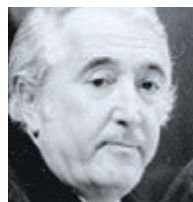
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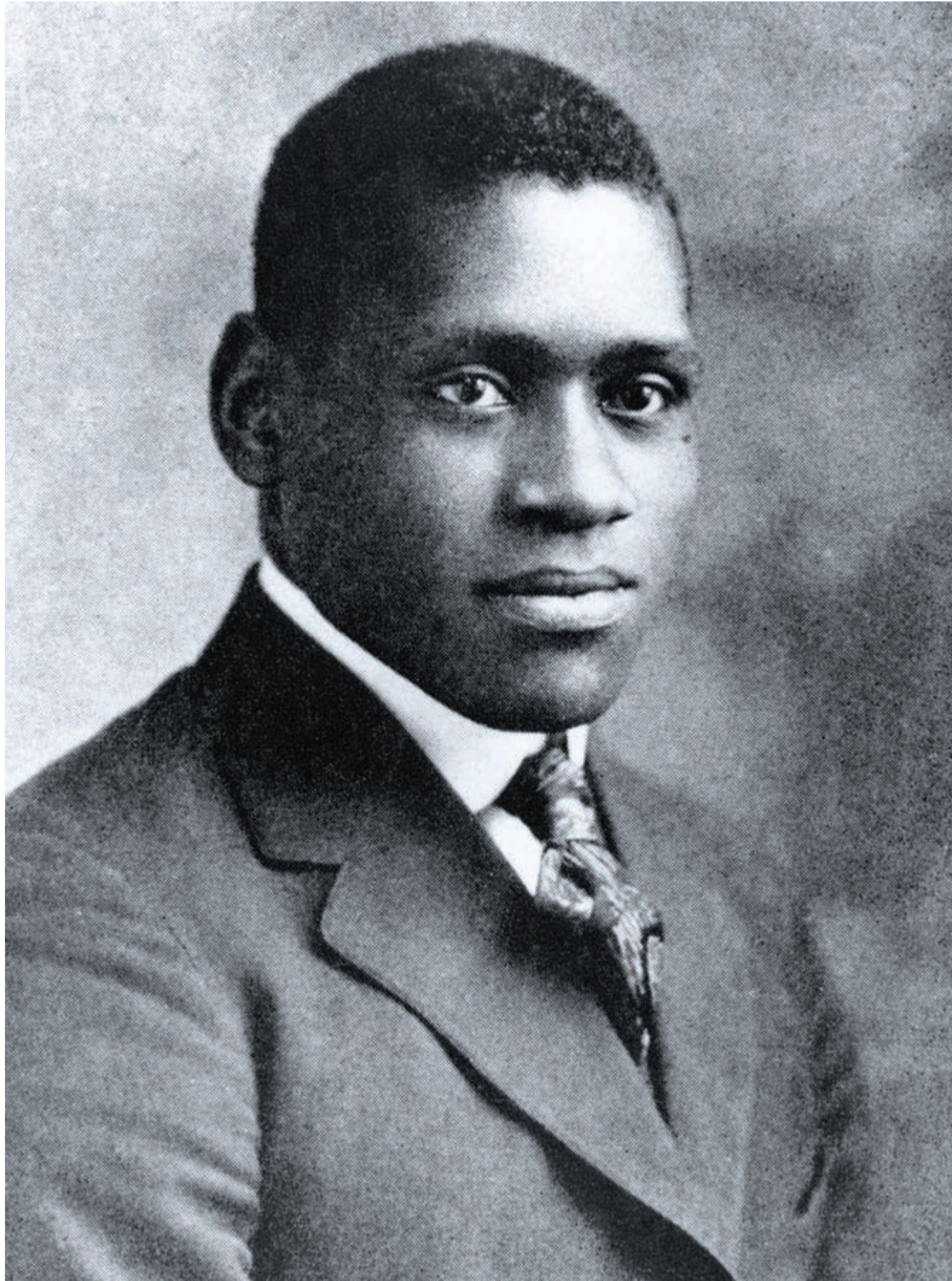


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## Paul Robeson: Renaissance Man Fought Injustice

Scholar, athlete was renowned international entertainer and human rights advocate.

BY ROYA RAFEI

It would have been easier for Paul Robeson to denounce the Communist party.

Throughout the late 1940s and well into the 1950s, the internationally renowned singer was branded a Communist sympathizer, a “Red” during the height of the Cold War. His concerts in the U.S. were canceled; record companies dropped him; and the government revoked his passport, denying him the ability to perform abroad.

By the time Robeson, a 1919 Rutgers graduate and distinguished student, was summoned to appear before the House Un-American Activities Committee in June 1956, he had already lost his reputation, his livelihood, and much of his income.

Yet, he refused to back down and say if he was a member of the Communist party.

“It was the principle,” says Junius Williams, founding director of the Abbott Leadership Institute at Rutgers University–Newark, which teaches parents, students, and the community to advocate for a quality education at Newark schools. “He felt his rights were being violated; he had the Constitutional right of free association.”

Not only did Robeson refuse to say whether he was a member of the Communist party, but he also admonished the committee for running a witch hunt.

*“I am not being tried for whether I am a Communist. I am being tried for fighting for the rights of my people, who are still second-class citizens in this United States of America.”*

—Paul Robeson before the House Un-American Activities Committee, June 12, 1956

“I am not being tried for whether I am a Communist,” he told the House Un-American Activities Committee on June 12, 1956. “I am being tried for fighting for the rights of my people, who are still second-class citizens in this United States of America.”

Robeson went on to boldly declare to the committee members: “You are the non-patriots, and you are the un-Americans, and you ought to be ashamed of yourselves.”

A decade earlier, Robeson was one of the most revered figures of the time, selling out concert halls and theaters. If you try to compare a famous contemporary to Robeson, you won’t be able to find one, says Edward Ramsamy, chair of the Department of Africana Studies in the School of Arts and Sciences at Rutgers University–New Brunswick.

**Paul Leroy Robeson is one of the most well-known graduates of Rutgers. The future singer, actor, orator, and civil rights activist excelled both as a scholar and an athlete during his four years “on the banks.” The image at left is Robeson’s senior portrait in the 1919 *Scarlet Letter* yearbook.**



Robeson as Brutus Jones in the 1933 film version of *The Emperor Jones*.



Robeson running the ball against the Newport Naval Reserve in 1917.

“There are people who have elements of him, in terms of his activism and in terms of his internationalism,” Ramsamy says, “but in terms of the breadth and scope of his work and his courageous activism, I think he’s unparalleled.”

Robeson not only stood up for the injustices that African Americans faced, but also was able to empathize and connect with other people’s struggles, Ramsamy says. He funded Jews escaping Nazi Germany, spoke out against the fascists in the Spanish Civil War, campaigned against colonialism in African countries, and stood with laborers in the United States.

“He identified with the most important issues of freedom and social justice of his time, and he practiced what he preached,” says Norman Markowitz, an associate professor of history in the School of Arts and Sciences. “His commitment to the major revolutionary movements of modern history—the movements against racism, colonialism, militarism, and the worst abuses of capitalism—made him revolutionary.”

Robeson, son of a former slave, was born in Princeton in 1898, just two years after the U.S. Supreme Court upheld racial segregation in *Plessy v. Ferguson*. Robeson grew up during a period of overt racism, but went on to achieve much success at every level of his life.



He attended Rutgers in New Brunswick on a full scholarship, becoming the university’s third black student and its first black football player. He endured discrimination not only from opposing teams—some refused to take the field with Robeson—but also from his own teammates. He was one of the first African Americans to be named a college football All-American. He also earned more than a dozen varsity letters from four sports. Robeson was a member of Phi Beta Kappa and the Rutgers honor society, Cap and Skull.

After Rutgers, Robeson went to Columbia Law School, where he earned his law degree. He left the profession after a white secretary at a New York law firm refused to take dictation from him.

On the advice of his wife, Eslanda, he pursued acting, initially performing at local theaters before landing the lead in 1924 in Eugene O’Neill’s *All God’s Chillun Got Wings*. His career took off from there. He played Othello on stage and sang “Ol’ Man River” on screen in *Showboat*.

“We frequently throw out the phrase ‘Renaissance man’ and it’s overused, but I think Paul Robeson was the quintessential Renaissance man,” Ramsamy says. “Here is someone



Robeson waves to the crowd at a 1959 rally against nuclear armament, organized by the British Peace Committee, London.

who has made marked contributions in the scholarly world, the athletic world, the political world—both domestic and international. His achievements are truly remarkable.”

Robeson and his family eventually moved to England, which began a transformative time for him, Ramsamy says. There, he met African nationalist leaders and began to link the black experience in America with the emerging African struggles for nationalism. He also connected with the English working class and spoke out against fascism. Robeson criticized how blacks were portrayed by Hollywood. His fame allowed him to travel the world, including the Soviet Union, where he didn’t experience the bigotry he did at home.

“In Russia, I felt for the first time like a full human being,” Robeson told the House Un-American Activities Committee. “No color prejudice like in Mississippi, no color prejudice like in Washington. It was the first time I felt like a human being, where I did not feel the pressure of color as I feel in this committee today.”

“Why do you not stay in Russia?” Gordon Scherer, House Un-American Activities Committee member, asked Robeson.

“Because my father was a slave, and my people died to build this country, and I’m going to stay here and have a part of it just like you,” Robeson replied. “And no fascist-minded people will drive me from it.”

Although Robeson is arguably Rutgers’ most famous alumnus, he is less well known beyond the university. Forty years after his death, Robeson is being remembered in various ways. Steve McQueen, who directed best-picture Oscar winner *12 Years a Slave*, announced in 2014 that he’s planning a movie on Robeson’s life.

Locally, Ramsamy has launched the Paul Robeson Distinguished Lecture series. Additionally, the Class of 1971 has proposed a design and is raising funds to build the Paul Robeson Plaza, expected to be located near Voorhees Mall on the College Avenue Campus. The goal is to unveil the tribute on June 10, 2019, on the 100th anniversary of Robeson’s oration at graduation, according to organizer Jim Savage, who chairs the Class of 1971 45th Milestone Campaign Committee. And in 2016, Rutgers University–New Brunswick launched the Paul Robeson Leadership Institute, a four-year program designed to recruit and support first-generation and low-income college-bound students.

“He was a powerful black man,” says Williams. “He had pride in himself and was a student of history and politics. He knew he had to speak out against injustices in the U.S. and other places. He believed in change that would affect the status quo and how people of color were treated in the U.S. ... He was a role model not just for black people but for white people.”



# Joachim Messing: Feeding the World

Microbiologist helped crack the genetic code that revolutionized medicine and agriculture.

BY ROBIN LALLY

Ending hunger, conserving the environment, and advancing medicine were more important goals to Rutgers professor Joachim Messing than earning lots of cash.

So when he discovered a way to crack the genetic code of humans and plants like rice, corn, and wheat, Messing did not patent his work. Instead, he gave away the tools he invented—for free—to his fellow scientists around the world because he believed it was

*“I thought it was important to be generous and make this freely available without restrictions so biotechnological innovations could move forward.”*

—Joachim Messing

vital for future research. His decision enabled his colleagues to further decipher the genetic blueprint of living cells, which revolutionized medicine and agriculture.

“I thought it was important to be generous and make this freely available without restrictions so biotechnological innovations could move forward,” says Messing, the Selman A. Waksman Chair in Molecular Genetics at Rutgers University–New Brunswick.

Messing, who is also the director of the Waksman Institute of Microbiology, has become famous for a genetic engineering technique used in laboratories to create plants that have produced disease-resistant crops considered crucial to feeding the world’s population and drugs like erythropoietin (EPO) used to treat cancer patients.

Messing’s technique has resulted in the creation of new lines of drought-tolerant plants more resistant to insects, herbicides, and other environmental stresses and enabled biofuels to be extracted for energy from plants like corn and sorghum, a drought-tolerant African grass that can be grown in regions where corn and other grains do not thrive.

“When I look at the products that have been made today, it is clear they were dependent on the tools that were conceived more than 40 years ago and developed thereafter,” says Messing, the son of working-class parents who grew up in postwar Germany where he was a pharmacy student and doctoral candidate in biochemistry before coming to the United States.

The results of the work, Messing says, are a tribute to his life’s research.

“After watching these crops grow over the last 20 years, you can see the positive impact that these techniques have had on their outcome,” he says.



**Joachim Messing gave information away for free that helped scientists crack the genetic code of humans and plants, revolutionizing medicine and agriculture.**

Finding innovative methods to develop more nutritious crops that can be grown without additional irrigation and on the same amount of land as current crops has always been a priority for Messing, who came to Rutgers in 1985 to oversee research in the life sciences and at the Waksman Institute.

“Since I was born, the world’s population has tripled,” says Messing, whose published research became the most frequently cited in all of science during the 1980s, according to *The Scientist*, a national magazine covering life sciences and innovations. “This means we need more nutrients on less land with less water.”

Messing has been honored for his contribution to humanity and received international recognition for his accomplishments in genetic engineering, which enabled the deciphering of the genetic code of crop plants. In 2013 he was recognized by the Wolf Foundation of Israel when he won the Wolf Prize in Agriculture, which honors scientists and artists whose “achievements are in the interest of mankind

and friendly relations among peoples.” Messing then gave the \$50,000 prize to Rutgers as seed money for founding a new endowed chair at the Waksman Institute.

Considered to be one of the world’s top experts in molecular genetics, Messing is a member of both the National Academy of Sciences of the United States and the National Academy of Sciences of Germany, still teaches undergraduates, and mentors students in his laboratory. Those who have worked with him say that Messing has a contagious enthusiasm that spreads throughout his laboratory and creates positive synergy among the team.

“He has the mentality that whatever you are doing can be done,” says Marja Timmermans, who worked with Messing as a lab technician and a graduate student from 1987 to 1996 and is now a Humboldt Professor at the University of Tübingen in Germany. “He’s happy and enthusiastic and that excitement rubs off and creates a really positive, creative environment.”

# Christian Lambertsen: Alumnus Was a Father of Scuba Gear

His invention helped win World War II.

BY ROB FORMAN

Human beings do not have gills, but swimming underwater as if we did has long been a dream. With his “amphibious respirator unit,” a prototype for what the world now calls scuba gear, Christian Lambertsen, made diving feasible for millions of people.

He also helped win a war.

When Lambertsen was a teenager, exploring the deep already fascinated him. He liked to dive in Barnegat Bay, where a cousin sitting in a rowboat would use a bicycle pump and hose to send him air. That primitive but innovative breathing apparatus planted a seed that Lambertsen would later cultivate.

After earning a degree in biology in 1939 at Rutgers in New Brunswick, Lambertsen entered medical school at the University of Pennsylvania—just as Hitler’s armies were beginning to overrun much of Europe. As the Free World built its defenses, Lambertsen realized that allied navies would be much more effective if their divers could enter enemy-held waters undetected—to gather intelligence, booby-trap hostile ships, or otherwise disrupt operations.

