BUFFALO MUSEUM OF SCIENCE

Celebrate

HISPANIC HERITAGE MONTH

We believe science creates opportunities and shapes our world.

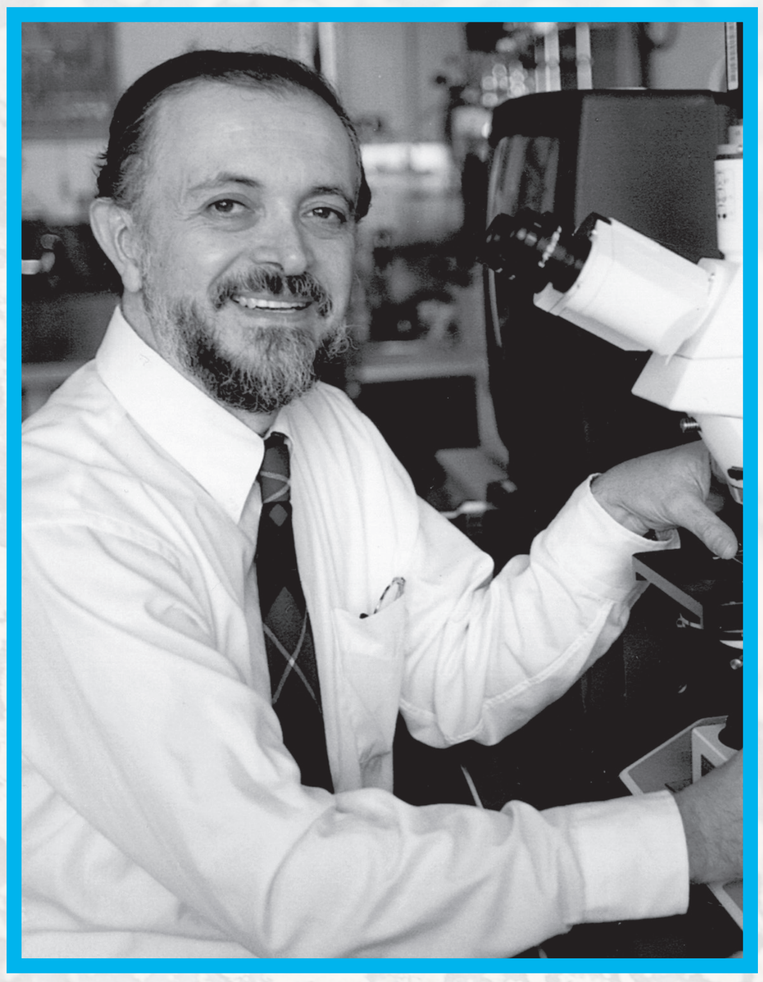
Countless scientific and technological accomplishments influence our lives and form the framework for our modern society, and most are led by individuals whose stories often go untold.

As we honor Hispanic Heritage Month, we are pleased to highlight people whose groundbreaking accomplishments contributed to scientific understanding, eradicated disease, broke barriers in aerospace and engineering, and helped improve lives of countless communities. Many of these individuals are still living and working today across the country and around the world.

By making observations, asking questions, and striving to understand how aspects of our world are connected, each of us is an explorer. At the Buffalo Museum of Science, we hope all of our guests will be inspired to seek out hidden stories, and recognize their own potential to explore, to discover, and to advance our society.

