

Sigma Xi Today

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Sylvia Earle Joins Speakers for Sigma Xi Annual Meeting

Celebrated oceanographer Sylvia A. Earle, *Time* magazine's first "hero for the planet," will be among the distinguished speakers for the 2005 Sigma Xi Annual Meeting and Student Research Conference in Seattle on November 3-6.

Also on the program is renowned Texas A&M University computer scientist Bjarne Stroustrup, inventor of C++ programming language, who will receive the William Procter Prize for Scientific Achievement and give the Procter Prize Lecture.

programs oriented toward early and mid-career development—including lab management, grant writing and computational science for the classroom.

Sylvia Earle will participate in several activities throughout the day on November 5, before delivering the McGovern Lecture later that afternoon. For this date only, a single-day event ticket may be purchased, so that both Sigma Xi members and non-members alike may sample the Society's offerings.

For more information, or to receive e-mail updates on the 2005 Annual Meeting and Student Research Conference, visit www.sigmaxi.org/meetings/annual.



Joining them will be this year's honorary member inductees Ira Flatow, host of National Public Radio's popular *Talk of the Nation: Science Friday*[®], and three-time National Magazine Award-winning science writer David Quammen (see related article on page 382).

Known as an ambassador for the world's oceans, Earle has pioneered research on marine ecosystems, led more than 60 deep-sea expeditions and holds numerous diving records.

She will receive Sigma Xi's John P. McGovern Science and Society Award and give the McGovern Lecture at the meeting.

The award is presented annually to individuals who have made outstanding contributions to science and society. Recent recipients include Nobel laureates Norman E. Borlaug, Mario Molina and Roald Hoffmann.

Sigma Xi Young Investigator Award-winner Thomas E. Spencer of Texas A&M University will also give a talk about his groundbreaking research in reproductive biology and endocrinology.

The meeting at the Westin Seattle Hotel will feature a variety of other presentations, networking opportunities and educational activities, in which all Sigma Xi members are invited to participate. These include training sessions on effective chapter management, along with various programs addressing research ethics, scientific publishing and the public understanding of science.

Sigma Xi members attending the event will also serve as judges for student research presentations during the two-day Student Research Conference. In addition to the oral and poster competitions, the conference offers students pre-career mentoring, workshops and visits with graduate school and industry exhibitors.

Saturday, November 5, will spotlight some of the Society's newer



Sylvia Earle

Sylvia Earle has lived for weeks at a time on the seabed, given her name to marine forms and dived deeper and more often than practically anybody else on earth.

She spent her adolescence in Clearwater, Florida, learning all she could about the aquatic wildlife of the Gulf of Mexico.

In college, she became determined to use scuba diving, then a relatively new technology, to study marine life

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Sylvia Earle to Speak

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more intimately than ever before. She specialized in botany in the belief that understanding plant life was key to understanding any ecosystem.

She earned her master's degree and Ph.D. at Duke University. A six-week National Science Foundation expedition in the Indian Ocean was the first of many scientific adventures that would take her all over the world.

As part of the Tektite II missions in 1970, she led a team of women 50 feet below the ocean's surface to a small structure they called home for two weeks. The aquatic mission captured the public imagination and brought Earle unexpected fame.

She went on to become an outspoken advocate for undersea research and for preserving our fragile oceans, writing in the pages of *National Geographic* and producing numerous books and films.

In a series of expeditions she followed humpback whales, recording their journey in the documentary film *Gentle Giants of the Pacific*. She also walked untethered on the sea floor at a lower depth than any living human being before or since, an adventure described in her book *Exploring the Deep Frontier*.

In the early 1990s, Earle founded Deep Ocean Exploration and Research (DOER) to design, operate, support and consult on manned and robotic sub-sea systems. She also has served as chief scientist of the National Oceanic and Atmospheric Administration and has been an explorer-in-residence at the National Geographic Society since 1998.

She is executive director of marine programs for Conservation International, program coordinator at the Harte Research Institute for Gulf of Mexico Studies at Texas A&M Corpus Christi and chair of Deep Ocean Exploration and Research, Inc.

Ira Flatow and David Quammen Honored

Science broadcaster and writer Ira Flatow and science and nature writer David Quammen will be inducted as honorary life members of Sigma Xi at the Society's annual meeting in Seattle on November 3-6.



Ira Flatow

Ira Flatow is the host of NPR's *Talk of the Nation: Science Friday*®, bringing radio and Internet listeners worldwide a lively, informative weekly discussion on science, technology, health, space and the environment.

He is also founder and president of TalkingScience, a non-profit company dedicated to creating radio, TV and Internet projects that make science "user friendly."