In the late 1930s, U.S. Navy divers could not do that. Even if they had breathing equipment that let them swim and dive without being tethered to ships, carbon dioxide bubbles

*“From the way he told it to me, he very nearly drowned during his initial experiments. He was getting trapped underwater in the first contraption he designed.”*

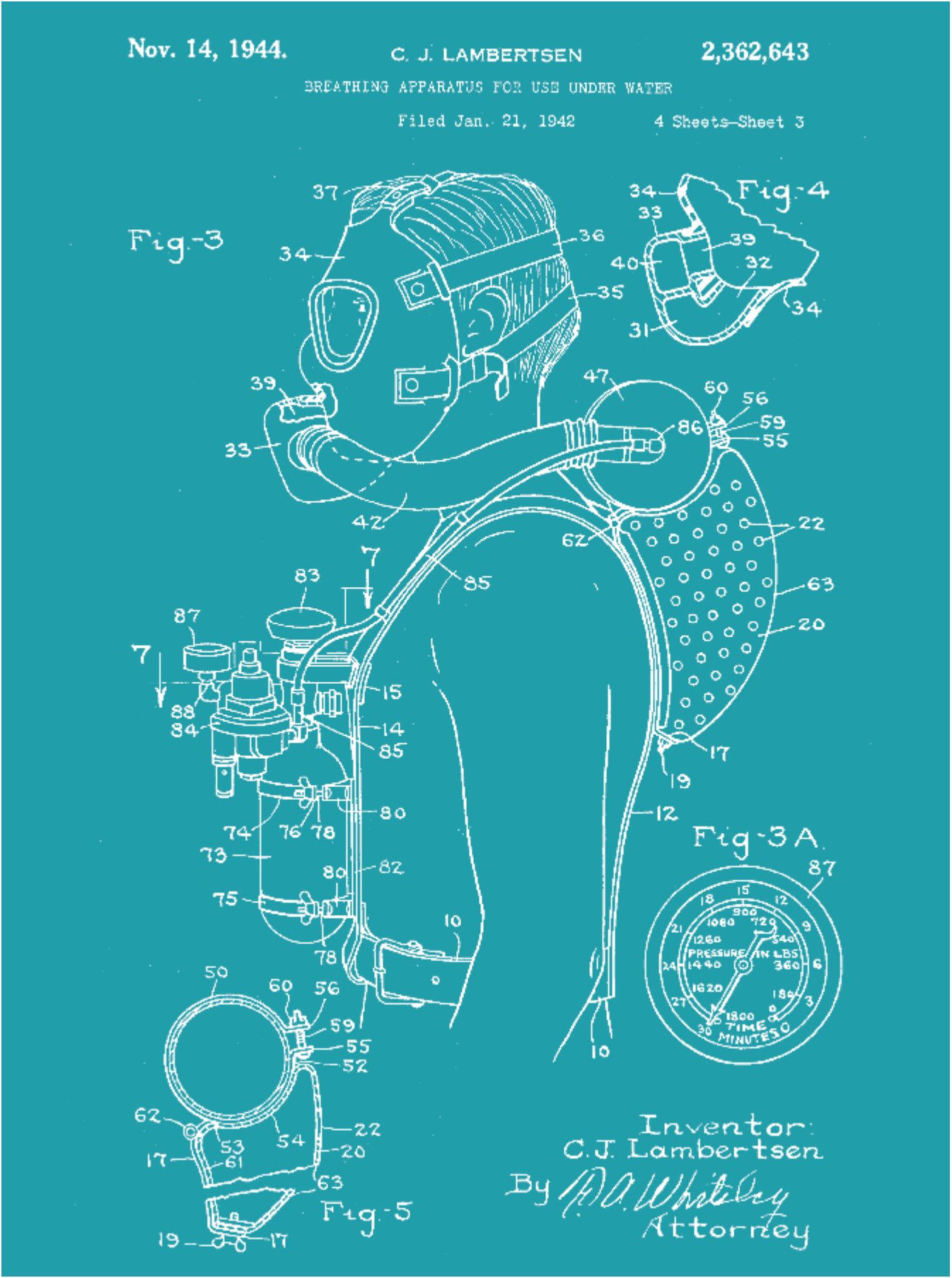
—Aron Fisher, former student and colleague of Lambertsen

would rise to the surface each time they exhaled, making it easy for the enemy to spot them.

Lambertsen would solve that problem by adapting technology from the anesthesia equipment he used as a medical student. During surgery, physicians mix an anesthetic gas with air drawn from the atmosphere using equipment that makes the mixture more breathable and effective by “scrubbing out” much of the carbon dioxide (CO<sub>2</sub>) that forms during respiration. Lambertsen imagined that similar “scrubbers” could help eliminate CO<sub>2</sub> bubbles in war situations and went to work perfecting his idea with an apparatus that he would both design and test underwater himself.

“From the way he told it to me, he very nearly drowned during his initial experiments,” recalls Aron Fisher, a professor of physiology at the University of Pennsylvania’s medical school who was a student of Lambertsen’s at Penn and

An application Christian Lambertsen submitted for one of his 11 patents included this detailed drawing.







Lambertsen in uniform during World War II.

then a longtime faculty colleague. “He was getting trapped underwater in the first contraption he designed.”

Soon enough, Lambertsen worked out the design kinks, and his system progressed to the point where divers could both inhale and exhale smoothly without a trace. He first presented his idea to the Navy, which rejected it. But the Office of Strategic Services (OSS), the precursor to today’s Central Intelligence Agency, realized what he had and put Lambertsen and his invention to work as part of the effort to win World War II.

Lambertsen took charge of training OSS divers, was deployed with them to Burma, and would later receive the Legion of Merit for the success of their covert missions. “He is now known as the forerunner of the Navy SEALs,” Fisher notes.

Once the war was won, and there was no more need for military secrecy, Lambertsen’s invention—which by then had earned the first of his 11 patents—became available to all. It is widely believed that Lambertsen coined the term “scuba” (for “self-contained underwater breathing apparatus”), and now millions of registered scuba divers are able to explore the wonders of aquatic life with the same ability not to disturb their surroundings as the military enjoyed during the war.

The benefits of Lambertsen’s expertise—and further research he would conduct for decades



Lambertsen personally trained U.S. divers to use his underwater breathing equipment during the war. Here he demonstrates an early apparatus on a beach in Burma.

while on Penn’s medical faculty—stretch far beyond the deep to the heavens and to many earthbound medical settings. He served on NASA panels during the early years of space flight, working to make astronauts’ breathing systems safer. He also became a leader in developing hyperbaric oxygen therapy, widely used as a treatment for the diving-related disorder known as the bends—where rapid changes in water and air pressure can cause severe sickness or death—as well as more recent applications such as the treatment of hospital patients with wounds that do not heal.

After Lambertsen died in 2011, at age 93, members of the intelligence, military, and recreational communities were all present as his ashes were scattered on the waters off Key West—honoring a man whose vision had revolutionized humankind’s relationship with the undersea world.

## Katherine Lau: A New Hand for Hailey

Biomedical engineering student led team that built 3-D-printed prosthesis for preschooler.

BY CARL BLESCH



Katherine Lau joined an accelerated biomedical engineering program at Rutgers that enabled her to begin graduate study in her senior year.

In 2014, Katherine Lau was looking for a summer research project that would give her practical experience. Yong Dawson was looking for a normal life for her daughter.

Together, they gave 4-year-old Hailey Dawson a gift that doctors could not provide—an affordable, functioning prosthetic hand that can be rebuilt as Hailey grows up.

Hailey, an energetic and inquisitive little girl, was born with Poland syndrome, a birth

defect marked by incomplete development of hand and chest muscles—typically on a person’s right side.

When her mother sought a prosthetic device that would give her daughter functioning fingers, health professionals told her it would cost tens of thousands of dollars—just for the first prosthesis. As Hailey grew, Dawson would have to incur that expense repeatedly as Hailey needed to be refitted with larger hands.

Before the Las Vegas mother pursued that path, she turned to the local university to see if someone there might be able to help.

Brendan O’Toole, a mechanical engineering professor at the University of Nevada, Las Vegas (UNLV), saw Hailey’s need as an engineering challenge—a chance for talented students to gain skills and experience while doing good.

Back in New Jersey, Rutgers biomedical engineering student Katherine Lau was looking for a research project when she moved home to Las Vegas during the summer. Networking among local health care professionals connected Lau to O’Toole.

Upon meeting Lau, then a rising third-year School of Engineering student, the UNLV professor saw that she had the educational background and leadership skills to tackle the challenge. He selected her to head up a team of





Lau's engineering team knew of public domain designs for 3-D-printed hands, but the team's challenge was to adapt these designs to address Hailey's particular case.

three students to fashion a custom-fitted prosthetic hand using 3-D printing.

For Lau, it was more than a summer project. It was a life-changing experience that confirmed she had chosen the right profession.

"I want to be a biomedical engineer to improve the lives of others," says Lau. "That summer, I got to see firsthand what my work could do."

Lau's engineering team knew of public domain designs for 3-D-printed hands, such as Robohand and Enable, but its challenge was to adapt these designs to fit the young girl's size and accommodate the specific nature of her deformity. Working with Hailey throughout the summer, they fashioned a hand with fingers that grasped objects when Hailey bent her wrist forward.

"Hailey was so confident," Lau says. "Even though she has these deformities, she didn't think twice about it. She just said, 'this is my special hand,' and she showed it off to everyone." In 2015, Hailey was invited to throw out the first pitch at a Baltimore Orioles game using her 3-D-printed hand.

Lau's life-altering experience was made possible by a research stipend from Rutgers' Douglass Residential College through a longstanding

program to support women pursuing degrees and careers in science, technology, engineering, and mathematics.

Lau was drawn to science and math throughout her school years, so she knew a career in engineering or medicine might suit her.

"While I was in high school, I was watching an *Oprah* episode where Dr. Oz was talking about stem cell treatment," she says. "He showed how an organ had been regrown from stem cells, and I said, 'That's what I want to do.'"

Initially, Lau planned to attend college close to home, but after her cousin from Hawaii, who was doing postdoctoral work in pharmacy at Rutgers, introduced her to the school, Lau began investigating programs in other parts of the country.

Though many schools accepted her, Rutgers "had the best engineering program for what I wanted to study," she says.

When she arrived at Rutgers University—New Brunswick in 2012, Lau was among the first 20 women in the new Douglass Engineering Living-Learning Community on the university's Busch Campus—mere steps from her classes and labs.

*"I want to be a biomedical engineer to improve the lives of others. That summer, I got to see firsthand what my work could do."*

—Katherine Lau



Lau, right, works with UNLV student Zack Cook to fit Hailey Dawson with a 3-D-printed prosthetic hand. Joining them is Hailey's mother, Yong Dawson.

Women make up 40 percent of the biomedical engineering majors nationwide—a percentage twice as high as their representation in other engineering majors. Nevertheless, some women change majors as undergraduates or leave engineering altogether to pursue other fields, like physical therapy and medicine, after earning their degrees.

The total number of graduates in biomedical engineering is still low at 5,119, compared to more than 99,000 in engineering overall. So there are many opportunities for women in this growing major.

Although Lau's assignment in Las Vegas lasted for only a summer, UNLV Professor O'Toole remained involved with the project, tasking his students to improve on Lau's design

for their senior design projects. Lau returned to New Brunswick to ponder her future.

"My major has so many options that I was trying to figure out what I wanted to do," she recalls, mulling over careers in medicine, engineering research, or teaching. Toward the end of her junior year, she applied for an accelerated master's degree program in the School of Engineering. She finished her undergraduate courses in 2016 and is on track to earn her master's degree in biomedical engineering in 2017. After that, she plans to pursue research and development positions in the biotechnology industry.





## Constantine Sarkos: Alumnus Leads the FAA's Effort to Reduce Airliner Fire Hazards

His innovations give passengers precious extra time to escape plane crashes.

BY CARLA CANTOR

**Every second counts when an airliner crashes, as most evacuations take no more than five minutes.**

Air travelers around the world are alive today because of the fire safety innovations of Rutgers alumnus Constantine (Gus) Sarkos.

People like the 100 passengers and five crew members who had time to escape when a Continental 737 veered off the runway in Denver into a ravine and erupted into flames in 2008.

Or the passengers traveling in 2013 from Seoul, South Korea, on Asiana Airlines Flight 214, which crash-landed in San Francisco, smashed into pieces, and caught fire. Three people died from injuries unrelated to the fire, while 304 survived.

Sarkos, manager of the Federal Aviation Administration's (FAA) Fire Safety Branch, heads up a research and development team of engineers, chemists, technical experts, and computer scientists at the FAA's William J. Hughes Technical Center, 10 miles west of Atlantic City in Egg Harbor Township—the most extensive aviation fire safety research facility in the world.

"Gus does the science that becomes the fire safety standards adopted by the whole world," says Dennis Filler, director of the FAA's Hughes Technical Center. "His efforts have provided added time for passengers to evacuate. In the

old days, materials would have burned faster or caused passengers to inhale toxic fumes, and they would have died in the aircraft."

The seat cushion you sit on while flying is 30 percent more fire resistant than earlier models because of Sarkos and his team. But the changes also involve cargo and cabin safety improvements that travelers cannot see—or feel—during a flight. His team's painstaking work at the FAA's Hughes Technical Center, testing materials and evaluating fire detection and suppression systems, has prompted more than a dozen significant changes to U.S. and foreign aircraft. The vast complex allows researchers to replicate accidents and environmental conditions that occur during in-flight or post-crash fires.

In other words, says Sarkos, "We start fires on jetliners, examine how fire spreads, and come up with ways to resist or extinguish it—or prevent the fire from occurring in the first place."

Sarkos has participated in or overseen the development of such safety innovations as heat-resistant evacuation slides, burn-resistant fuselage insulation, and interior panels that release less heat and smoke. He is proudest of the





**Rutgers alumnus  
Constantine Sarkos  
manages the  
Federal Aviation  
Administration's  
Fire Safety Branch.**

*“Gus does the science that becomes the fire-safety standards adopted by the whole world. His efforts have provided added time for passengers to evacuate. In the old days, materials would have burned faster or caused passengers to inhale toxic fumes, and they would have died in the aircraft.”*

—Dennis Filler, director of the FAA’s Hughes Technical Center

fire-blocking seat layers that led to the retrofit of 650,000 seats in the U.S. commercial aircraft fleet over a three-year period. The regulations were subsequently adopted worldwide as were the majority of research products produced by his team.

“Most jetliner evacuations occur within one to five minutes, depending on many factors, and our cushion gives passengers an extra 40 to 60 seconds to escape a burning aircraft,” Sarkos says. His team’s most complex innovation is an

inert gas generation system designed to protect against fuel tank explosions, a suspected cause of the 1996 midair explosion of TWA Flight 800, which killed all 230 aboard. Most recently, Sarkos’s group has been working on reducing fire threats from lithium batteries shipped in cargo, which are used in electronic devices.

Sarkos, who holds bachelor’s (1963) and master’s (1965) degrees in mechanical engineering from Rutgers University–New Brunswick, was hired by the FAA at age 28 after working at General Electric, where he helped design the re-entry vehicles in intercontinental ballistic missile weapon systems.

“I studied fluid dynamics in graduate school at Rutgers, which gave me a strong foundation for thermodynamics and heat transfer, as well,” Sarkos says. He spent two years during his master’s program developing and installing a variable-speed supersonic wind tunnel that operated at four times the speed of sound.

Early in his FAA tenure, Sarkos forged a unique relationship with the Rutgers Department of Mechanical and Aerospace Engineering that continues today. Each year the FAA awards a



**Researchers at the  
FAA’s William J.  
Hughes Technical  
Center’s fire testing  
facility, which  
houses six full-scale  
aircraft or fuselages,  
ignite a pan of jet  
fuel adjacent to an  
aircraft fuselage to  
simulate conditions  
in a post-crash fire.**

grant to a promising Rutgers master’s candidate for a two-year fellowship with the FAA’s Hughes Technical Center’s Fire Safety Branch.

Students work at the Hughes Technical Center their first year during summers and breaks—doing flammability studies and testing—and in their second year conduct research at the facility full time. About a dozen Rutgers students have gained experience with the FAA in this way.

The program is also a plus for the FAA. “It’s one of the most effective ways to get talented people,” Sarkos says. “In the past decade, I’ve brought on four engineers from Rutgers full time.”

Rutgers University–New Brunswick professor F. Javier Diez-Garias, who runs the grant program for the Department of Mechanical and Aerospace Engineering, says the experience is invaluable. “The students love what they’re doing. Most end up working for the FAA or

become contractors with firms that work with the FAA, and getting any experience with the FAA opens doors,” he says.