MARIO MOLINA

MEXICAN ›› CHEMIST

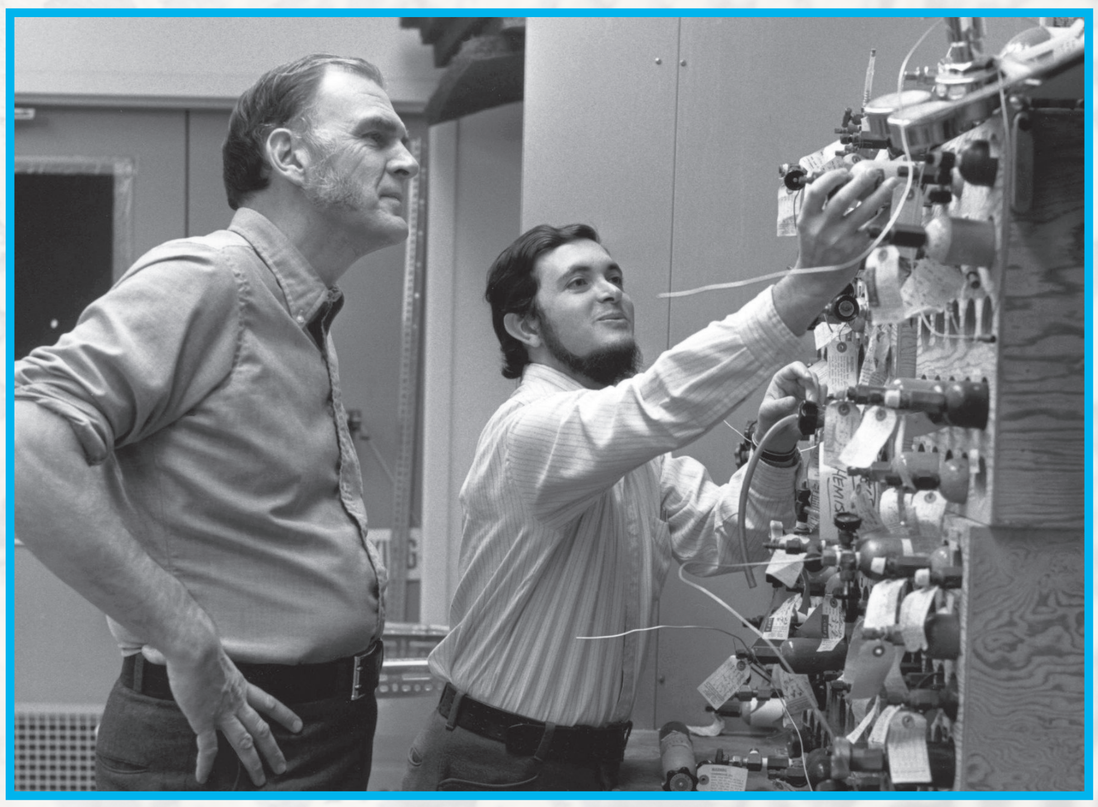


“I am heartened and humbled that I was able to do something that not only contributed to our understanding of atmospheric chemistry, but also had a profound impact on the global environment.”

Born in Mexico City, Mario Molina’s early interest in chemistry was supported by his aunt, chemist Esther Molina. Together, they transformed one of the family’s bathrooms into a working laboratory.

While a postgraduate at University of California Irving, Molina became interested in chlorofluorocarbons (CFCs) their impact on the atmosphere. His work on freon’s impact on ozone depletion identified CFCs as a cause of the “hole in the ozone layer,” which was discovered over Antarctica in 1983.

Molina’s environmental work earned him a Nobel Prize in chemistry in 1996, more than 20 years after he first proposed the theory on the impacts of CFCs. In 2003, he was awarded the Presidential Medal of Freedom for work as a “visionary chemist and environmental scientist.



FRANCE A. CÓRDOVA

AMERICAN ›› ASTROPHYSICS

> *"I encountered the usual people along the way that, because I was a woman, said science was too tough a career to go into," she said. "But along with the help of my teachers and colleagues, I was driven by some inner force that wanted to know and understand nature and the universe. You have to be selective about the voices you listen to."*

Born in Paris, France to a Mexican-American father and an Irish-American mother, France A. Córdova is an astrophysicist and science administrator.

She received her Bachelor's degree in English from Stanford University and began her career as a writer - she worked as a freelance journalist and even wrote a short novel. But after the Moon landing in 1969, she became fascinated with cosmology. In 1978, she earned a Ph.D. in Physics from the renowned California Institute of Technology.

In 1993, at age 46, she would go on to be the youngest person and the first woman to become the Chief Scientist at NASA. In 2014, she was confirmed by the US Senate as the head of the National Science Foundation - a position she holds to this day.

