The Homesick Professor

ICTP Archive photo

Abdus Salam shared the Nobel Prize for physics for his electroweak theory, which continues to be pivotal for high-energy physics today.

Islamic physicist's longing for home inspired the creation of an international center for the study of physics

By Angela Swanson

Forced to choose between his love of physics and love of his country, what is now Pakistan, Abdus Salam chose physics. In 1940, when the 14-year-old Salam cycled home from Lahore, he was met by his entire town for having received the highest marks ever recorded for the Matriculation Examination at the University of the Panjab. Salam went on to receive both a B.A. and a Ph.D. from Cambridge University in mathematics/physics and theoretical physics respectively.

Salam returned to Pakistan in 1951 to teach mathematics at Government College, Lahore. He had intended, upon his return to his homeland, to found a school of research. Because the country had no tradition of postgraduate work, however, Salam found himself unable to continue his research and remain in his homeland. For Salam, this was a devastating choice, one that he made with great sadness, but he returned to Cambridge in 1954.

Best known for his electroweak theory, Professor Salam received the Nobel Prize for physics in 1979 along with Steven Weinberg and Sheldon Glashow. Salam's electroweak theory, which unites the electromagnetic interaction with the nuclear force responsible for radioactivity, continues to be the core of the standard model of high-energy physics today. Electroweak unification was the first step toward the "Holy Grail" of physics — a single comprehensive theory uniting all possible interactions in nature.

Salam was a devout Muslim, and believed his religion did not occupy a separate compartment of his life. He felt that his faith was inseparable from all of his interactions, both at home and at work. "The Holy Quran enjoins us to reflect on the verities of Allah's created laws of nature; however, that our generation has been privileged to glimpse a part of His design is a bounty and a grace for which I render thanks with a humble heart," Salam once wrote.

The establishment of The Abdus Salam International Centre for Theoretical Physics (ICTP) in 1964 originated because Salam was unable to continue his research in Pakistan. He was determined to help others remain in their countries yet continue to work unabated by lack of contact with the scientific community.

By creating associateships, Salam gathered young physicists for vacations at his center in Trieste, Italy. He encouraged them to research and interact with the leaders in their field. His heart was for those in developing countries who might have had to take his path and leave their beloved homelands. With Salam's help, that was no longer necessary.

During the time that he directed the ICTP and served as professor of theoretical physics at Imperial College, Cambridge, Salam remained tied to his beloved Pakistan as an advisor on science policy. He was a member of the Pakistan Atomic Energy Commission, a member of the Scientific Commission of Pakistan, and was chief scientific advisor to the president of Pakistan from 1961 to 1974.

Salam remained at Oxford until his death in 1996 when he returned home for burial in Pakistan. He is remembered by those at the ICTP as a man who kept his staff fully alive to the real aim of the Centre — the fostering through training and research of the advancement of theoretical physics, with special regard to the needs of developing countries. What began as a longing for his homeland spawned an international mission to aid others, for which he will always be remembered.

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