Sarkos, 75, has cut back his schedule in recent months and is beginning to think about retirement, knowing he has built a talented team capable of taking over the reins.

He says he’s proud to be part of the FAA, its technical center, and an amazing industry like aviation. “When you think about it, it’s only been a little over 100 years since the Wright brothers built a crude aircraft—and today eight million fly daily throughout the world and, in almost all cases, in routine fashion,” Sarkos says.

“When I started 47 years ago, the probability of dying from fire in a survivable airline accident was 12 percent; today, it is 4 percent,” he says. Saving lives in a post-crash fire is an outcome of the fire safety improvements we have made, which have also significantly reduced the chances of an accident caused by an in-flight fire or fuel tank explosion.”

But, he cautions, it is still important for travelers to be aware of safety and emergency procedures briefed pre-flight by the flight attendants. “Passengers need to make a mental note of the location of the nearest exits. Too often, people want to grab belongings, but that uses up precious time,” Sarkos says. “In an aircraft accident, seconds matter, and can be the difference between life and death.”



# Selman Waksman: Nobel Prize Winner Advanced the Golden Age of Antibiotics

His work led to the discovery of at least 20 antibiotics, including streptomycin, the first effective treatment for tuberculosis.

BY ROBIN WARSHAW

Throughout the first half of the 20th century, tuberculosis (TB) was one of the nation's most feared killers.

At one point, the highly infectious disease killed more than 400 Americans a day. But by the early 1950s, TB deaths had dropped sharply—due in large part to research begun years before by a Rutgers soil microbiologist named Selman Waksman.

*“Really, he was probably the foundation of turning Rutgers into a research university. He was the first to have research with impact.”*

—Joachim Messing, director of the Waksman Institute of Microbiology

Waksman's work in what was then the Rutgers College of Agriculture eventually led to the discovery of at least 20 antibiotics, including streptomycin, the first effective treatment for TB. In 1952, Waksman received the Nobel Prize in Physiology or Medicine for his “ingenious, systematic, and successful studies of the soil microbes” involved in that discovery.

It was a startling investigative pathway to pursue. “If you say soil, dirt—in medical terms, it was anathema,” says Douglas E. Eveleigh, distinguished professor emeritus in the Department of Biochemistry and Microbiology in the School of Environmental and Biological Sciences at Rutgers University–New Brunswick. “Somebody who proposes ‘you’ve got things in soil that would be of use in a medical manner’ was way out on a limb.”

Eveleigh admires the professional risk Waksman took. “He was a famous soil microbiologist. For him to suddenly ... go off in a new direction and hope this was going to work, you have to give him credit.”

When Waksman entered Rutgers as an undergraduate in 1911, he was 23, a Russian immigrant who had been denied university admission in his homeland because he was Jewish. He lived with cousins on a farm near New Brunswick, where he worked and learned about plant and animal growth.

That interest, and a scholarship, drew him to study agriculture at Rutgers, where his senior project in 1915 focused on assessing soil microbes. He studied soil bacteriology as a



**Alumnus and professor Selman Waksman was a soil microbiologist who developed a system to discover antibiotics.**

graduate student under the dean of the College of Agriculture, Jacob G. Lipman (for whom Lipman Hall on Rutgers' George H. Cook Campus is named) and received his master of science degree in 1916.

Waksman went to the University of California, Berkeley, for his Ph.D. in biochemistry. He returned to Rutgers as a research microbiologist at the New Jersey Agricultural Experiment Station and a lecturer in soil microbiology. By 1930, he was a full professor.

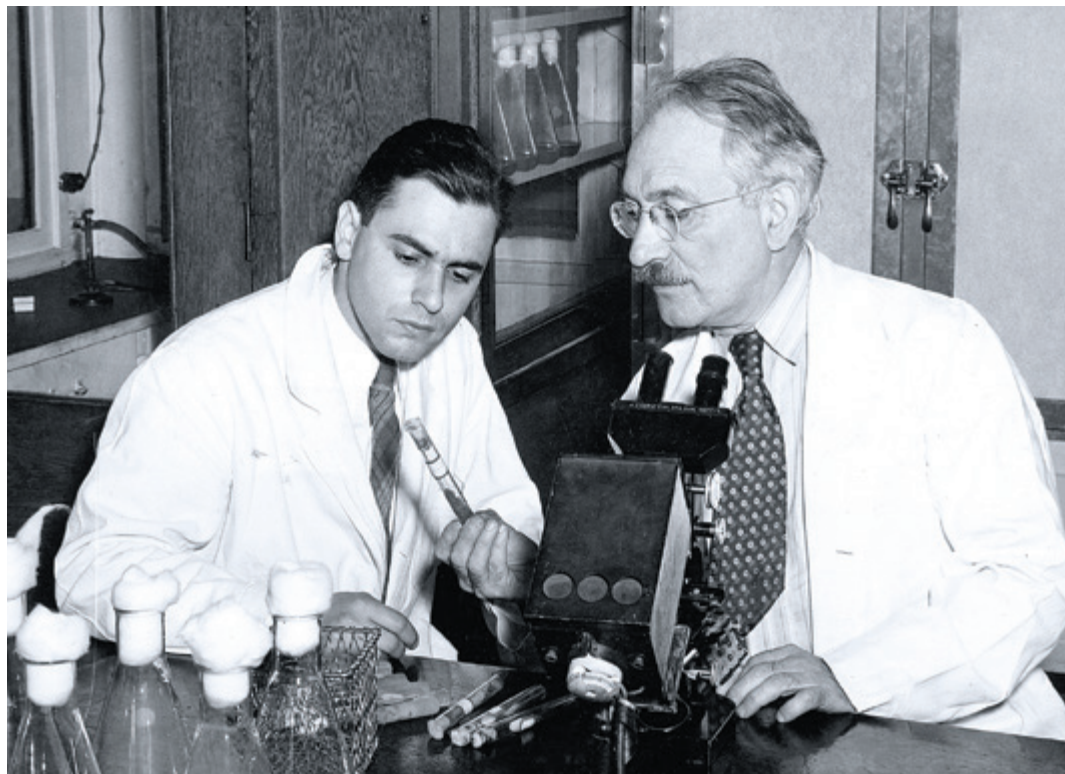
In the late 1930s, British scientists were trying to refine penicillin, which had been found accidentally, and produce it in quantity. Waksman believed he could deliberately look for other antibiotics that might be made in soil by microbes. Using a process Waksman developed, his team of researchers began screening soil bacteria, and found one that produced actinomycin in 1940. “It was better than penicillin in attacking a wider spectrum of germs—including tuberculosis—but also was toxic to people,” Eveleigh says.

More discoveries followed in Waksman's lab using the screening system, including the discovery in 1943 by graduate student Albert Schatz, a member of Waksman's team, of streptomycin's properties to combat TB. Seeing that streptomycin worked against TB, which penicillin did not, Waksman contacted medical researchers at the Mayo Clinic in Minnesota. Human trials proved the antibiotic safe for use and it later went into production. The drug needed to be given for several months, but it saved many patients and TB deaths fell.

“Really, he was probably the foundation of turning Rutgers into a research university. He was the first to have research with impact,” says Joachim Messing, director of the Waksman Institute of Microbiology.

The institute was created from royalties Waksman and the university received from his work. It “was his big dream and the culmination of his career,” says Nan Waksman Schanbacher,





Graduate student Albert Schatz, left, and Waksman in the laboratory in 1943.

Waksman's granddaughter. She was 3 years old when her grandfather won the Nobel Prize and now she is vice president and board chair of the Waksman Foundation for Microbiology, an organization that supports research and education in the field. "He was motivated very strongly to do something good for the world," Schanbacher says.

Opened in 1954 as the Institute of Microbiology, the institute was renamed for Waksman in 1974, one year after his death. Waksman's original laboratory in the basement of Martin Hall has been converted into a state-of-the-art conference room/mini-museum of the development of antibiotics. The American Chemical Society designated the space at Rutgers University–New Brunswick's G.H. Cook Campus as a National Historic Chemical Landmark in recognition of the development of the actinomycete antibiotics.

Waksman's influence is still felt, although the mission of the institute has broadened. It now conducts research in microbial, developmental, and plant molecular genetics as well as structural and computational biology.



The Waksman Institute of Microbiology was founded with royalties from Waksman's discoveries. Today it is an international leader in biology and genetics research.

Even today, its research sometimes links back to Waksman's work. In the face of growing antibiotic resistance in some TB strains, Messing notes that one institute project has led to a new type of antibiotic that could potentially be useful against the disease. "Now we've ended up doing exactly what Waksman would have liked to have done, but from a different angle," he says.

## Bill Rasmussen: Alumnus Founded ESPN, Creating First 24-Hour TV Network

The self-proclaimed "sports junkie" changed sports broadcasting and how the world watches television.

BY AMBER E. HOPKINS-JENKINS



Bill Rasmussen pioneered the around-the-clock cable network. Here, he visits the ESPN studios in 2005.

Without Bill Rasmussen's fanaticism for sports and his entrepreneurial spirit, the world might not have *SportsCenter* or wall-to-wall coverage of "March Madness" and the College World Series.

Rasmussen changed not only sports broadcasting but also how the world watches television

when he founded ESPN, which became the world's first network to broadcast around the clock when it went live on September 7, 1979.

"You have to remember that there was no CNN, no Fox News, no MTV," says Rasmussen, who also served as the network's first president and CEO. "And the networks would sign off for six hours at night."

Rasmussen grew up on Chicago's South Side before attending DePauw University for undergraduate study and spending two years in the Air Force near the end of the Korean War. He enrolled in the M.B.A. program at Rutgers University–Newark while working for Westinghouse and graduated in 1960.

The self-proclaimed "sports junkie" became a local sports anchor for television stations in Massachusetts and Connecticut during the 1960s and 1970s. He was always frustrated by the amount of time he had—or didn't have—for sports news during broadcasts.

"I typically had about three minutes to give highlights and that was limited to mostly professional sports. There wasn't much time to discuss college sports or teams outside the area," Rasmussen says.





Rasmussen visits an ESPN production truck in 2016 during a regular season *Sunday Night Baseball* game.

*“The underlying culture has been evident since day one: stay laser-focused on the mission to serve sports fans anytime, anywhere. It’s all about sports. It will always be about sports. Every decision is driven by sports.”*

—Bill Rasmussen

He believed 30 minutes would be sufficient to report sports news and thought lesser-known sports and teams could gain traction with the viewing population. This insight would eventually lead to the launch of SportsCenter, which remains ESPN’s flagship program and features daily sports news opposite typical evening news broadcasts.

Rasmussen was communications director for the New England Whalers, a professional ice hockey team, in 1978 when he and most of the front office staff, including his son, Scott, were laid off when the team didn’t make the playoffs. The lifelong entrepreneur had an opportunity to pivot his career—and did he ever.

He’d always enjoyed broadcasting and a local cable operator suggested contacting RCA to learn more about a satellite. The RCA representative discussed several available satellite packages, including a 24-hour package that no one had ever purchased.

“I had no idea what all the technical satellite terms meant, but I knew it would give us 8,760 hours a year of television programming,” he says. “We didn’t have money for the transponder, but there was a clause in the contract that didn’t require us to make our first payment until 90 days after our first use of the satellite. So we just took it and figured it out.”

In August 1978, the Rasmussens were stuck in traffic on I-84 while driving from Connecticut to the Jersey Shore and took the opportunity to brainstorm ideas to fill those 8,760 hours.

“Scott said something like, ‘Play football all day for all I care,’ and the ideas started flowing fast and furious. Sports fans are always hungry for sports. We knew they’d be hungry for the content because ... we’re sports fans.”

Rasmussen went out to pitch the idea to cable television companies, investors, sponsors, and partners. He says they were bombarded by

Rasmussen with son, Scott, at ESPN Plaza in Connecticut, September 1979, the month ESPN launched on cable television.



naysayers who doubted the viability of a 24-hour, single-niche network.

“Many told us the idea wouldn’t work, that it wouldn’t be able to sustain itself. Some said cable would be gone in a few years.”

He met with—and was turned away by—many potential investors until Getty Oil said “yes” in February 1979. By that spring, the network had secured its first advertising agreement with Anheuser-Busch.

Having secured the satellite, investors, and advertisers, Rasmussen was ready to meet with the NCAA to discuss airing its Division I men’s basketball tournament. Though NBC had the national contract for the tournament, it only aired the Final Four and a few regional games. ESPN was given the opportunity to air all the rest of the games in the tournament, now known as “March Madness,” in 1980.

Steven Miller, a journalism professor at Rutgers University–New Brunswick’s School of Communication and Information, says there are now courses on critical issues in sports media and sports journalism specializations at universities because of ESPN.

“Rasmussen’s brainchild elevated sports from the sidelines of the nightly newscast and made it palatable for every demographic, not just the fanatics,” says Miller. “ESPN equals sports worldwide. The network transcends the sports and cable niches and is a global cultural phenomenon and brand.”

Miller considers Rasmussen “a true visionary” who understood the impact of sports on society and saw sports for what they are for millions around the world—entertainment. “What Rasmussen and his son dreamt up during that car ride to the Jersey Shore changed the landscape of sports, television, cable television, and advertising. That’s revolutionary thinking.”

Today, ESPN encompasses eight U.S. and 24 international television networks among its more than 50 business entities. If you have watched the NBA Finals or other sports programming on ABC, you will have seen the ESPN brand.

Rasmussen was honored by *Sports Illustrated* as one of the 40 individuals who had the greatest impact on the world of sports in the second half of the 20th century.

Though he hasn’t been on staff since June 25, 1984—“at 2:05 p.m.,” he recalls—when ESPN was sold to ABC, Rasmussen believes ESPN is still the same product in essence; it’s simply delivered on many more platforms, he says.

“The underlying culture has been evident since day one: stay laser-focused on the mission to serve sports fans anytime, anywhere. It’s all about sports. It will always be about sports. Every decision is driven by sports.”





## Mary I. Bunting: Dean Led Coeducation Fight at Top Universities

The program she created at Rutgers in 1958 for nontraditional women students lives on in her name at Douglass Residential College.

BY FREDDA SACHAROW

**College Hall on  
Douglass Campus.  
Mary I. Bunting's  
years at Douglass  
College and  
elsewhere  
broadened women's  
educational options.**

When Mary I. Bunting began her academic career in 1937, women had limited opportunities in a higher education world dominated by men.

By the time she retired five decades later, many of the nation's elite universities—including Harvard, Yale, Princeton, and the service academies—had gone coeducational, due largely to Bunting's transformative advocacy for women in higher education.

In the 1950s and '60s, Bunting emerged as one of the most prominent leaders of the movement to expand educational access for women of all ages and backgrounds—first as dean of Douglass College in New Brunswick and later during her 12-year term as president of Radcliffe College, the undergraduate college for women at Harvard.

By pressing successfully for a more thorough merger of the two institutions based in Cambridge, Massachusetts, Bunting assured that women at Radcliffe would have the same educational opportunities as their Harvard counterparts.

"During her tenure, Radcliffe students first received Harvard degrees, women were

admitted to the graduate and business schools, and the Radcliffe Graduate School merged with Harvard's Graduate School of Arts and Sciences," the *Harvard Gazette* noted in her 1998 obituary.

Bunting left a radically transformed Radcliffe in 1972, the same year Congress passed the Title IX act banning schools from discriminating by gender.

She went on to help fully integrate women into Princeton University, signing on as special assistant for coeducation just three years after the university admitted its first female undergraduates in 1969.

By 1979, female students would become the majority on the nation's college campuses; over the past decade, women have comprised about 57 percent of enrollment at degree-granting institutions, according to a recent report by the National Center for Education Statistics.

Bunting's role in the revolution made her a media rock star.