ELLEN OCHOA

AMERICAN ›› ENGINEER, ASTRONAUT, & CLASSICAL FLAUTIST

“I am committed to space flight, human exploration, learning how to do more and more. I like the fact that it is much bigger than myself, important to my country and to the world. I like being able to contribute in this way,”

Raised in Southern California, Ellen Ochoa and her siblings were brought up with an emphasis on the importance of education. She received a scholarship to Stanford University, but declined in order to stay near her mother in San Diego.

She received her Bachelor’s degree in physics from San Diego State University before going on to earn her Ph.D. in electrical engineering from Stanford University.

Ochoa applied three times to NASA’s astronaut program before being accepted. In 1991, she became the first Hispanic woman to go into space. She went on to fly four space missions, spending a total of over 40 days in space. In 2013, she became the first Hispanic and second female director of the Johnson Space Center.

JUAN MARTÍN MALDACENA

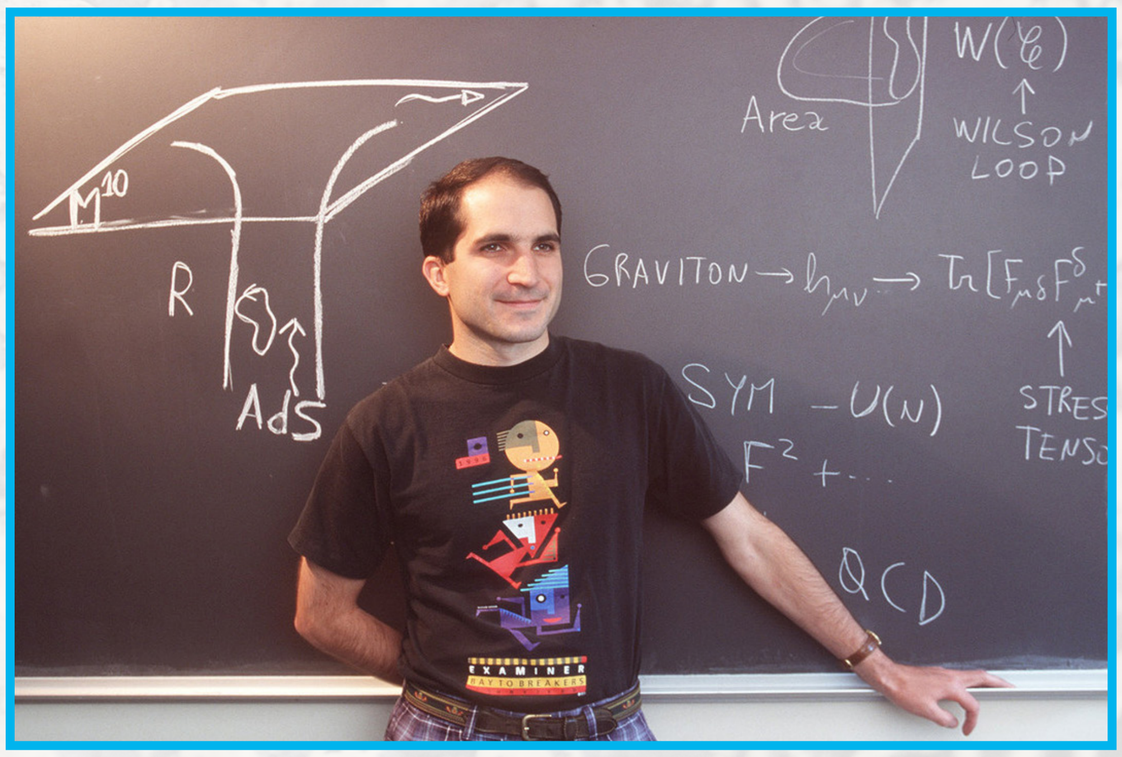
ARGENTINIAN ›› THEORETICAL PHYSICS

“I believe there is a God who created everything. I do not know how he did it exactly, but in my opinion God exists. He has a purpose for each of us that we must find or decipher...”

Argentinian theoretical physicist Juan Martín Maldacena was always interested how things happened or worked. His parents thought that he would naturally go into engineering. Instead, he enrolled instead in a physics program at the University of Buenos Aires and then went to the Balseiro Institute of the University of Cuyo - the best Experimental Physics center in Latin America.

