

TEMPLETON REPORT

NEWS FROM THE JOHN TEMPLETON FOUNDATION

September 9, 2009

S.T. Yau and Mathematical Creativity in China

Students in China may have a reputation for excelling in mathematics, but Professor Shing-Tung Yau of Harvard University worries that young people in his home country are falling behind. “There are many bright and hardworking students in China,” he told the *Templeton Report*, “but due to government policy and the established education system, there is enormous pressure to do well in standardized examinations. Deep thinking and scientific creativity are often sidelined or simply ignored.” Winner of the prestigious Fields Medal (considered the Nobel Prize of mathematics), chairman of the mathematics department at Harvard, and director of the Center of Mathematical Sciences at Zhejiang University, Yau has launched an ambitious project to help stimulate mathematical creativity among Chinese students.

Modeled after the long-standing Westinghouse competition in the U.S., the Shing-Tung Yau High School Mathematics Awards have been developed with the support of a three-year, \$1.2 million grant from the John Templeton Foundation. Unlike other well-known math competitions, the Yau program does not pose questions and ask students to provide pre-determined answers. It is a research-based competition. With the guidance of teachers or mentors, students are asked to come up with an original issue for investigation and then to create the mathematical tools necessary to address their topic.

Yau hopes that the program will not only influence individual students in China but also encourage teachers and schools to think about how to integrate creativity and original research into their curricula. He also wants to build more relationships between research mathematicians and high schools. The competition is “a highly visible landmark in the educational landscape,” Yau said, and it “establishes the validity and importance of other measures for success,” beyond “examination-based activities.”



Photo: © Rick Friedman
Professor Shing-Tung Yau



Mathematics competition launch ceremony in Beijing (with S.T. Yau, second from the right).

In its first year, winners for which were announced last December, the competition received entries from every province in China. Yau singles out the achievement of the team from the city of Wenzhou that won the gold medal. He notes that the city is not well known for its higher education and that the students did not have a lot of resources available to them. And yet, he says, they “came up with an outstanding problem and solution in number theory.”

Among the judges were Yau himself (chair); John Coates, the Sadleirian Professor of Pure Mathematics at the University of Cambridge; Wilfried Schmid, the Dwight Parker Robinson Professor of Mathematics at Harvard; Benedict Gross, also a professor of mathematics at Harvard and

a member of the National Academy of Sciences; David Chang, chancellor of the Polytechnic Institute of New York University; and Tony Chan, a professor of mathematics at UCLA.

Sir John Templeton had a “strong interest in China,” according to Mark Saul, a senior scholar at the Templeton Foundation who has served as a consultant on the project. “It’s a country on the move. There is a lot of what he would call ‘untapped human potential’ there.” As Saul stressed, Sir John “considered genius a key engine of human progress” and hoped to encourage its development by identifying and nurturing exceptional talent in science and mathematics.

This year’s Shing-Tung Yau High School Mathematics Awards contest already has received 800 entries. Winners will be announced in December.

NOTEBOOK

The Controversy over Francis Collins

Earlier this summer, Francis Collins, a geneticist and physician well known for his work as the former head of the Human Genome Project, was nominated by President Obama to lead the National Institutes of Health. Calling Collins “one of the top scientists in the world,” Obama said that “his groundbreaking work has changed the very ways we consider our health and examine disease.” Collins’s appointment was quickly confirmed by the Senate, and he was sworn in as NIH Director in mid-August.



Dr. Francis Collins, the new NIH Director.

The nomination created controversy in some circles, however. An evangelical Christian, Collins has devoted much of his time over the past several years to trying to end the culture war between science and faith. Author of the best-selling book *The Language of God: A Scientist Presents Evidence for Belief*, he established the BioLogos Foundation in November 2007, with the support of a major grant from the Templeton Foundation. BioLogos aims to educate the wider public about “the compatibility of Christian faith with scientific discoveries about the origins of the universe and life.” (Collins resigned from the BioLogos Foundation upon taking office at NIH.)

In a *New York Times* op-ed objecting to the NIH nomination, Sam Harris, author of *The End of Faith*, wrote that Collins’s religious beliefs should be of concern because “few things make thinking like a scientist more difficult than religion.” The blogger P.Z. Myers also argued that the NIH nominee’s beliefs called into question his ability to do the job: “The defining feature of Collins’s faith, and that part of it that makes it objectionable, is that he uses it to wall off parts of the human world from curiosity.”

More typical was the praise that Collins received from a wide range of commentators. Chris Mooney, author of *The Republican War on Science*, called Collins “the kind of figure who’s capable of serving as a depolarizer of our unending culture wars over science and religion.” *Washington Post* columnist Michael Gerson hailed Collins as a “peacemaker” in the “running conflict [between] modern biology and evangelicalism.” And Steve Waldman, editor in chief of *Beliefnet*, wrote that Collins showed

“that people of faith have just as much intellectual heft as seculars and, most important, how faith and science can happily co-exist.”

One Reporter’s Cambridge Summer

Michael Hanlon, the science editor of the *Daily Mail* in the UK, provides an informative and amusing account of his two-month experience this summer as a Templeton-Cambridge Journalism Fellow. Writing in *The Science Reporter* (the newsletter of the Association of British Science Writers), he notes that, despite the dire warnings of Richard Dawkins and other critics of the Templeton Foundation, “I don’t think anyone tried to subvert me, nor my belief in reason and ‘science.’ There was certainly no overt religiosity, no discernable prejudices espoused. . . . Most of all (and again I’m speaking only for myself) I felt and continue to feel under no pressure whatsoever to write in a particular way or take a particular line on anything whatsoever.”



As Hanlon concludes, “the Templeton Foundation does at least appear to be encouraging people to think, and to think about some of the most intractable and fascinating problems facing both science and religion. And that cannot, surely, be a bad thing.”

For more information, write to communications@templeton.org.

JOHN TEMPLETON FOUNDATION
SUPPORTING SCIENCE ~ INVESTING IN THE BIG QUESTIONS