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Victor Manuel Blanco

Victor Manuel Blanco, director of the Cerro Tololo Inter-American Observatory in La Serena, Chile, from 1967 to 1980, built CTIO into a leading observatory in the Southern Hemisphere and made it a model for successful national and international observatories. He died on 8 March 2011 in Vero Beach, Florida.

Born 10 March 1918 in Guayama, Puerto Rico, Victor received his primary, secondary, and initial university education on the island. He was interested in astronomy from a young age, but only after taking an elective course in it from a physics graduate student did he realize he could make a living at it. He saved enough funds from making furniture (a hobby he maintained throughout his life) to attend the University of Chicago for one quarter in 1939. The university offered him a scholarship and helped him find an off-campus job so he could continue his studies. In 1941, while he was working as a night assistant at McDonald Observatory, he was drafted into the US Army. His various posts with the army included being a meteorologist in Pacific war zones, briefing pilots on expected conditions.

Upon release from the army in 1946, Victor returned to the University of Chicago, which gave credit for his wartime meteorology courses so that he could obtain his bachelor's degree and begin graduate studies. He subsequently left Chicago for the University of California, Berkeley, where Robert Trumpler was his adviser; his PhD thesis (1949) was entitled "Luminosity function and space distribution of A0 stars." Victor returned to the University of Puerto Rico to teach physics and astronomy, but a lack of funds forced the university to eliminate his position after only a year.

In 1950 Victor joined the faculty at the Case Institute of Technology. With Jason Nassau, he used Case's Burrell Schmidt telescope to examine the distribution of late-type stars in the Milky Way. Among their findings was that the central bulge region of the galaxy was rich in M-type giant stars and poor in carbon stars; however, in the galactic



Victor Manuel Blanco

anticenter region they occurred in similar numbers. His later work at CTIO extended that result.

Victor left Case in 1965 to become head of the astronomy and astrophysics division of the US Naval Observatory. In 1967 he accepted the directorship of CTIO, where he spent the rest of his career.

Established in 1961 by the Association of Universities for Research in Astronomy with funding from NSF, CTIO was given the mission of providing astronomical facilities primarily for US and Latin American astronomers. At the time only 10% of the light-gathering power of the world's telescopes was located in the Southern Hemisphere.

When Victor arrived in Chile in 1967, CTIO was just completing construction of its largest telescope, the 1.5 meter. That same year NSF and the Ford Foundation committed to funding construction of a 4-meter telescope now named for Victor. It was the Southern Hemisphere's largest until the completion of the Magellan Telescopes and the Very Large Telescope.

At the time, however, Victor faced challenges on every front. He had to hire scientific staff, develop infrastructure and logistics for the 4-meter telescope, and establish relationships and agreements with the host country at all levels, including with the presidency, Ministry of Foreign Affairs, customs, universities, and local communities. His success in doing so, during a time

of change and turmoil under three different governments in Chile, was a singular accomplishment.

Despite the challenges, Victor built CTIO into a model national and international observatory. He recruited a young scientific staff (including me) and fostered their development into accomplished researchers, instrumentalists, and managers, who carried Victor's example into international leadership roles.

Victor also successfully integrated CTIO into the national fabric of Chile, at both diplomatic and personal levels. He worked with Chilean staff to be a good employer and with local communities to be a good corporate citizen. I think one of his proudest accomplishments was that many Chileans came to regard CTIO as a Chilean observatory.

Victor was very much a hands-on scientist and engineer. He continued his research on late-type stars with the Curtis Schmidt telescope at CTIO and then with the 4-meter telescope. He showed that the ratio of carbon stars to M-type stars was higher in the Magellanic Clouds than in our galaxy; we now know that the increased ratio reflects the lower abundance of heavier elements in the Magellanic Clouds. He also studied the distributions of late-type stars in the galactic bulge and determined the apparent brightness at which their numbers peaked along the line of sight; his observations yielded information on the distance to the center of the galaxy. On the technical front, he was instrumental in the final optical alignment of the 4-meter telescope and its commissioning for use by visiting astronomers.

Victor's many accomplishments made him a world leader in the development of ground-based astronomy in the second half of the 20th century. He

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Julius Henry Taylor

15 February 1914 – 27 August 2011

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2 July 1922 – 21 June 2011

David C. Langreth

22 May 1937 – 27 May 2011

Jan Engel

1924 – 9 July 2008

possessed a rare combination of great scientific skills, ability to work extremely well within both South and North American cultures, and personal warmth. Those qualities, combined with his perseverance, determination, and toughness to successfully overcome the multiple challenges of building a forefront scientific installation in difficult circumstances, were unparalleled.

Patrick S. Osmer
Ohio State University
Columbus

John Sampson Toll

John Sampson Toll, professor emeritus of physics at the University of Maryland, College Park, died in Bethesda, Maryland, on 15 July 2011 of respiratory failure. He had been a force in physics and in college and university administration for six decades.