Continuing his doctoral work at Princeton and postdoctoral degrees at Rutgers and Harvard Universities, Maldacena’s work is distinguished as being the first to propose a fundamental relationship between quantum field theory and quantum gravity - the two most important theories of modern physics.

Today, Maldacena continues his research on quantum physics and black holes at Princeton’s Institute of Advanced Studies.



SABRINA GONZALEZ PASTERSKI

CUBAN-AMERICAN ›› HIGH ENERGY PHYSICS

"I definitely feel like I have way more to do. It's great to get recognition now, but hopefully it builds up to something. I'll hopefully be right about having some kind of gut feeling that [will become] rather big at some point. Fingers crossed."

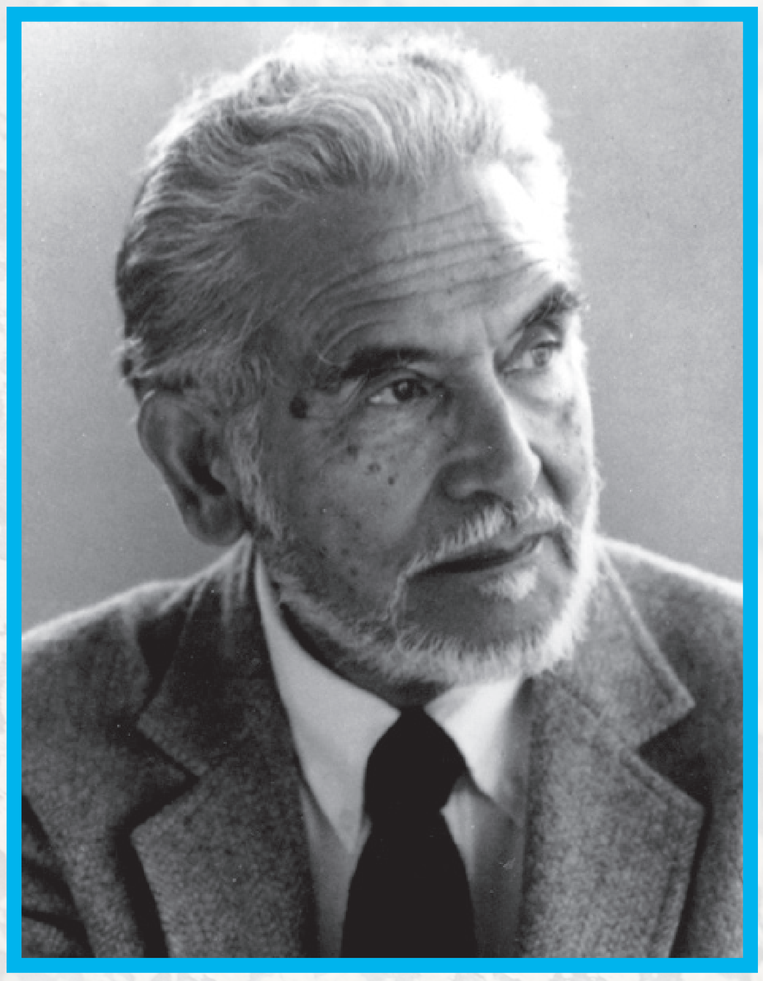
First-generation Cuban-American Sabrina Gonzalez Pasterski has been widely hailed as the "next Einstein." At age 12, she built an aircraft engine that is recognized by the FAA as the "Sabrina 0-200A." At age 14, she became the youngest person to build and fly their own aircraft.

At age 16, Pasterski was accepted into MIT's undergraduate program with advocacy from two professors who had seen videos of her rebuilding and flying her plane. She completed her undergraduate degree there in three years with a 5.0 GPA.

Pasterski completed her PhD at Harvard in 2019 and moved on to the Princeton Center for Theoretical Science to continue her research on the nature of gravity and space-time, especially the effects of gravity on quantum fields. She has been cited by Stephen Hawking, and her papers have been added to Harvard's graduate curriculum.