*Time* magazine profiled her in a 1961 cover story featuring her signature lament—"Girls





Bunting was appointed dean of Douglass College in 1955.

*“Dean Bunting was one of the first people to realize that women out there are not all what we would call ‘traditional students.’ And that requires thinking about the college experience in an entirely different way.”*

—Carmen Twillie Ambar, dean of Douglass College, 2002 to 2008

in college have scarcely begun to use their brains”—and chronicling her determination to change that.

In its Bunting obituary, the *New York Times* credited her with finding “ways to help educated women carve out careers in a society not yet transformed by the feminist movement and [serving as] a mentor to several female writers, performers, and scholars.”

A research microbiologist by training, Bunting taught at Bennington College, Goucher College, Yale University, and Wellesley College early in her career, before leaving the full-time world of academia to raise four children.

When her husband died of a brain tumor in 1954, the young widow and single mother

accepted the offer to lead Douglass (now Douglass Residential) College. During her tenure, she also served as a professor in the Department of Bacteriology and as an honorary professor at the Institute of Microbiology, now the Waksman Institute of Microbiology.

Bunting arrived in New Brunswick in 1955, years before Betty Friedan and Gloria Steinem would help launch the modern women’s movement. She was already exposing what she saw as society’s “waste of highly talented, educated womanpower,” as she wrote in an article for the *New York Times Magazine*.

She’d experienced it herself: as a woman in the “I Like Ike” generation, she found no jobs open to her at Yale, where her late husband served on the faculty and where she herself conducted research on the effects of radiation on bacteria.

Bunting also chafed at a higher education system that ignored stark differences in the trajectory of men’s and women’s lives, hindering the professional progress of women who took time out for marriage and child-rearing.



Early in her career, Bunting conducted research on the effects of radiation on bacteria.

“Dean Bunting was one of the first people to realize that women out there are not all what we would call ‘traditional students,’” says Carmen Twillie Ambar, dean of Douglass from 2002 to 2008 before becoming president of Cedar Crest College in Allentown, Pennsylvania. “And that requires thinking about the college experience in an entirely different way.”

The Mary I. Bunting Program for Non-Traditional Students at Douglass was and continues to be one of those ways. Since 1958, the program has offered a supportive home to women students at Rutgers University–New Brunswick who have been out of high school for five or more years.

In that earlier era, married women in the nation’s college classrooms were an anomaly. Many struggled to find their place on a campus populated by 18- to 22-year olds. The Bunting program recognizes the time constraints on these older knowledge-seekers—providing counseling, peer advising/mentoring, and opportunities to air common frustrations and achievements.

“The Bunting students have brought diversity to the undergraduate classroom along with the wisdom of older students—often as mothers and even grandmothers,” says Rebecca Reynolds, assistant dean of Douglass Residential College.

Bunting applied the same philosophy at Radcliffe, where she launched the Radcliffe Institute for Independent Study. Renamed the Bunting Institute in her honor in 1978, it is the nation’s largest multidisciplinary center of advanced studies for women, the *Harvard Gazette* noted. Among its high-profile alumnae are poet Anne Sexton; writers Gish Jen, Sue Miller, and Alice Walker; psychologist Carol Gilligan; scientist Sylvia Earle; social activist Kathleen Cleaver; anthropologist Mary Catherine Bateson; and the performance artist Anna Deavere Smith.

Over the course of her career, Bunting was also the first female member of the United States Atomic Energy Commission, as well as a vice president of the Peace Corps and a member of the President’s Commission on the Status of Women.

Susanne Schwarz Blatt, whose first year at Douglass coincided with Bunting’s first year as dean in 1955, says Bunting was the academician who drove home the message: Women’s education matters.

“Dean Bunting validated that I wasn’t crazy for wanting an education, a career, and a family,” recalls Blatt, who went on to make her mark on the dual worlds of education and law after graduating in 1959 with a degree in psychology.

“Her greatest impact was simply to show me it could be done.”



# Peter Rodino: Alumnus Championed the Constitution

The House Judiciary Committee chair’s nonpartisan conduct of the Watergate hearings ultimately led to President Richard Nixon’s resignation.

BY STEVE MANAS

It began with a so-called “third-rate burglary” in June 1972, and ended a little more than two years later when a powerful president resigned in disgrace.

As the Watergate scandal unfolded, a career United States congressman—barely known outside his Newark, New Jersey, district—pains-

*“Chairman Rodino brought a balanced hand to the responsibility and was eminently fair. He wanted a broad coalition to support the committee’s efforts and he didn’t indicate a [personal] position.”*

—Paul S. Sarbanes, who served with Peter Rodino on the House Judiciary Committee

takingly assembled the legal case that led to the downfall of Richard Nixon, 37th President of the United States.

U.S. Representative Peter W. Rodino Jr., D-N.J., earned the nation’s trust for his dogged, dispassionate pursuit of justice as chair of the House Judiciary Committee, which was assigned to investigate articles of impeachment against Nixon, a Republican, for “high crimes and misdemeanors” in violation of the U.S. Constitution.

The burglary of the Democratic National Committee (DNC) headquarters in Washington, D.C.’s Watergate office complex sparked a national crisis that dominated the halls of government, media, and Americans’ collective psyche. It helped expose a deeply ingrained environment of corruption and political retribution within Nixon’s presidency.

Ultimately, Rodino’s nonpartisan stewardship of the Judiciary Committee led members from both political parties to adopt three articles of impeachment against Nixon for obstruction of justice, abuse of power, and contempt of Congress.

Nixon resigned less than two weeks later. Rodino was widely praised for preserving constitutional law in our nation.

Until Watergate, Rodino had been known as a hard-working, effective member of Congress. Still, most of his tenure had been hardly remarkable. The son of Italian immigrants, he earned a law degree from what is now Rutgers University–Newark, was a decorated Army captain during World War II, and started his 40-year career in the U.S. House in 1949.

**Peter Rodino, foreground, second from left, oversees a vote during House Judiciary Committee hearings on Watergate.**



Gerald M. Pomper, Board of Governors professor of political science emeritus at Rutgers University–New Brunswick’s Eagleton Institute of Politics, devoted a chapter to the Newark native in his book, *Ordinary Heroes and American Democracy*. “Nixon was trying to undermine the Constitution and extend the powers of the presidency to a near imperial, authoritarian government,” Pomper says.

Rodino’s committee confirmed multiple instances of wrongdoing—including illegal wiretaps, attempts at bribery, payment of hush money, efforts to hinder government agencies, election campaign “dirty tricks,” stonewalling, and cover-ups. The most infamous was the Saturday Night Massacre, October 20, 1973. Nixon ordered the firing of Watergate independent special prosecutor Archibald Cox. Attorney General Elliot Richardson and Deputy Attorney General William French Smith refused to obey the order and resigned.

“Rodino was personally very honest and had great disdain for Nixon,” Pomper explains.

“He was a great patriot, a soldier in World War II, and as a lawyer and legislator, loved the Constitution. It wasn’t personal animus toward Nixon. It was misdeeds like the Saturday Night Massacre.”

Rodino was respected by colleagues but had received little public attention before Watergate. Pomper observes: “Like many politicians, he made reelection a priority as he worked on local or individual matters for his base constituency, first, largely ‘Americans of Italian descent’ and later, African Americans as his district’s demographics changed. He contributed to important 1960s civil rights legislation and served as the House floor manager for the landmark immigration revision of 1965. He had cosponsored a 1954 bill to add ‘under God’ to the Pledge of Allegiance. But aside from legislation to make Columbus Day a national holiday, no law bore his name.”

But in 1972, Rodino’s seniority made him chair of the 38-member (21 Democrats,





Members of the media surround Rodino during the House Judiciary Committee hearings on Watergate.

17 Republicans) Judiciary Committee. Shortly after assuming his new role, the committee opened its impeachment inquiry. U.S. Representative Paul S. Sarbanes, D-M.D., later a U.S. Senator from Maryland, was in only his third year in the House when he served on Rodino's committee.

"Chairman Rodino brought a balanced hand to the responsibility and was eminently fair," recalls Sarbanes. "He wanted a broad coalition to support the committee's efforts and he didn't indicate a [personal] position."

Throughout the hearings, Rodino was extremely conscious of his awesome responsibility as committee chair. "The chairman worked night and day. He recognized the severity of the issues," Sarbanes says. "He faced tremendous pressure but knew the importance of doing it right."

To demonstrate his impartiality, Rodino chose John Doar, a Republican and former Justice Department civil rights attorney, as the committee's special counsel. He also allowed the Republicans to appoint their choice as special counsel, Albert E. Jenner Jr., and agreed to let James D. St. Clair, special counsel to the president for Watergate, call witnesses before the committee.

U.S. Representative Hamilton Fish IV, a Republican from New York who eventually voted for impeachment, praises Rodino for his

fairness throughout the investigation, adding: "The team of 40 some lawyers assembled and assigned to conduct this inquiry perhaps make up the finest law firm in the United States."

In a transcript provided by William Berlin—a professor of political science and law at Montclair State University, who was researching a proposed biography when the former congressman died a month shy of 96 in 2005—Rodino says, "And I knew somehow I was going to be the focal point as a leader and that my conduct had to be, my behavior, my demeanor, my every word had to be such that I would not in any way suggest any hint of partisanship, and if necessary, lean over backwards to consider the views of others."

Rodino's doggedness eventually led to a six-day stay at Bethesda Naval Hospital for exhaustion in February 1974. He found new strength when one of his doctors told him, "We need you."

On July 24, 1974, Sarbanes was chosen to introduce Article I of impeachment—charging the president with obstruction of justice for attempting to cover up the DNC break-in. After three days of debate, Article I passed, 27–11. Six of the committee's Republicans voted for impeachment.

The Judiciary Committee eventually recommended three articles of impeachment, but Nixon resigned on August 9, 1974, before the full House and Senate could consider them.

After the first article of impeachment was adopted, Rodino returned to the committee offices, where he began to shake as tears streamed down his face. Weeping, he retreated to a washroom and then to the counsel's office where he called his wife. "I pray that we did the right thing," he reportedly said. "I hoped it didn't have to be this way."

## Oscar Auerbach: Professor Proved the Case against Tobacco Use

His work led to the 1964 U.S. Surgeon General Report directly linking smoking to lung cancer.

BY ROB FORMAN

Smoking kills. Those two words are by now undeniable. But in the 1950s and '60s, while there was mounting evidence that cigarettes directly cause lung cancer, there was just enough scientific doubt that the U.S. government felt unable to take action. Oscar Auerbach put that doubt to rest forever.

Auerbach was a pathologist who would serve for more than 30 years on the faculty of what is now Rutgers Biomedical and Health Sciences' New Jersey Medical School. When he began investigating the effects of smoking, the vast majority of data on the subject came from epidemiological studies. Epidemiology measures the incidence of disease in large populations and then seeks to trace the cause.

All signs from epidemiological research pointed toward a strong link between lung cancers and smoking. But powerful tobacco companies, as well as states whose economies relied on tobacco farming, questioned the validity of that link. They argued that while a statistical association did exist between rates of smoking and the incidence of lung cancer, nobody had established a cause-and-effect relationship.

Oscar Auerbach painstakingly examined microscopic changes in lung tissue to prove that smoking causes lung cancer.



Kenneth M. Klein, a New Jersey Medical School professor, says when he was a young pathologist, the doubters went to great lengths to claim that tobacco and cancer were not linked. "Literally I heard people arguing, 'Well, maybe it's refrigerators,'" says Klein, who served alongside Auerbach on the school's faculty for 21 years. "They said if you follow the incidence





A cigarette billboard in New York's Times Square, 1943

of lung cancer in the 20th century, it not only parallels the consumption of tobacco, but it also parallels when refrigerators became available and people started to buy refrigerators. How do you argue with that?"

*"He did very meticulous autopsies and was able to correlate the changes that he saw with the known tobacco consumption that these individuals had been exposed to."*

—Kenneth M. Klein, New Jersey Medical School professor and Auerbach colleague

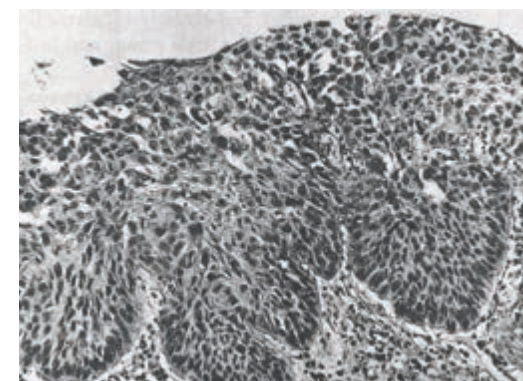
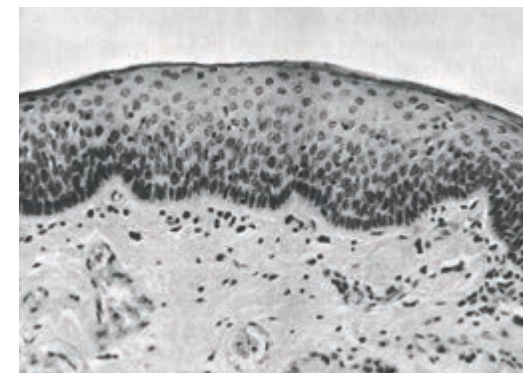
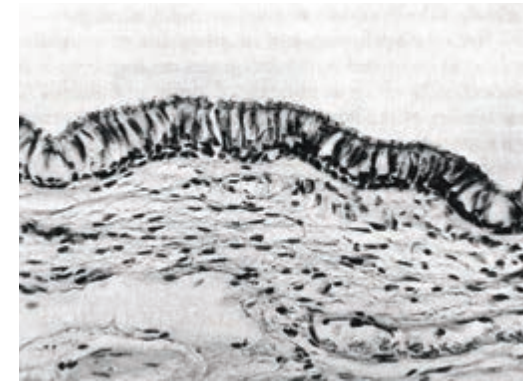
Through intensive research, Oscar Auerbach found a way. The Veterans Administration cared for numerous vets who were dying from lung cancer—soldiers, sailors, and airmen who had smoked prolifically for years. Auerbach led a team that performed those patients' autopsies, examining as many as 10 times the number of microscopic slides that a standard postmortem required. It was painstaking, labor-intensive work.

"He did very meticulous autopsies," says Klein, "and was able to correlate the changes that he saw with the known tobacco consumption that these individuals had been exposed to. You see changes in bronchi, or you can see the tumor. And it's very hard to refute when you see it directly."

But Auerbach still had to do more. Science isn't truly convinced of cause and effect until results can be replicated. That meant seeing in real time whether cigarette smoke induced lung disease. For that, with funding from sources that included the American Cancer Society, Auerbach studied the effects of smoking on lab animals whose lung tissues strongly resembled that of humans. What he had found in the veterans' lungs was happening in those animals' lungs. It was now indisputable that smoking causes lung cancer.

In 1964, U.S. Surgeon General Luther Terry released *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service*, an account of the health

Auerbach's slides of normal and abnormal bronchial tissue as they appeared in the original surgeon general's *Smoking and Health* report, 1964



effects of smoking that was so damning that he waited to issue his findings until the stock exchanges had closed—so as not to cause major market disruptions. The report, which cited Auerbach multiple times, directly linked smoking to lung cancer and concluded that "smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."

From that report grew the health warnings and other legal measures that are credited with reducing per capita consumption of cigarettes by nearly 75 percent since the report was issued, according to the Centers for Disease Control and Prevention. A 2014 study funded by the National Cancer Institute estimates that 8 million premature deaths were averted in the 50 years following the Terry report, with average improvements in lifespan of 19 to 20 years.

Contributing as he did to this revolutionary improvement in public health was Auerbach's crowning achievement, but he never slowed down. One week before his death in 1997, at age 92, he was still teaching New Jersey Medical School students.