Toll was born on 25 October 1923 in Denver, Colorado, and attended the Putney School in Vermont. He graduated from Yale University with highest honors and a BS in physics in 1944 and served in the US Navy from 1944 to 1946. He received his PhD in physics at Princeton University in 1952 under the guidance of John Wheeler, with a thesis titled "The dispersion relation for light and its application to problems involving electron pairs." During his time at Princeton he also was associate director of Project Matterhorn, a secret effort to control thermonuclear reactions. Toll's interests in highly theoretical aspects of physics were complemented by his practical skills and accomplishments in the real world of academic administration.

In 1953, at the age of 29, Toll was appointed chair of the then small and little-known physics and astronomy department of the University of Maryland. In the next 12 years he built it into a large and distinguished department and was an adviser to six PhD students. He also found time in 1956 to publish in *Physical Review* a masterful paper, "Causality and the dispersion relation: Logical foundations," based in part on his PhD thesis. Portions of the paper were reproduced in an appendix to Josef Jauch and Fritz Rohrlich's *The Theory of Photons and Electrons* (Addison-Wesley, 1955), one of the first books on modern quantum field theory.

Indeed, Toll's main contribution to theoretical physics is in quantum field theory. He studied the theory of dispersion relations, which follow from causality, the requirement that no signal can travel faster than light. He showed in great generality that causality implies analyticity properties of scattering amplitudes that lead to integral

relations between the real and imaginary parts of those amplitudes. The relations, in turn, lead to testable predictions in areas involving the strong interactions, where perturbation theory is inadequate.

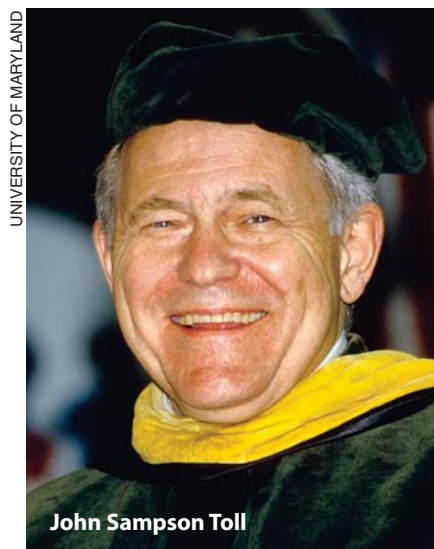
His work as an educational administrator spanned an enormous range: chair of physics and astronomy at Maryland, 1953–65; president of the State University of New York at Stony Brook, 1965–78; president of the University of Maryland, College Park, 1978–88; chancellor of the University of Maryland System, 1988–89; and president of the Universities Research Association, 1989–95, while it oversaw the US Superconducting Super Collider project. At age 71, Toll moved to Chestertown, Maryland, with his wife, Deborah Taintor Toll, to be president of Washington College; between 1995 and 2004 he resolved the college's budget crisis, immensely increased its endowment, and greatly improved its educational standing among small liberal arts colleges.

At Maryland, Toll inspired the faculty and was always supportive. In 1959, from a high-energy conference in Kiev, he telegraphed some of his latest recruits that their paper on the behavior of a K meson after capture by an atom had "put Maryland on the map in particle theory."

His enthusiasm for physics was unbounded. When some faculty were discussing hiring a research associate, he breezed into the room, plunked down a thick thesis, and announced with great glee: "I just got this from a PhD student of Arthur Wightman. It contains everything you've always wanted to know about the three-point function!"

One of Toll's methods for building up a high-quality department was to offer positions to newly minted PhDs from first-class graduate schools, especially Princeton. Those who joined the faculty included Richard Ferrell, George Snow, William MacDonald, and others who later became prominent in their fields. Another Toll method was to find promising graduate students by recruiting abroad. His motto was "to make Maryland the Berkeley of the East." When Toll went to Stony Brook in 1965, his first faculty appointment was Nobelist C. N. Yang.

Research and teaching were always on his mind. He did his utmost to protect faculty from administrative chores. He once called a faculty meeting to discuss some urgent issue and began by apologizing: "I'm sorry, I'm afraid I'm wasting thousands of dollars' worth of faculty time." While at Maryland, he



John Sampson Toll

kept a cot in his office, dined on Metrekal diet shakes, and was on the job from early morning to late at night.

Toll always thought way ahead. When he was offered a position as physics chair at an Ivy League school, the Maryland administration asked what it could do to keep him. Legend has it that he reached into a drawer and presented the administration with a long essay, written years before, on what was needed to move the department to the next level of excellence.

Those of us who were fortunate enough to be associated with Toll during the explosive growth of Maryland's physics department in the 1950s and 1960s will never forget his dynamism and optimism, his unfailing kindness and courtesy, and his warm and generous heart.

Toll's middle name was Sampson. He was indeed mighty, but in contrast to his biblical forerunner, he will be remembered not for bringing down a temple but for building temples of learning and scholarship that will stand as monuments to his devotion to knowledge.

Joseph Sucher
Oscar Wallace Greenberg
University of Maryland
College Park ■

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