ALBERT BÁEZ

MEXICAN-AMERICAN ›› PHYSICS

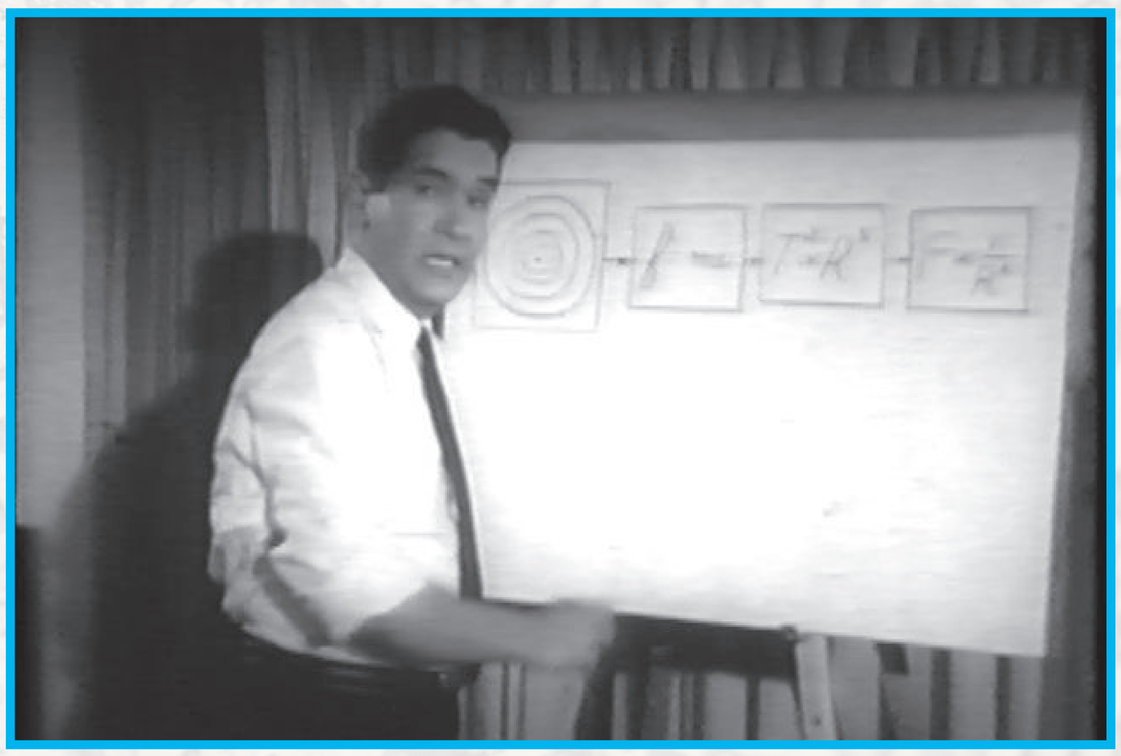


“I began getting the feeling that this was not the ultimate road to peace, for a physicist to spend the rest of his life designing the operations of war.”

Born in Puebla, Mexico, Albert Báez grew up in Brooklyn, NY. While studying experimental physics at Stanford, Báez and his graduate advisor Paul Kirkpatrick developed a way to focus x-rays. Today, this technology is used by astronomers to take photographs of the galaxy, and by medical researchers to examine living cells.