He also wore his achievement with the utmost humility.

"He was a sweetheart of a person," says Auerbach's longtime colleague Klein. "You would never know just chatting with him in the hallway that this was an internationally renowned and acclaimed physician-scientist, who did so much."



# Donald Roden: Professor Founded a Prison-to-College Program That Provides a Second Chance

The Mountainview Project at Rutgers has produced national scholars.

BY ROBIN LALLY

Most people wouldn't consider setting foot in a prison, much less volunteering to teach incarcerated men and women the skills they need to succeed upon release.

Not Donald Roden.

Roden has dedicated the past decade to demonstrating that people behind bars deserve second chances and that educating them pays off. His mission started in 2005, when the

*"I believe that the public has a moral responsibility when it comes to criminal justice and education."*

—Donald Roden

Rutgers University–New Brunswick associate professor, a scholar of Japanese history, founded the Mountainview Project, a prison-to-college program. Roden believed that motivated students—even if they came from behind prison walls—should have the opportunities in life that only an education can provide. He knew some would thrive. Others might not.

Roden's tenacity has been instrumental in expanding New Jersey's prison education system, now offered to thousands serving sentences today, as well as to former prisoners like Walter Fortson and Ben Chin; both became

part of the Mountainview Project at Rutgers, eventually earned undergraduate and graduate degrees from the university, and were selected as national Truman Scholars for their "exceptional leadership potential."

"If Don Roden hadn't been there in the beginning with the Mountainview Project, none of the students would have come into the program in the first three years and that would have pushed the entire program back considerably," says Chris Agans, the program's director. The Mountainview Project is now part of the New Jersey Scholarship and Transformative Education in Prison Consortium program (NJ-STEP), which began offering college courses to the state's incarcerated in 2012. Located at Rutgers University–Newark, NJ-STEP now oversees the Mountainview prison-to-college youth prison programs offered at Rutgers University–Newark, Rutgers University–New Brunswick, and Rutgers University–Camden.

Roden "had no money, no staff, and was basically doing everything himself. But he just kept on going," Agans says.

The 71-year-old Roden began visiting the Mountainview Youth Correctional Facility in Annandale, New Jersey, in 2002, after the death



**Donald Roden founded the Mountainview Project at Rutgers because he believes that incarcerated men and women should be given the opportunity to pursue higher education.**

of his mother. She had volunteered at a literacy program teaching reading at halfway houses and community centers and he wanted to do something to honor her memory.

Mountainview was close to both his home in Hillsborough, New Jersey, and to Rutgers–New Brunswick. For the first year, he tutored inmates who were taking courses through a Union County Community College program. But Roden wanted to offer these prisoners more.

"I don't know if I could spend a night in one of these facilities without being a nervous wreck—that's why I find our students so inspirational," he says. "I knew at the time that something else was needed, because I saw that they weren't continuing with their education when they got out. We needed a bridge to connect them."

With the support of the Rutgers history department, fellow faculty members, and deans, Roden forged ahead. He talked to halfway house employees, prison advocates, and the New Jersey Department of Corrections.

Once the program got under way, he spent countless hours at the Mountainview facility telling inmates he thought they had the potential to do well academically and that they could go to Rutgers when they were released. Even though some looked at him like he was "a crazy old guy" because they couldn't imagine that college would be possible, Roden didn't let up, Agans says.

"I believe that the public has a moral responsibility when it comes to criminal justice and education," Roden says. "I knew those who were incarcerated deserved the opportunity of an education and was glad that I got the support from Rutgers."

Studies have backed what Roden has been touting: prison education prevents recidivism and saves taxpayers money in the long run. In 2013, the RAND Corporation found that formerly incarcerated men and women who participate in education programs have a 43 percent lower rate of recidivism. A new five-year study, Pathways from Prison to Postsecondary



As an undergraduate, Mountainview Project and Rutgers alumnus Walter Fortson would become an honors student, receive the School of Arts and Sciences Academic Excellence Award, and be named a Truman Scholar in 2012.



Mountainview Project and Rutgers alumnus Ben Chin overcame addiction to succeed academically. He was named a Truman Scholar in 2013 and Luce Scholar in 2014.



Education, will look at the prison education system in New Jersey, including the prison program Roden started more than 10 years ago.

Since its inception, Mountainview has enrolled 110 former inmates. Twenty-five have earned bachelor's degrees, five have received master's degrees, and 49 are current students. The program's graduates have an overall 3.1 grade point average, with one former inmate having attained a perfect 4.0.

Most important, only 5.3 percent of those admitted to Rutgers through the Mountainview program have been convicted again, a recidivism rate significantly below that of nonparticipants.

"Ideally we would like everyone to graduate, but even those who don't we try to keep in

touch with because we know that the experience has been a positive one," says Roden. "In almost every case, those who didn't continue still have the hope of completing their degree."

Terrell Blount first met Roden at a halfway house in Newark following his release from prison after a five-year sentence for robbery.

"Don is the one who made my going to Rutgers happen," says Blount, a 2013 graduate who works as an admissions and transition counselor at NJ-STEP. "I never doubted myself once I started at Rutgers, always had a positive attitude, and always believed in Don and what he said because he is so sincere. You knew that whenever you called or needed him, he would be there."

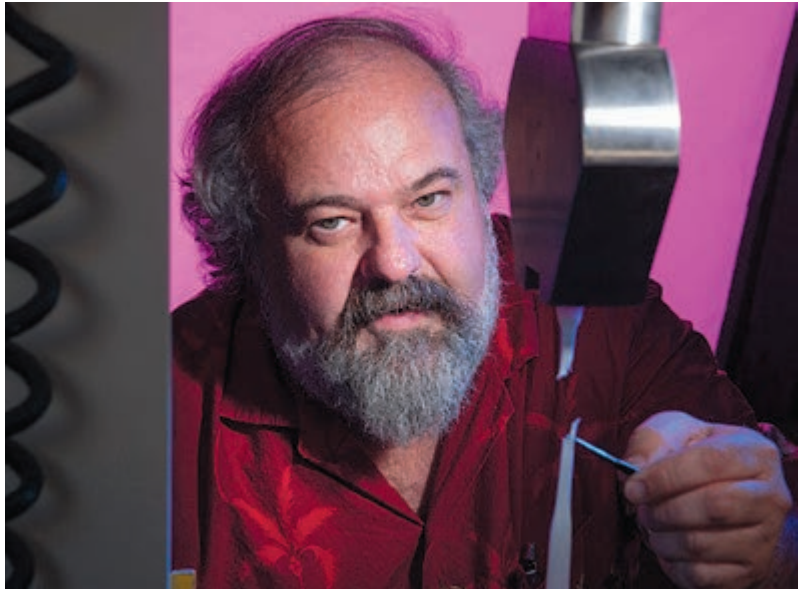
Roden knows how to motivate people, says Jason Bell, who served more than a decade in prison and is now the director of Project Rebound at San Francisco State University, which is among the first programs in the United States to integrate the formerly incarcerated into college.

"Every Mountainview student that has met him has nothing but love for the man because he didn't have to do all of this," says Bell, who has known Roden since the Mountainview program began. "He did not come out of prison. His academic background is not connected to prison reform. He is just intrinsically connected to human nature. It's all heart with him."

# Thomas Nosker: Recycled Plastic Lumber Invented by Professor

His synthetic lumber—made from recycled plastic bottles, coffee cups, and other plastics—is used in bridges, railway ties, docks, and more.

BY CARL BLESCH AND TODD B. BATES



Thomas Nosker stress tests polymers with a tensile test machine.

Imagine a material lighter than steel, longer lasting than lumber, and strong enough to support 120-ton locomotives.

Now imagine that material is made from milk containers, coffee cups, and other plastics that we recycle.

It's called structural plastic lumber, and the ingenious, nontoxic material was invented by

Thomas Nosker, a professor in the Rutgers University–New Brunswick Department of Materials Science and Engineering and Center for Advanced Materials via Immiscible Composite Materials. The late Richard W. Renfree, Nosker's graduate student who later became a Rutgers professor, helped invent the revolutionary material.

"People complain about plastics because they don't degrade," Nosker says. "We found a way to turn that to our advantage with a product."

That product is increasingly used to build bridges on U.S. Army bases and for other items—docks, picnic tables, park benches, and other structures across America and overseas. It's been used to make about 1.5 million railway ties in the United States alone. Since each tie weighs about 200 pounds, that means roughly 300 million pounds of plastics have not ended up in landfills, won't choke marine life, and won't soil beaches.

Nosker, a prolific inventor, and his colleagues have been on the leading edge of plastics research for decades. They developed several types of structural recycled plastic lumber, a standard way to test plastic lumber, fire





**Nosker and graduate student Arya Tewatia on a New Jersey Pinelands bridge made of recycled plastic lumber.**

retardants for plastic lumber, and machines to make plastic lumber. All told, Nosker co-holds 28 patents or patents pending in the United States, in addition to overseas patents, reaping millions of dollars in revenues for Rutgers.

Thirty years ago, Nosker was a doctoral student at Rutgers trying to deal with growing mountains of discarded containers. Plastics were rapidly replacing glass for packaging milk and soda, two high-volume grocery products, and ending up in landfills.

Nosker and others devised ways to sort, clean, and process soda bottles made from polyethylene terephthalate (PET). They sold the material for a profit to make rugs and insulated jackets, to stuff mattresses, and even to produce new soda bottles. Far more problematic was another type of plastic waste, known as high-density polyethylene (HDPE), that was used to make milk containers.

“Prices for HDPE were so low that you couldn’t even afford to wash used milk bottles in preparation for recycling,” Nosker says. “But we couldn’t just turn around and throw it away. Plastics experts said it was potentially recyclable, and we wanted to work on that.”

Initially, Nosker and his colleagues tried making bottles into a substitute for chemically treated wood used in park benches and decks. But recycled HDPE planks sagged over time, when people repeatedly sat or walked on them. Some researchers tried combining HDPE with other plastics used to package foods and household goods, but had little success.

Then Nosker found a workable formula.

“We combined HDPE with polystyrene from old Big Mac containers,” Nosker says. At a specific proportion, the blended plastics gained strength because of the way the tiny plastic particles interlocked.

Making the leap from creating strong recycled plastics to using them to build objects traditionally made of wood required an innovative show-don’t-tell strategy. For centuries, wood lumber from trees has been the go-to durable, flexible, and affordable raw material for construction. But wood has its drawbacks; it needs protection from insects, other animals, and the elements, and it is often treated with toxic preservatives that can leach into soil, water, and groundwater—posing risks to people, animals,

*“People complain about plastics because they don’t degrade. We found a way to turn that to our advantage with a product.”*

—Thomas Nosker

and plants. Structural recycled plastic lumber, which is mostly polyethylene reinforced with stiffer plastics or recycled composites like car bumpers, does not pose such risks.

So 18 years ago, Nosker and Richard G. Lampo, a materials engineer at the Construction Engineering Research Laboratory of the U.S. Army Corps of Engineers in Champaign, Illinois, built the first structural recycled plastic lumber bridge for vehicles at Fort Leonard Wood in Missouri.

“The industry was making a lot of picnic tables and park benches and those are good applications, but we were trying to push the envelope with our applications and do it cost effectively,” says Lampo, who recently visited the Fort Leonard Wood bridge. “It is holding up fine.”

Today, Nosker’s invention is gaining popularity in environmentally sensitive areas where railroads cross streams and where plastic tie durability is a plus. The Chicago Transit Authority, for example, found the plastic ties an economical choice for track rehabilitation on its elevated lines.

Nosker helped build New Jersey’s first structural recycled plastic bridge in 2002, in the environmentally fragile Pine Barrens. The bridge, with its revolutionary I-beam design, has weathered the elements well and continues to carry cars.

More recently, two active, rural Army bases wanted bridges for hefty loads. In Fort Bragg, North Carolina, where the Army has tank

training grounds, bridges must carry heavy vehicles across numerous streams throughout the 160,000-acre base. The Army successfully demonstrated the first structural recycled plastic bridge to support a 73-ton M1 Abrams tank there in 2009, and has ordered 1,000 more plastic bridges for Fort Bragg and other sites.

Structural plastic lumber bridges also have been built at Fort Eustis in Virginia, as well as in civilian areas of California, Maine, Ohio, Scotland, and other locales.

Rutgers has licensed its award-winning plastic technology to two companies that make railroad ties and building products from recycled materials: AXION International Inc. of Zanesville, Ohio; and London-based Sicut Enterprises Limited.

Nosker is proud of his role in trailblazing plastics research. “I’m grateful that I’ve been able to have such a fun career,” he adds.

And the best may be yet to come.

His team is developing light but super-strong graphene-plastic materials that could be used in next-generation tanks, personnel carriers, Humvees, and civilian vehicles and products such as bicycles. Graphene comes from the graphite commonly used in pencils.

“I think the graphene stuff is going to eclipse the work in recycling,” Nosker says. “I might not be around to see people recognize that universally, but I think it’s a big discovery.”





## Julia Baxter Bates: Proving the Scientific Case for Public School Desegregation

An unsung hero of the civil rights movement, the Rutgers alumna fought racism from within the system—and won.

BY PATTI VERBANAS

All Julia Baxter Bates wanted was to receive a college education and become a teacher. In 1930s America, however, this basic dream presented a challenge: Bates was black. Admitted to college only due to a clerical error and denied teaching positions because of the color of her skin, Bates turned to civil rights activism with the goal of changing the system that hindered her from seeking the education and career she earned.

She succeeded: before her 40th birthday, Bates would play a key role in ensuring that no child would be denied access to a public school based on the color of his or her skin.

Activism ran deep in Bates's family tree: her great-grandparents smuggled slaves to freedom through the Underground Railroad; her grandfather was Newark's first African-American school principal; and her father and aunt founded the National Association for the Advancement of Colored People's (NAACP) Morristown and Newark chapters.

As a light-skinned black woman, the scholarly Bates grew up in a predominantly white community in Bernardsville, New Jersey. In 1934, she sent her application, along with the

*"Julia was a savvy, intelligent woman who learned at an early age how to be an activist within the system."*

—Juanita Wade Wilson, Rutgers alumna and friend and colleague of Julia Baxter Bates

required photograph, to the New Jersey College for Women, today's Douglass Residential College at Rutgers University–New Brunswick. Mistaking Bates for white, the admissions department invited her to interview. When the administrators saw her in person, however, they tried to steer her to a black college where they said she would be "more comfortable." Bates was steadfast. She was an excellent student, had been accepted to the institution, and had every right to attend.

The college acquiesced but denied her the opportunity to live on campus. She stayed with family in Newark and commuted to New Brunswick by train to study English, with the goal of following in her grandfather's footsteps to be a high school instructor.

**Almost denied admission to college because she was black, Rutgers alumna Julia Baxter Bates would play a key role in ensuring that no child would be denied public school access based on the color of his or her skin.**





An integrated school in Washington, D.C., in May 1955, one year after the historic *Brown v. Board of Education* ruling. Bates considered the Supreme Court victory her greatest accomplishment.

Bates’s college experience was the first of many inroads the civil rights pioneer would make in her career. Being the first African-American student to be admitted to and graduate—*magna cum laude*—from Rutgers’ women’s college was just the start.

Denied permission to teach in New Jersey because she was black, Bates grew increasingly frustrated by repeated encounters with racism. She joined the staff of New York’s NAACP headquarters, where she spent more than two decades as national director of research and information, working alongside legendary civil rights leaders W.E.B. DuBois, Thurgood Marshall, Walter White, and Roy Wilkins.

“Julia was a savvy, intelligent woman who learned at an early age how to be an activist within the system,” says Juanita Wade Wilson, a 1966 Rutgers graduate befriended by Bates when they worked together at a community education center in Newark. “Although she labored behind the scenes, she provided crucial information to the leaders of the civil rights movement.”

