A life where science and faith coexist

By Robert Tuttle, Contributor to The Christian Science Monitor / March 10, 2005

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When Nobel Prize-winning physicist Charles Hard Townes was a professor at Columbia University during the 1950s, a colleague, Willis Lamb, asked him if God ever helps him in the lab. Dr. Townes gave the question some thought. "Well," he recalls telling Lamb. "I think so."

For centuries, scientists and religious scholars have sparred over questions about the workings of the universe. Galileo's espousal of a sun-centered universe, rather than the earth-centered model widely accepted at the time, landed the 16th-century astronomer in court, accused of heresy.

More recently, scientists and religious leaders have disagreed over everything from the big bang theory of the origin of the universe to the teaching of evolution in schools to the debate over stem-cell research.

But even in these often discordant worlds, Townes has found little difficulty in reconciling his Christian faith with the empiricism of scientific inquiry.

"I don't think that science is complete at all," says the 89-year-old physicist. "We don't understand everything and one can see, within science itself, there are many inconsistencies. We just have to accept that we don't understand."

Within the great unknowns of the universe, Townes argues there is ample room for faith in God and His presence in human experience.

On Wednesday, Townes was awarded this year's Templeton Prize for progress or discoveries about spiritual reality. The award includes a cash prize of £795,000 sterling ($1.4 million).

"The real focus of the prize really seems to resonate with Dr. Townes's interest for the past 30 years, which is how to break down the barriers between science and religion," says Sir John Templeton, president of the foundation that bears his name and which awards the prize.

The award, Townes says, is "a great honor, but it is also very humbling."

Townes is best known for his groundbreaking research in the 1950s into the amplification of electromagnetic waves, for which he shared the Nobel Prize in physics with two other scientists in 1964. The research eventually led to his invention of the maser (microwave amplification by stimulated emission) and later the laser (light amplification by stimulated emission).

Both inventions have had an impact on a range of different scientific and industrial fields. Masers are used to amplify radio waves, and lasers have become commonplace in everything from welding to communications to medicine.

Born in 1915, on a farm in Greenville, S.C., Townes was raised a Baptist. He was immersed in the wonders of the Blue Ridge Mountains near his home.

As a child, he says, he loved to explore the natural world around him, collecting insects and especially

butterflies. The marvels of nature, he says, helped spark a curiosity about the universe and man's place within it. To this day, he remains an avid naturalist and accomplished bird watcher.

"I knew I wanted to be a scientist," he says, speaking of his childhood. "Which kind of scientist was the question."

Townes took his first physics class in his sophomore year of college and went on to earn a PhD in physics from the California Institute of Technology in 1939.

For much of the next decade, Townes worked on the technical staff at Bell Telephone Laboratories in New York City, where, he says, he once talked about his research with Albert Einstein.

Townes tackled a variety of problems at Bell including microwave generation, vacuum tubes, and solid-state physics.

In 1948, Townes joined the faculty of Columbia University and spent most of the remainder of his professional career in academia, moving to the Massachusetts Institute of Technology in 1961 and then to the University of California at Berkeley in 1967.

There he focused on astrophysics, discovering the existence of molecules in interstellar space and a black hole at the center of the Milky Way.

Today he remains on UC Berkeley's faculty, working with graduate students and researching.

"Now, I'm looking at stars," he says, describing his current research interests. "I'm looking at their behavior. Most people don't realize that stars are changing pretty rapidly."

For all his interest in scientific inquiry, Townes says it has never led to a crisis of faith. He exhibits a strong sense of rationalism in his approach to both science and religion.

"He is very interested in the foundations of religion and faith-based concepts and he discusses them in a manner that is very attractive for fellow scientists," says Marvin Cohen, president of the American Physical Society and a close colleague of Townes. "He really thinks before he speaks. If there is an opposite of a loose cannon, that would be Charles Townes."

In 1966, Townes published "The Convergence of Science and Religion," an article that detailed some of his thoughts on the relation between religion and science.

"They are much more similar than people generally accept," Townes says. "Science has faith. We make postulates. We can't prove those postulates, but we have faith in them."