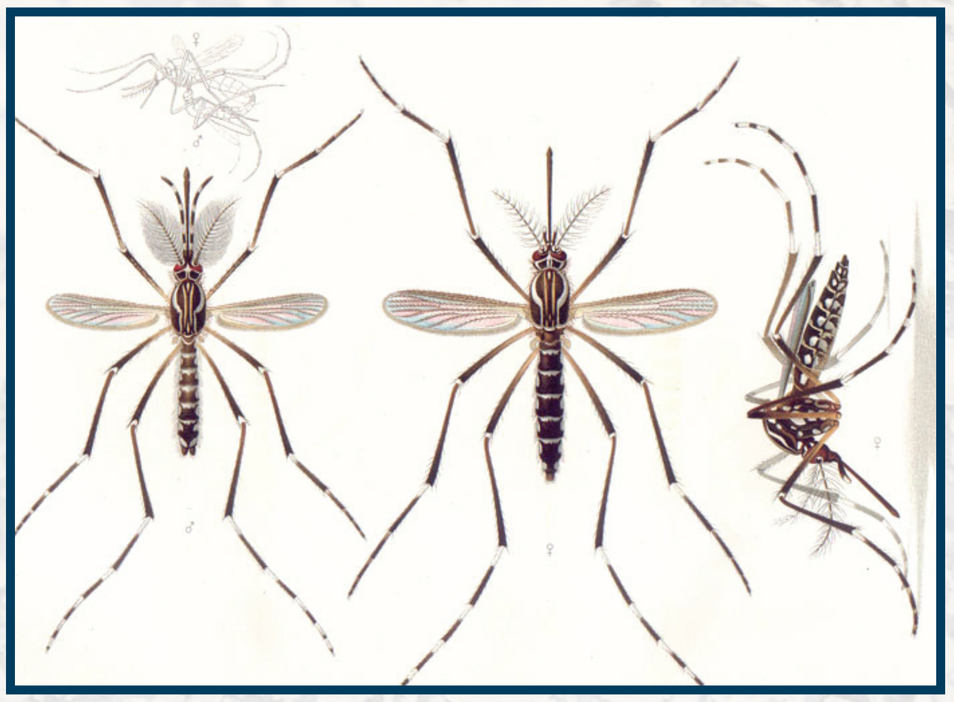
During the Cold War Arms Race, Báez’s skills were sought after by the defense industry. His pacifist beliefs led him to switch from physics research to physics education. He opposed the Vietnam War and embraced the 1960s protest movement alongside his daughters, folk singers Mimi Fariña and Joan Baez.

From 1961 to 1967, he was the first director of UNESCO’s science education program, which seeks to improve science education in Latin America, Asia, Africa and the Middle East.



CARLOS JUAN FINLAY

CUBAN ›› EPIDEMIOLOGY



Aedes aegypti mosquito species studied by Carlos Juan Finlay.

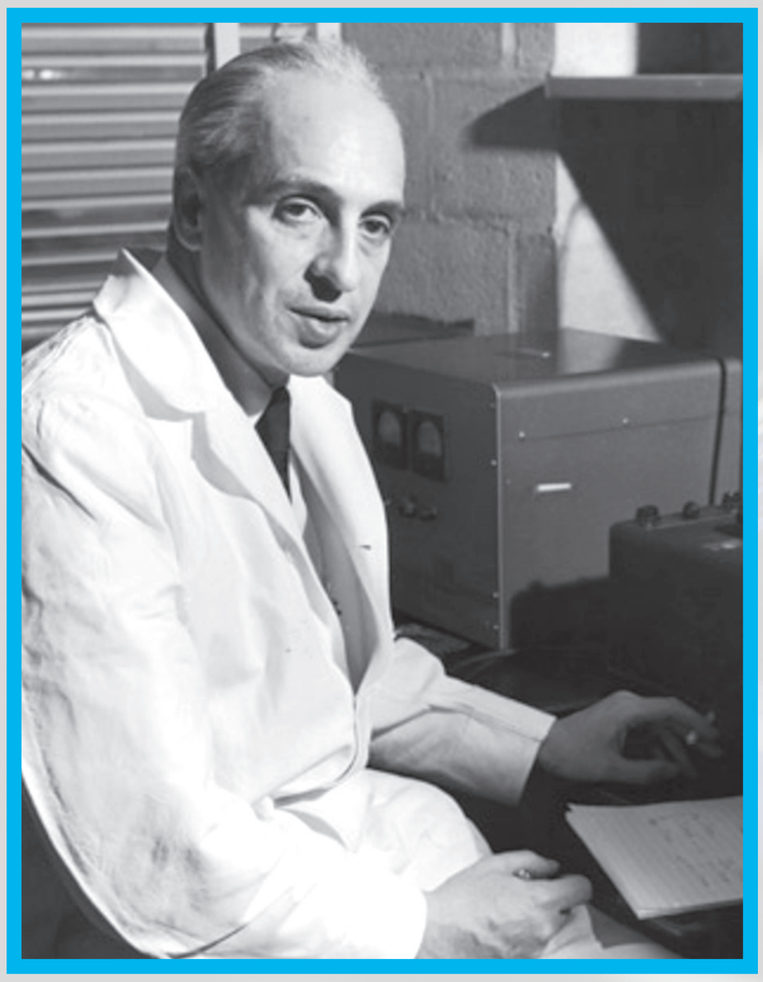
Carlos Juan Finlay, Cuban physician and epidemiologist, made a discovery that led to one of the greatest advances in modern hygiene.