During the 1950s, Bates researched and coauthored the winning brief in the historic *Brown v. Board of Education of Topeka, Kansas* decision, which the NAACP used to prove the scientific case against segregation in the nation’s public schools in the Supreme Court. In the field of public education, *Brown* struck down the *Plessy v. Ferguson* decision of 1896, which held that as long as separate facilities for the separate races were equal, segregation did not violate the 14th Amendment’s equal protection clause. Considered one of the most important decisions of the 20th century, *Brown* is regarded as the catalyst of the modern civil rights era.

Argued by NAACP chief counsel Thurgood Marshall (who would become an associate justice of the U.S. Supreme Court), the case—a combination of five lawsuits against school districts in Kansas, South Carolina, Delaware, Virginia, and the District of Columbia—was the first application of social science to attack a legal precedent.

The research was two-pronged: one angle attacked the precedent set by *Plessy* by demonstrating that separate public educational facilities are inherently unequal. The other,

more controversial, argument sought to provide scientific proof that segregation was psychologically damaging to black children.

In preparing the brief, Bates supplied critical research tracing the history of civil rights in 10 northern states, which was added to contemporary scholarship by psychologists Kenneth and Mamie Clark, who conducted a series of experiments studying the psychological effects of segregation on black children. The Clarks showed that black children responded posi-

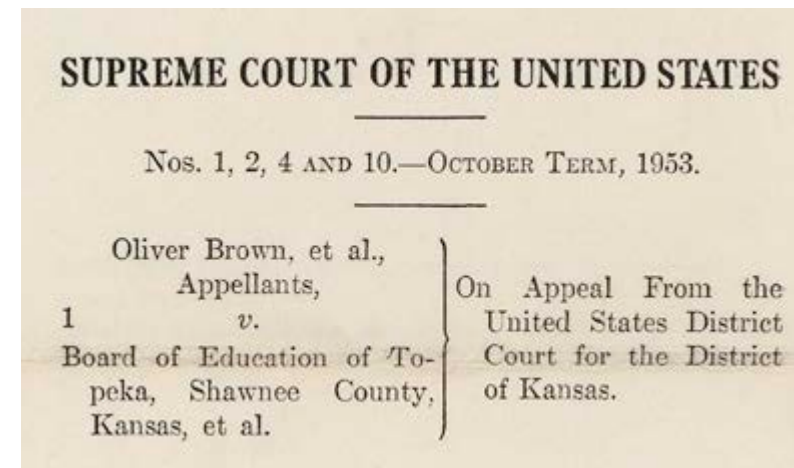
Although controversial, the brief Bates coauthored was persuasive: on May 17, 1954, the Supreme Court declared segregation in the nation’s public schools unconstitutional.

“Julia Baxter Bates is one of the unsung heroes of the civil rights movement,” Glasker says. “Most people don’t recognize her name or understand the value of her contribution. The lead attorneys get the credit for a legal victory, while the staff researchers who do the background work remain anonymous. This was especially the case for women during this time period.”

To Bates, directing a laser-focused team that armed attorneys with the legal firepower they needed to secure a tough victory was simply her role. “Julia always wanted to be a teacher and believed diligent research was her way of instructing,” says Wilson. “The stakes were immense and male attorneys depended very much on a woman. Julia considered *Brown* her greatest accomplishment.”

Recognition eventually arrived for Bates, who died in 2003 at age 86. In 1992, the Associate Alumnae of Douglass College established the Julia Baxter Bates Fellowship, an initiative spearheaded by Wilson. She was inducted into the Rutgers Hall of Distinguished Alumni in 1996.

Until her death, Bates continued to serve as a mentor for young activists like Wilson. “We met in the 1960s—important years for black people,” Wilson says. “We were on the cusp of political change, and we younger women looked to Julia like a college-level instructor with experience in activism. We wanted to hear her stories. Yes, she acknowledged that the work she did was important, but she reminded us that we all have valuable work we must do.”



*Brown v. Board of Education* opinion, May 17, 1954

tively to white dolls over black dolls that had the same features. Their conclusion: prejudice, discrimination, and segregation create a feeling of inferiority among black children and damage their self-esteem.

“This brief was controversial because courts traditionally get questions of law, not of sociology and psychology,” says Wayne Glasker, who specializes in African-American history at Rutgers University–Camden. “It was so innovative that lawyers at the time laughed and sneered at it. They didn’t think it belonged in court and knew it would be difficult to prove.”





## Michael Gottlieb: Alumnus First Identified AIDS

When the world was slow to grasp the epidemic's magnitude, he also became a leading AIDS activist.

BY ROB FORMAN

In the fall of 1980, a 33-year-old immunologist named Michael Gottlieb began hearing about young homosexual men in the Los Angeles area who, inexplicably, were becoming extremely ill. The men had a rare form of pneumonia—caused by the fungus *Pneumocystis carinii* (now

*Mortality Weekly Report*, a newsletter for health professionals.

To read its dense language now, laden with technical terms such as dyspnea, leukopenia, and esophageal candidiasis, and devoid of a single adjective that would suggest alarm, one might not readily appreciate how historic Gottlieb's work was. The article with the innocuous-looking title "Pneumocystis Pneumonia – Los Angeles" was the world's first documentation of AIDS.

Six months later, Gottlieb followed up with an article in the *New England Journal of Medicine* suggesting that a virus might be at the root of the mysterious disease. It would take two years, but virologists who identified what we now know as HIV proved him right.

"With my first report, the AIDS epidemic was off and running," Gottlieb recalls, and his role in its discovery would change his life. "My career took a 90-degree turn. On track for a research career in immunology, I became involved in advocacy and working with communities affected by AIDS."

Just as he had educated the medical community with his early findings, Gottlieb would become a central figure in the event that, more

*"With my first report, the AIDS epidemic was off and running. My career took a 90-degree turn. I became involved in advocacy and working with communities affected by AIDS."*

—Michael Gottlieb

called *P. jirovecii*)—which only strikes patients with severely weakened immune systems. The five men whose cases Gottlieb tracked did not know each other, and all but one had been in robust health until their physical conditions suddenly declined.

Gottlieb, who graduated from Rutgers in New Brunswick in 1969 with a degree in biological sciences, was then teaching at UCLA. He led a team that wrote up the troubling findings and submitted them to the Centers for Disease Control, which—on June 5, 1981—published them in *Morbidity and*

U.S. Centers for Disease Control and Prevention poster promoting HIV testing.





**Michael Gottlieb identified the first AIDS cases, and also has been a vocal activist for patients.**

than any other, awakened the public to the impact of AIDS. In the mid-1980s, nobody in Hollywood had a more virile heterosexual image than the actor Rock Hudson. In 1985, a physically ravaged Hudson stepped before cameras to announce that he had AIDS and was dying. Michael Gottlieb was Hudson’s physician. With the attention of the world suddenly focused on him, Gottlieb says, “it was hard to stay put in the ivory tower.”

**Gottlieb first reported on a cluster of patients with unusual symptoms in the June 5, 1981, *Morbidity and Mortality Weekly Report* of the Centers for Disease Control.**



Gottlieb collaborated with Hudson’s close friend Elizabeth Taylor and other prominent figures to found amFAR, the American Foundation for AIDS Research, and became its co-chair. Gottlieb was one of many who felt the Reagan Administration was slow to put the weight of the federal government behind efforts to curb the epidemic, and that patients dying from the disease had been abandoned, so he became a vocal advocate in the political arena. Over time, the government and other important players would begin to listen and act.

During the past three decades, thanks to the efforts of Gottlieb and countless others, HIV/AIDS has gone from being an automatic death sentence to a largely chronic disease. People with access to the right medications commonly live long lives.

Gottlieb has not stopped. He still treats patients at his Los Angeles medical practice, teaches at UCLA’s David Geffen School of Medicine, and works with AIDS advocacy groups—with a frequent focus on Africa, where millions who do not receive proper care are still dying.

He credits his Rutgers experience for much of the revolutionary work he has done. “I took more humanities courses than science, which helped me avoid being a one-dimensional doctor,” he says. “Once AIDS hit, I could not possibly stay out of the social and political dimensions of the epidemic. Rutgers has a whole lot to do with who I am.”

## Amanda O’Keefe: Law Student Untangles Web of Services for the Developmentally Disabled

Amanda O’Keefe launched LEAD to improve her sister’s quality of life and ease the plight of caregivers in her community.

BY LISA INTRABARTOLA



**Amanda O’Keefe’s only sibling, Paige, has Turner syndrome and experiences severe developmental delays and lack of motor coordination. Paige requires care around the clock.**

Amanda O’Keefe watched her mother devote hours a day hunting unsuccessfully for programs that could help Amanda’s developmentally disabled sister, Paige.

She thought: You need a lawyer to navigate the state’s human services labyrinth.

Or a law student.

Inspired by her family’s struggle, O’Keefe launched Learn Empower and Advocate for the

Developmentally Disabled (LEAD) during her first year at Rutgers Law School in Camden. The pro bono project tracks down and shares information about services available for families like hers in the Camden area.

“You really shouldn’t need a law degree to access these services. It’s just that the systems are so broken,” says O’Keefe, who graduated with her J.D. in 2016. “The people on the front lines don’t know the system themselves. Higher up, I don’t think the right hand talks to the left.”

O’Keefe’s only sibling has Turner syndrome, a chromosomal disorder in which a female child is born with a missing or partially missing X chromosome, causing stunted growth and infertility. Symptoms vary greatly, with some women going undiagnosed until their childbearing years. Others, including Paige, experience severe developmental delays and lack of motor coordination, and require around-the-clock care.

“For many years I had a hard time accepting she was not going to grow up ‘normal,’” says O’Keefe, a Berlin, New Jersey, resident who earned a bachelor’s degree in criminal justice from Rutgers University–Camden in 2013. “It was always, ‘next year.’ Next year, they are going





**O'Keefe and her sister, Paige, at home.**

to get her medication right and she's going to be able to do everything she couldn't do this year.

"Next year never happened."

O'Keefe learned to accept Paige's reality but vowed to never accept "no" for an answer when it comes to improving her sister's quality of life.

"I really hate the word no," she says. "Once I get my mind set on something, I spend as much time as it takes to get it done."

*"I really hate the word no. Once I get my mind set on something, I spend as much time as it takes to get it done."*

—Amanda O'Keefe

LEAD was born out of that tenacity and fierce protectiveness. The idea came to O'Keefe after her family stumbled upon a life-changing respite service for Paige—a family support program through the state Department of Children and Families that provides free supervised weekend outings for individuals with special needs.

"My family is continuously busy with doctor appointments, talking with insurance companies, and taking Paige to therapy, and respite is a huge help. It gives us a little break and allows Paige to experience new things," she says. "But we would have never known about respite if we did not happen to talk with the right person."

If her family was unaware of respite's existence, O'Keefe wondered, how many other opportunities was Paige missing out on? And do families like hers experience this much frustration securing services they are legally entitled to?

A summer spent interviewing Camden-area families with special-needs members and tracking services, eligibility requirements, and application processes confirmed what she'd suspected was true.

During this research—funded by a Horace and Kate King Wu fellowship—O'Keefe learned which buzzwords to use, questions to ask, and automated prompts to follow to get results for Paige and her peers. For example, she found the ability to secure valuable services for a loved one hinges on whether a caregiver understands the importance of the phrase "substantial functional limitations."

"Families are so used to looking at everything their son or daughter can do. They don't want to think about what they can't do," she says. "But when you are trying to find these services, you have to highlight what they can't do."

O'Keefe, empowered by her newfound knowledge, was eager to help others unravel the tangled web of resources. Originally, she intended to offer families pro bono representation through LEAD. But Jill Friedman, an adjunct professor and acting assistant dean of the pro bono and public interest program at Rutgers Law School in Camden, persuaded her to focus on sharing information and advice through public support sessions. Friedman also connected O'Keefe with the person who would become her mentor, professor, and employer, Herb Hinkle, a 1974 Rutgers Law School

alumnus and celebrated adjunct professor who has dedicated more than 40 years to championing special-needs clients.

"With Amanda it has just been one extraordinary episode after another," says Hinkle, founding partner of Hinkle, Fingles, Prior & Fischer. "I was her adviser on LEAD, but she really didn't need much in the way of advice. She went out and interviewed just about every player in the disability field that had something to contribute toward her gaining an understanding of the services and how they are implemented."

Ultimately LEAD became a platform for O'Keefe to promote the plight of the develop-



**O'Keefe helps Paige with a writing lesson.**

mentally disabled and better their situations. LEAD research, compiled with the help of three law students, is now stored in a database—its information publicized and disseminated through public presentations for caregivers, doctors, social workers, and educators. Since founding LEAD, O'Keefe was appointed to the board of directors for the Arc of Camden County, served as a student representative to the Rutgers University–Camden Chancellor's Disability Advisory Council, and was made

the youngest member of the New Jersey State Bar Association's Blue Ribbon Commission on Unmet Legal Needs, co-chaired by former New Jersey Supreme Court Justices Virginia A. Long, a Rutgers Law School alumna, and Helen E. Hoens.

Hinkle marvels at his mentee's ability to invest close to 300 pro bono hours running LEAD while juggling her studies, community outreach, internships, and relationships with friends, family, and fiancé, James Paoletti.

"It's almost spooky, isn't it?" Hinkle says when asked about O'Keefe's work ethic. "Let's just say when I was graduating from law school I had some involvement with this stuff. Where she is now is head and shoulders above where I was."

That's why the now-retired Hinkle helped O'Keefe secure an internship with his former firm, where after graduating she planned to work as an associate concentrating in adult services, estate planning, elder law, and education law—all tailored to clients with disabilities.

"All the attributes you expect a lawyer would someday possess, she possesses now," he says. "She's way off the charts. She's very special."

But O'Keefe is quick to downplay her laundry list of extracurriculars and achievements. "It always feels like I should be doing more," she says.

Whether that's putting in a few more hours trying to teach Paige how to ride a bike or tracking down another elusive service for her, taking care of her sister is something that comes naturally to O'Keefe.

"All my career goals have centered around my sister," she says. "I just want her to be happy."





## Oscar Schofield and the Marine Team: A New World Underwater

Rutgers scientists forever changed the field of oceanography and our understanding of weather and marine life.

BY KEN BRANSON

**Josh Kohut, left, associate professor of marine science, with a student in the RU COOL nerve center.**

Nearly 20 years ago, Josh Kohut, a rising college senior, walked onto the ground floor of a revolution starting at Rutgers—the art and science of studying the world’s oceans, all at the same time.

Kohut got a summer job working for Scott Glenn, a Rutgers University–New Brunswick marine scientist who was just starting to use high-frequency radar designed to hug the surface of the ocean and “see” over the horizon.

It was one of several new technologies Glenn and his colleagues at Rutgers would go on to adopt and share with the world over the next two decades, forever changing the field of oceanography and the way scientists understand weather, marine life, and related areas.

“The development of ocean observing was championed here,” says Kohut, now an associate professor of marine science at Rutgers and a cofounder of what was the Rutgers University Coastal Ocean Observation Laboratory and is now the Rutgers University Center for Ocean Observing Leadership (RU COOL). “The benefits have been in understanding storms, water quality, fisheries, and search and rescue.”

For decades, oceanographers had gathered data by observing a spot in the ocean over a period of time with buoys or a tide gauges, or by surveying a swath of ocean by pulling sensors behind a ship.

The ocean is under-sampled, to put it mildly,” says Glenn, professor of marine and coastal sciences and another RU COOL cofounder. “We needed spatial data—not just a time series at a point or a shipboard sample that was a one-off. Nobody could afford 1,000 moorings or 1,000 ships.”

Glenn and his team first set out to work with satellite imagery, then on the high-frequency radar called CODAR (Coastal Ocean Dynamics Application Radar). Then they started working with sensors on drifters, buoys, and robot gliders.