As a practicing physician, Finlay treated many patients with yellow fever - a viral infection that can cause jaundice and liver damage. At Finley's time, a bad outbreak could kill thousands of people. While treating his patients in Havana, he noticed that yellow fever epidemics coincided with Cuba's mosquito season.

This is the first time that mosquitos were identified as a way to transmit a disease. Twenty years after he presented his findings, they were verified by the Walter Reed Commission. The results of this study were instrumental in eliminating yellow fever from Cuba and Panama, allowing for the completion of the Panama Canal.

SEVERO OCHOA

SPANISH-AMERICAN ›› BIOCHEMISTRY



“In these times, when the scientific literature has grown to such an extent that it is impossible to keep abreast of progress even in one’s own field, seminars, lectures, and other meetings are essential to keep informed.”

Severo Ochoa de Albornoz, a Spanish-American physician and biochemist, is best known for discovering an enzyme that can synthesize RNA - a fundamental biological molecule that converts information stored in DNA into proteins.

After studying medicine at the Madrid University Medican School, Ochoa researched physiology in Germany before returning to Spain in 1931. Five years later, Ochoa left Spain during the Spanish Civil War and, when research opportunities decreased in Europe due to World War II, he moved to the United States in 1942.

In 1959, Ochoa earned the 1959 Nobel Prize in Physiology or Medicine Nobel Prize for his work on RNA synthesis, which included the identification of PNPase, an enzyme that helps to create RNA in a lab. In 2003, ten years after his death, Ochoa’s methods of synthesizing RNA were instrumental to mapping the human genome.

YNÉS ENRIQUETTA JULIETTA MEXÍA

MEXICAN-AMERICAN ›› BOTANY

“I don’t think there’s any place in the world where a woman can’t venture alone. In all my travels I’ve never been attacked by a wild animal, lost my way or caught a disease,”

Ynes Mexía, a Mexican-American botanist and explorer, began her career in 1925 at the age of 55. She became a member of the Sierra Club, which prompted her to enroll in botany classes at the University of California in Berkeley at the age of 51.

Through connects with Alice Eastwood at the California Academy of Sciences, Mexía participated in specimen collecting trips to Alaska, Mexico, Brazil, Peru, Ecuador, Chile, and Argentina. Frequently, she left her groups behind and ventured solo.

Despite being a “late bloomer,” she collected more than 145,000 specimens, 500 of which were completely new species! Fifty of these species were named in her honor. Her specimen collections can be seen today in museums around the world.

IDELISA BONNELLY DE CALVENTI

DOMINICAN ›› MARINE BIOLOGY

“...science is about data, perseverance, discipline and often about love, and women know a lot about all this.”

Dominican marine biologist Idelisa Bonnelly de Calventi is considered the “mother of marine conservation in the Caribbean”. In 1953, she moved to New York City and attended Columbia University and New York University. In 1962, she returned to the Dominican Republic and joined the faculty of the Universidad Autónoma de Santo Domingo.

There, she led the creation of the School of Biology and founded the Centro de Investigación de Biología Marina (Research Center of Marine Biology). Devoted to conservation, she helped to create the first humpback whale sanctuary in 1986. In 1991, she created the Fundación Dominicana de Estudios Marinos (Dominican Foundation for Marine Research), which works to integrate environmental policy and management with research. In 2013, the BBC paid tribute to her as one of the ten most important Latin American women scientists.