Their work made it possible—and practical—to study different points in the ocean simultaneously. They also decided to make their findings public, posting the data online for others to use for their own work.

Other universities “wanted to use [CODAR] data for research papers, but they wouldn’t put it up on their websites for others to look at,” says Donald Barrick, CODAR’s inventor and CEO of CODAR Ocean Sensors. “Rutgers has always been very open about this, not proprietary. They were the beginning in the United States of using our radars for societal applications, not just research.”





Scott Glenn, second from right, professor of marine science, with student researchers and a Rutgers glider.

*“We need a new generation of oceanographers. That’s why we developed our undergraduates as researchers. They’re still explorers. They’re still trying out new things.”*

—Scott Glenn

The work has helped rescuers improve their search-and-rescue strategies, environmental agencies monitor water quality more precisely, fisheries officials manage fisheries better, and meteorologists better understand the underwater dynamics of hurricanes.

“Before, we could accurately predict a hurricane’s direction but not the intensity of its landfall,” says Oscar Schofield, a professor and chair of the Department of Marine and Coastal Sciences and another cofounder of RU COOL. “Now, we know how to do that, which has huge implications for emergency preparedness, land-use planning, and lots of other activities.”

The program drew international attention in 2009 when Rutgers scientists achieved the world’s first transatlantic crossing of an

undersea robotic glider. The media likened the feat to Charles Lindbergh’s solo flight across the Atlantic Ocean, and the glider, dubbed the RU27 Scarlet Knight, was put on display at the Smithsonian Institution.

Now, gliders fly underwater in all the world’s ocean basins, and CODARs line both coasts of the United States and are deployed in several other countries. Going forward, RU COOL is at the heart of the effort to manage and understand all that data.

In June 2016, the National Science Foundation awarded \$11.8 million to Rutgers to design, build, and operate the data system for the Ocean Observatories Initiative, which collects and shares data from more than 800 sophisticated instruments deployed in the Atlantic and Pacific oceans. The data are transmitted to labs ashore by submarine cable or satellite. The Rutgers team includes RU COOL and the Rutgers Discovery Informatics Institute. The goal: provide a holistic view of the world’s oceans.



The Spanish vessel *M/V Investigador* approaches the Rutgers submersible robotic glider RU27 Scarlet Knight off the coast of Spain in December 2009 after the glider completed its precedent-setting 221-day underwater flight across the Atlantic Ocean.

Oscar Schofield, professor of marine science and chair of the Department of Marine and Coastal Sciences, during a research trip to Antarctica.



“The view of the world before was that we’re data-limited, and if we just had the data, the ocean would make sense to us,” says Matt Oliver, professor of marine science at the University of Delaware who did his graduate work with RU COOL. “Now, there is so much data going

in, we’ve gone from being blind to staring into the sun, and we’re still blind.”

Like Oliver, hundreds of undergraduate and graduate students have started their careers at RU COOL to get hands-on experience. In 2009, when the lab sent the Scarlet Knight glider on its historic journey across the Atlantic, the professors often knew no more than their students, and weren’t afraid to admit it.

“There were times when [Glenn] just gave us the keys and told us to drive,” student Shannon Harrison told Rutgers Today in 2011.

The Rutgers scientists say they have been deliberate in choosing top students in hopes of identifying others from Rutgers who will go on to do revolutionary work.

“We need a new generation of oceanographers,” Glenn said. “That’s why we developed our undergraduates as researchers. They’re still explorers. They’re still trying out new things.”





## George McLaughlin: Fought for Civil Rights at a Woolworths Lunch Counter

Nonviolent protests and lunch counter sit-ins sparked national interest in the fight against segregation.

BY CARRIE STETLER

Day after day in 1960, a group of courageous African-American college students refused to leave the segregated lunch counter of a Woolworths store in Greensboro, North Carolina. They endured taunts and threats from angry whites, who tossed lit cigarettes, food, and drinks at them.

*“We just kept sitting there. We would line up behind the stools and when one student would get up another would sit down.”*

—George McLaughlin

**George McLaughlin retired in 2015 from the Rutgers School of Dental Medicine as a clinical associate professor.**

But they kept showing up—eventually sparking a flood of student sit-ins at lunch counters across the United States. Today they are remembered as heroes of a key turning point in the civil rights movement.

Rutgers alumnus George McLaughlin was one of them.

McLaughlin, who retired in 2015 from the Rutgers Biomedical and Health Sciences School of Dental Medicine as a clinical associate professor, was among a small but growing wave of

students who turned out to support the “Greensboro Four”—and kept showing up for months.

At first, they made no difference. Woolworths issued a statement saying it would “abide by local custom” and continue refusing lunch counter service to African Americans. But on July 25, five months after the protests began, and business dropped dramatically, the Greensboro Woolworths store served three black protestors.

The gesture marked a symbolic end to segregation at five-and-dime counters throughout the South, although some were still “whites only” until the Civil Rights Act of 1964, when desegregation was mandated.

The victory didn’t come easily. “We just kept sitting there. We would line up behind the stools and when one student would get up another would sit down,” recalls McLaughlin, who graduated from the School of Dental Medicine in 1975, becoming one of the first 10 black students in its history.

In 1960, he was studying to become a mechanical engineer at North Carolina Agricultural and Technical State University in Greensboro. The four initial protestors were





**The Woolworths sit-ins spread to lunch counters across the country—and changed history. Pictured here are some of the Greensboro protestors.**

fellow students, and although he didn't know them well, he felt an immediate sense of solidarity. Like them, he grew up in the Jim Crow South. His hometown of Raeford, North Carolina, had separate but unequal schools for black students and one for Native American children, who were subject to the same laws of segregation as black residents.

As a child, McLaughlin remembers white students shouting racial slurs out the bus windows as black students waited for their own bus to school. Sometimes there was violence. It wasn't uncommon for white drivers to intentionally run black pedestrians off the road, he says.

"We hoped that things would change through education. That's the reason we all tried to go to school. That's what our parents always told us: 'Get an education, because that's something no one can take away from you,'" says McLaughlin, whose parents were farmers.

North Carolina Agricultural and Technical was a historically black college, whose students often shopped at the Woolworths store in downtown Greensboro. "We would go buy school supplies and something to eat, but we couldn't sit down and eat it," he says.

That year, the civil rights movement was already under way in the wake of the Montgomery Bus Boycott in 1955 and the lynching of 14-year-old Emmett Till. But the four freshmen students who first refused to leave the lunch counter weren't initially part of any organized movement, McLaughlin remembers.

"They decided they would sit down until they were served," he says.

After graduation, McLaughlin went on to take engineering jobs with the U.S. Department of Defense and Westinghouse before deciding to pursue a dental degree.

But his activism didn't end at the lunch counter. In New Jersey, he fought discriminatory housing practices, joining protests in Essex County during the 1960s and 1970s. Fifty-five years after the milestone Woolworths protest, McLaughlin views it as a reminder that everyone has the power to create change.

"We made a difference," he says. "It shows that it doesn't take a lot of individuals to start a movement."

## James Dale: Alumnus Put a Spotlight on Discrimination against Gays

A legal challenge to the Boy Scouts of America's ban on gay scouts catalyzed the acceptance of gay youths as members.

BY DORY DEVLIN



**Former Eagle Scout James Dale, left, with his attorney, Evan Wolfson, in 2000 after the U.S. Supreme Court heard arguments in *Boy Scouts of America v. Dale*.**

When the Boy Scouts of America voted in 2015 to lift its ban on openly gay troop leaders and employees, James Dale wished he could celebrate the monumental shift. The decision had a loophole: local troops and councils, the executive board ruled, could continue to decide for themselves whether to allow gay volunteer leaders.

Nearly a quarter-century after the Rutgers alumnus sued the Boy Scouts of America (BSA)

while a Rutgers student—in a case that went to the U.S. Supreme Court in 2000—Dale viewed anything less than a complete repudiation of discrimination as unjust.

"It's progress, yes. But after 25 years you would hope that they would get it right," says Dale, 45, a 1993 Rutgers graduate who was dismissed from the Boy Scouts in 1990. "They're still teaching young people that discrimination is okay. With discrimination there can be no half measures. Equality can't be doled out in fits and starts."

Dale joined the Boy Scouts when he was 8. He earned his Eagle Scout rank at 17 and was an assistant scoutmaster in Troop 73 in Matawan, New Jersey, while in college at Rutgers University–New Brunswick. The summer before his junior year, he received a vague letter from his local council leader saying he no longer met the standards of leadership. A month before, the *Star-Ledger* quoted the 19-year-old Dale in an article about a Rutgers seminar on the psychological and health needs of lesbian and gay teenagers.





**Dale in 1985 after he won the Boy Scouts of America's Monmouth Council's Joshua Huddy Trail Award for Youth Speaker.**

A follow-up letter was very clear: “The grounds for this membership revocation are the standards for leadership established by the Boy Scouts of America, which specifically forbid membership to homosexuals.”

“It was devastating to be explicitly rejected,” Dale says. He knew right away he couldn’t ignore it. “It isn’t something I could have walked away from.”

Dale came out as gay in 1989, and he was happy at Rutgers. “There was a tremendous amount of acceptance and pride among peers, staff, and faculty,” says Dale, who grew up in Middletown, New Jersey, and majored in communication and sociology. Already active in several student organizations, he became copresident of the Rutgers University Lesbian, Gay, and Bisexual Alliance (RULGA), the forerunner to the Rutgers Center for Social Justice Education and LGBT Communities.

Friends were not surprised Dale did not take the ouster quietly. “He was always a fighter who wanted to make things right,” recalls college friend Christine Zardecki, now deputy director at the Protein Data Bank, a Rutgers research



**Dale's lawsuit helped change public opinion about discrimination against gays by the century-old organization. Dale is pictured here at Yosemite National Park in 2016.**

center. “He was so young to take on the Boy Scouts, but he was willing to go the distance.”

Dale connected with attorney Evan Wolfson, then with the Lambda Legal Defense and Education Fund, to pursue a lawsuit. When New Jersey passed a law banning discrimination based on sexual orientation for places of public accommodation, their case gained strength. In July 1992, Dale sued the Boy Scouts of America in New Jersey Superior Court.

“It was a massive injustice,” Wolfson recalls. “Here was this young man who had spent more than half his life in the Scouts and had excelled in every way. He believed in the values of scouting, appreciated the training, and was a good example of it. And he was being kicked out not for doing anything wrong but for being gay.”

Wolfson quickly saw in Dale a powerful plaintiff who would help shine a needed light on gay youth as well as the organization’s discrimination. “He was a terrific role model,” Wolfson says. “Everything that made him an Eagle Scout made him a very committed and diligent plaintiff.”

*“The [U.S. Supreme Court] decision basically forced people to struggle with the issue, to decide which side they stood on and if they could align with an organization that discriminates.”*

—James Dale

A New Jersey Superior Court judge ruled in favor of the Boy Scouts in 1995, but a state appellate court reversed that ruling in 1998. The Boy Scouts of America appealed to the New Jersey Supreme Court, and the justices unanimously agreed in 1999 that the BSA violated state antidiscrimination laws. “The human price of this bigotry has been enormous,” wrote Chief Justice Deborah T. Poritz.

When the U.S. Supreme Court agreed to hear the Boy Scouts’ appeal, Wolfson and Dale headed to Washington D.C. The 10-year battle ended in June 2000, when the high court, voting 5–4, ruled the organization had a constitutional right to ban gay members. Chief Justice William H. Rehnquist said the First Amendment’s protection for freedom of association meant that the state could not force the 6.2-million member organization to adopt an unwanted message—in this case, acceptance of homosexual members.

The decision was a terrible disappointment for Dale, who was working in public relations for New York-based nonprofits and putting off his dream of moving to California to stay close to the case. He remembers feeling lost and depressed at first. Soon, his focus sharpened on the bigger picture.

“The Supreme Court did the larger issue a favor,” he says. “The decision basically forced people to struggle with the issue, to decide which side they stood on and if they could align with an organization that discriminates.”

Many could not, and public opinion swiftly moved in Dale’s favor. In 2001, Oscar-winning director Steven Spielberg left his post on the

Boy Scouts of America’s national honorary advisory board to protest the group’s anti-gay policies. Corporations stopped donating. In 2012, President Barack Obama and Republican presidential nominee Mitt Romney announced they opposed the ban.

“The case played a huge part in transforming non-gay people’s understanding of who gay people are,” Wolfson says. “Once you accept that gay people are part of the family, that there is such a thing as gay youth, you can’t treat gay people as alien others who are easy to hate and fear.”

By 2013, when the BSA voted to admit openly gay Scouts but still ban gay adults as leaders, membership was at 2.6 million nationwide, a significant drop from the 6.2 million at the start of Dale’s case.

That same year, Dale made the move to the West Coast, where he worked as an advertising vice president and account director after a decade of having worked in advertising in New York. In 2016, he returned to New York to live with his partner and to continue speaking about the case and consider writing a book about his experience.

When Dale attended the gay pride parade in New York in June 2016, he took note of so many stores and businesses along the route hanging rainbow flags and messages of LGBTQ support.

“I remember a time when that wasn’t the case,” Dale says. “This is a much better place to be.”



# Simeon De Witt: Letters from the Revolutionary War

Simeon De Witt and his former classmates kept in touch through eight years of war.

BY KEN BRANSON

One of Rutgers' first graduates was one of the nation's first soldiers—and a vivid correspondent of history.

Young Simeon De Witt witnessed some of our nation's greatest—and most dangerous—early moments when he joined the Continental Army in 1776 after graduating from Queen's College, the small private school in New Brunswick, New Jersey, that would eventually evolve into today's Rutgers.

The university would go on to be home to countless men and women serving in conflicts from the Civil War to the war in Afghanistan over its 250-year history. But it all started with De Witt, eventually a chief surveyor for General George Washington and his contemporaries.

In a series of letters to his former classmates preserved by Rutgers Special Collections and University Archives, De Witt captured his own hopes and doubts in the passionate prose of a young man finding his way, much like those who have followed.

“My apprehensions were alarming indeed,” De Witt wrote of the 1777 Battle of Saratoga. “But I resolved rather gloriously to perish in the tempest than ignobly to turn my back or

stand an idle spectator ... the critical moment big with the fate of my country, myself, when liberty and all seemed to hang in suspense.”

De Witt's regiment was part of the reserve and was never committed to the battle, which would become one of the Revolution's key turning points, but they saw the flames and heard the artillery “shaking the worlds around us.”

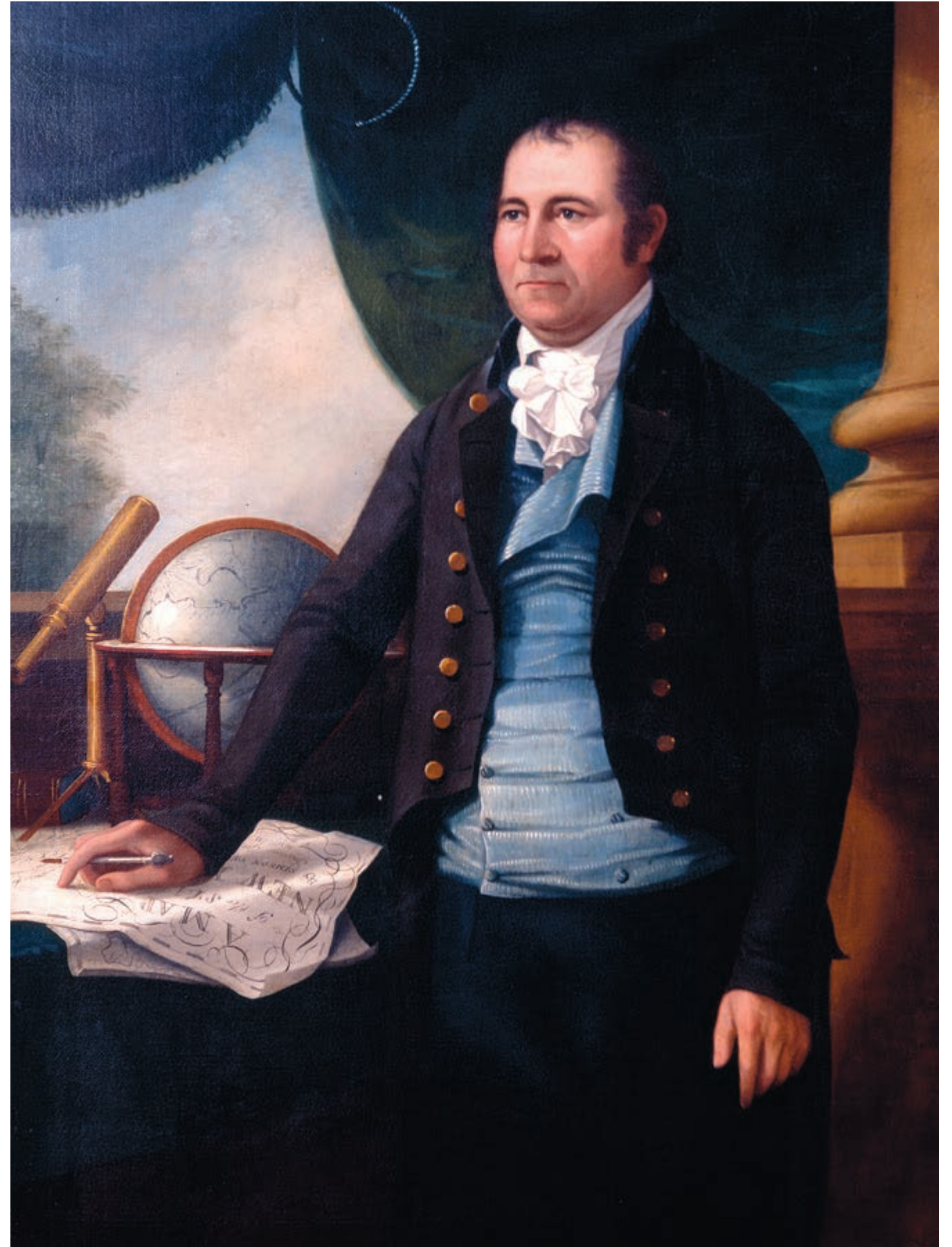
“I can assure you never has such a storm threatened our state,” he later wrote. “Every inhabitant sat trembling at its approach till the favor of providence threw the enemy into our hands.”

After the battle, De Witt described the British surrender as “the most glorious, grandest sight America ever beheld or perhaps ever shall see.”

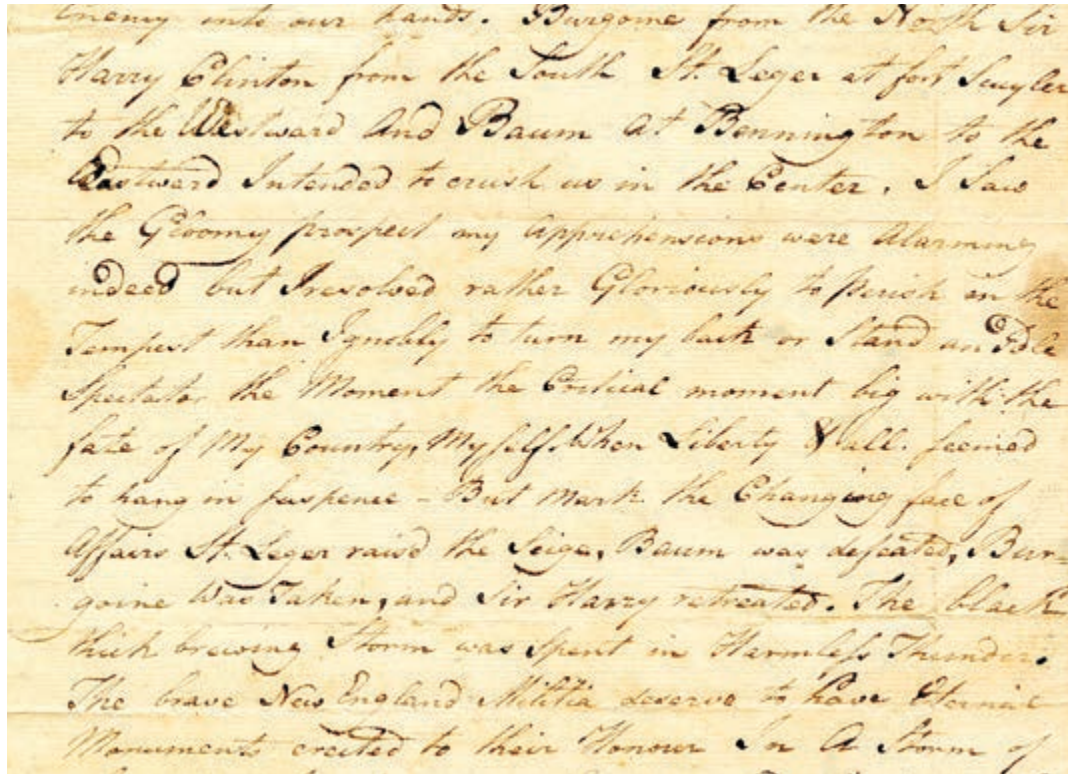
De Witt's letter about Saratoga offers a rare panorama of battle—rare, Rutgers historian Peter Silver says, because individual soldiers' views of such events usually were limited. “Most soldiers lived in an information and visual tunnel,” he notes. “They saw what was directly in front of them and around them.”

Silver points out that 18th-century communication was slow and uncertain, even in peacetime. “Before the war, people lived with an uncertainty about whether their letters would

**Simeon De Witt served as surveyor general for the Continental Army during the Revolutionary War.**







De Witt's  
February 14, 1778,  
letter to classmate  
John Bogart,  
recounting his  
experience at the  
Battle of Saratoga.



This compass was  
made by Benjamin  
Pike and presented  
to De Witt by  
George Washington.  
De Witt used it  
to conduct land  
surveys for  
mapmaking.

*“But I resolved rather gloriously to perish in the tempest than ignobly to turn my back or stand an idle spectator ... the critical moment big with the fate of my country, myself, when liberty and all seemed to hang in the suspense.”*

—Simeon De Witt

be received,” Silver says. “They would send two or three copies to make sure, and they would number their letters, so their correspondents would know if they’d missed one. And in terms of time, we’re talking weeks to get a letter from one place in America to another.”

The war made everything worse, Silver notes. “People’s information horizons shrank,” he says. “All the information links they had were just chopped off.”

For De Witt and his classmates, their friend John Bogart, a tutor at the college, was their one sure link with each other. With British forces occupying New Brunswick, Bogart had moved

with the remaining faculty and student body to Readington in Hunterdon County. De Witt and about a half-dozen close friends in the Army contacted Bogart throughout the war so he could help keep them informed of each other’s activities.

Occasionally, members of DeWitt’s group discovered too late that they’d been within a few miles of each other and didn’t know it.

De Witt was finishing a gloomy letter to Bogart on May 9, 1781, when an old college friend, David Annan, appeared at his camp in Morristown, New Jersey.

“Wonderful wonder of wonders!” De Witt wrote. “I am quite another man. My spirits have gone afloat. We had a long talk with each other and raised the ghosts of all our former transactions. He is as droll if not droller than ever, full of laugh and jocularly.”

The visit came at the perfect time. De Witt had just survived one of the coldest winters of the war, once writing to Bogart that “the other day one of my ears froze as hard as a pine [knot].”

Unlike his friends, whose interests were literary and philosophical, De Witt was a mathematician and surveyor and, by then, the chief surveyor in Washington’s army. In that capacity, he drew maps that would guide Washington to battle, including the final engagement at Yorktown, Virginia, in 1781, when Lord Cornwallis’s army surrendered to Washington—a historic event at which De Witt was present.

He went on to a long and distinguished career as the surveyor general of New York, helping to design the streets of New York City and Norfolk, Virginia, as well as determining the route of the Erie Canal—but not before seeing the toll of war across the young country.

“You see where we now are, in a country which bears the melancholy vestiges of war,” he wrote shortly before the Yorktown surrender. “What cruel changes does the destructive hand of war make wherever it approaches.”





## Ruth Bader Ginsburg: Former Rutgers Law Professor Led the Campaign for Gender Equality

She recognized discriminatory laws hurt women—and men—and sought to revamp them one case at a time.

BY ROYA RAFEI

In the late 1960s, a group of Rutgers Law School students in Newark asked their professor, Ruth Bader Ginsburg, to lead a seminar on women and the law. Ginsburg, who was one of only two female law professors at Rutgers and a handful in the country, seemed the right person to teach the class.

*“I surely would not be in this room today without the determined efforts of men and women who kept dreams of equal citizenship alive in days when few would listen. People like Susan B. Anthony, Elizabeth Cady Stanton, and Harriet Tubman come to mind. I stand on the shoulders of those brave people.”*

—Ruth Bader Ginsburg, during the 1993 nomination hearings for her seat on the U.S. Supreme Court

**The U.S. Supreme Court Building was completed in 1935, 15 years after women won the right to vote.**

In preparing for the class, Ginsburg, now a U.S. Supreme Court Justice, quickly learned there wasn’t much to study on the subject—and in fact, there was a large gap in the law on gender equality. That request from her students began Ginsburg’s journey to becoming a pioneer in women’s legal rights.

“Rutgers students sparked my interest and aided in charting the course I then pursued,” she says in *Our Revolutionary Spirit*, a short film on Rutgers’ 250th anniversary. “Less than three years after starting the seminar, I was arguing gender discrimination cases before the Supreme Court.”

Around the same time the students sought Ginsburg, the New Jersey chapter of the American Civil Liberties Union (ACLU) was receiving a new set of complaints. It was a few years after the Civil Rights Act became law. Women were reporting discriminatory practices at their workplaces: a school secretary was told she had to leave her job as soon as her pregnancy became apparent; a married factory worker was told the company’s family health insurance was only offered to male employees. Even girls in public schools were receiving unfair treatment. A summer engineering program in Princeton for low-income sixth-graders only permitted boys to attend.

The ACLU chapter, based in Newark, turned to Ginsburg to handle the cases.

The turning point for women’s equality came in 1971 when Ginsburg was still at Rutgers. In *Reed v. Reed*, the Supreme Court ruled—for



A request by her students at Rutgers Law School sparked Ruth Bader Ginsburg's journey to becoming a pioneer in women's legal rights. This photo was taken at the law school, where she taught from 1963 to 1972.



"We had a big influx of women in the '60s with second careers," says Professor Frank Askin, a 1966 Rutgers Law School graduate who worked with Ginsburg at the ACLU. "They needed a mentor and she provided that."

One of those women was Elizabeth Langer, a 1973 Rutgers Law School graduate, who served as the coordinating editor of the *Women's Rights Law Reporter* from 1972 to 1973. The publication, founded in 1971 by Ann Marie Boylan, was the first law journal in the country to focus exclusively on women's rights. The struggling journal, which published its first issue in New York before coming to Rutgers, needed a faculty adviser and Ginsburg seemed the logical choice. Ginsburg was already on the advisory board for the first issue but serving as its adviser meant she would have a more significant role in the journal's content and production.

"I was surprised she was willing to do it," Langer recalls. "The *Women's Rights Law Reporter* was nothing. It was dying ... We had no money, no faculty, no backing ... She went where other people wouldn't go. She took a leap."

"Once she came on board, everything fell into place," Langer continues. "We felt empowered."

Ginsburg taught at Rutgers from 1963 to 1972. She left Rutgers for Columbia Law School, becoming the first female professor to earn tenure there.

Diane Crothers, a 1974 Rutgers Law School graduate, who cofounded the *Women's Rights Law Reporter* with Boylan, says Ginsburg is one of the most analytic and strategic minds she's ever known. "She had a 20-year and a 50-year plan and did it piece by piece, step by step, to figure out the end game. And she wasn't 'justice for women' only."

Ginsburg's strategy was to argue against gender inequality in the law, even when it discriminated against men.

the first time—that an Idaho statute on estate administration was unconstitutional because it discriminated based on gender. Ginsburg was the principal author of the brief in the landmark decision. Soon after *Reed*, the ACLU created the Women's Rights Project, dedicated to gender discrimination litigation, and named Ginsburg its codirector.

Ginsburg eventually argued six cases before the U.S. Supreme Court and won five of them.

During the 1960s and 1970s, Rutgers Law School, which at the time was known as the School of Law–Newark, was at the forefront of the social justice movement. It was ahead of other schools in admitting women and other minorities and had come to be known affectionately as "People's Electric Law School," a term representing the counterculture and a progressive social agenda that was afoot there. Additionally, tuition was affordable (about \$1,500 for the three years), attracting a diverse student population, including women. By 1971, 40 percent of the students entering Rutgers Law School were women, the second highest percentage in the country.

Ginsburg was appointed to the U.S. Supreme Court in 1993, becoming the second woman to serve.



In a 1975 case before the U.S. Supreme Court, Ginsburg represented Stephen Wiesenfeld, a New Jersey man whose wife had died during childbirth. Wiesenfeld was denied a Social Security benefit widows received after a spouse's death. The benefit, he was told, was a mother's benefit. Ginsburg won the case in a unanimous decision.

"We wanted to say the law shouldn't pigeon-hole people; that man or woman should be able to do whatever his or her talents made right for that person," she said in a 2015 interview with the National Portrait Gallery.

Ginsburg was appointed to the Supreme Court in 1993 by President Bill Clinton, becoming only the second woman to serve. During the hearings, she foresaw a different court.

"In my lifetime, I expect to see three, four, and perhaps even more women on the High Court bench, women not shaped from the same mold, but of different complexions," she told the senators.

As a justice, Ginsburg has continued to protect the legal rights of not only women but also other minorities.

"She's an amazingly smart, dedicated, and focused legal mind," says Langer. "We see her as a mentor, a heroine, a very strong perseverant figure in the women's rights movement. She had step-by-step strategies to advance the movement."

Though she's known for advancing women's legal rights, Ginsburg repeatedly has said that there were many pioneers before her.

"I surely would not be in this room today," she told the Senate Judiciary Committee in 1993 during her nomination hearings, "without the determined efforts of men and women who kept dreams of equal citizenship alive in days when few would listen. People like Susan B. Anthony, Elizabeth Cady Stanton, and Harriet Tubman come to mind. I stand on the shoulders of those brave people."



FEATURED REVOLUTIONARY ALUMNI

Julia Baxter Bates • New Jersey College for Women 1938

James Dale • Rutgers College 1993

Simeon De Witt • Queen’s College 1776

Michael Gottlieb • Rutgers College 1969

Joshua Kohut • Graduate School–New Brunswick 2002

Christian Lambertsen • Rutgers College 1939

Katherine Lau • School of Engineering 2016

George McLaughlin • Rutgers School of Dental Medicine 1975

Thomas Nosker • Graduate School–New Brunswick 1983, 1988

Amanda O’Keefe • Camden College of Arts and Sciences 2013, School of Law–Camden 2016

Bill Rasmussen • Rutgers Business School 1960

Paul Robeson • Rutgers College 1919

Peter Rodino • School of Law–Newark 1937

Constantine Sarkos • School of Engineering 1963, Graduate School–New Brunswick 1965

Albert Schatz • College of Agriculture 1942, 1945

Selman Waksman • Rutgers College 1915, 1916

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in the United States. More than 67,500 students and 22,500 faculty and staff learn, work, and serve the public at Rutgers University–New Brunswick, Rutgers University–Newark, Rutgers University–Camden, and Rutgers Biomedical and Health Sciences and at additional locations across New Jersey and around the world.





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