Mixing his passion for science with a tendency toward being "a bit of a ham," Flatow describes his work as the challenge "to make science and technology a topic for discussion around the dinner table." He has shared that enthusiasm with public radio listeners for more than 35 years.

His most recent book is *They All Laughed...From Light Bulbs to Lasers: The Fascinating Stories Behind the Great Inventions That Have Changed Our Lives*. It followed on the heels of *Rainbows, Curve Balls and Other Wonders of the Natural World Explained*.

His numerous TV credits include six years as host and writer for the Emmy-award-winning *Newton's Apple* on PBS; science reporter for *CBS This Morning*, Westinghouse and cable's CNBC. His articles and commentary have appeared in many newspapers and magazines.

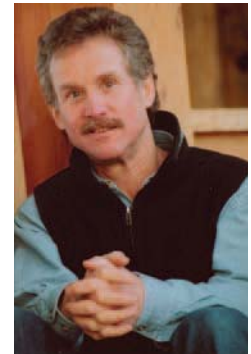
Recent honors include the 2005 Public Service Award from the National Science Board, the AAAS Journalism

Award and the Carl Sagan Award. A native of New York, Flatow now lives in Connecticut.

David Quammen won his third National Magazine Award this year from the American Society of Magazine Editors for his *National Geographic* essay "Was Darwin Wrong?" He answered that question with a resounding no, concluding that "the evidence for evolution is overwhelming."

Noting that many Americans don't believe the theory of evolution, the judges called the story "courageous."

Educated at Yale and Oxford University, Quammen twice received the National Magazine Award for his work in *Outside* magazine.



David Quammen

His articles are collected in four volumes, *Natural Acts: A Sidelong View of Science and Nature* and *The Flight of the Iguana: A Sidelong View of Science and Nature*, plus *Wild Thoughts from Wild Places* and, most recently, *The Boilerplate Rhino*.

His award-winning nonfiction book, *The Song of the Dodo: Island Biogeography in an Age of Extinctions*, is a readable and scholarly treatment of the history of evolutionary theory, biodiversity, population dynamics and extinction.

His many honors include an Academy Award in Literature from the American Academy of Arts and Letters, the Lannan Literary Award for nonfiction and the John Burroughs Medal for nature writing.

Born in Cincinnati, Quammen was drawn to Montana 32 years ago for the trout fishing and currently resides in Bozeman.

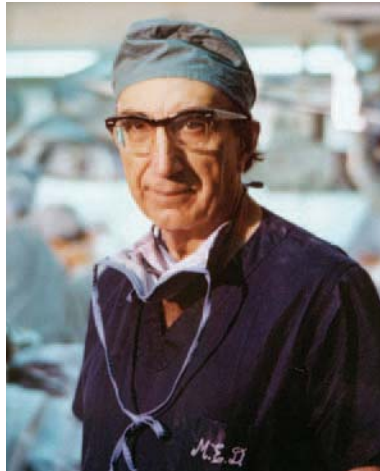
Michael DeBakey Celebrates 70 Years of Sigma Xi Membership

At age 23, while still in medical school at Tulane University in New Orleans, Michael E. DeBakey invented the roller pump, one of the essential components of the heart-lung machine that later made open-heart surgery possible.

Over the years, he has invented scores of medical instruments and devices, as well as groundbreaking surgical techniques and procedures. A pioneer in the development of an artificial heart, he was the first to use a partial artificial heart successfully.

During World War II, DeBakey developed Mobile Army Surgical Hospitals (MASH units) and urged the creation of specialized medical centers to treat wounded military personnel returning from war, from which the Veterans Affairs Medical Center system evolved.

Almost every U.S. president since Harry Truman has sought his advice, as have many heads of state around



PHOTOGRAPH COURTESY BAYLOR COLLEGE OF MEDICINE

Michael E. DeBakey

the world. And he led the movement to establish the National Library of Medicine and the Uniformed Services University of the Health Sciences.

For these and other accomplishments, DeBakey is known as the father of modern cardiovascular surgery and the world's foremost medical statesman.

This year he celebrates 70 years of active membership in Sigma Xi, having joined the Society in 1935 at the invitation of his colleague, mentor and friend, Alton Ochsner, a Tulane professor who was one of the founders of the Tulane Chapter of Sigma Xi.

DeBakey collaborated with Ochsner on many projects. In 1939, they published a landmark article suggesting a link between cigarette smoking and lung cancer.

"The early recognition of Sigma Xi membership was important to my career," DeBakey says, "as was my relationship with Dr. Ochsner."

The world renowned heart surgeon chose to honor his mentor with a gift to the Sigma Xi Center campaign.

Although he stopped performing surgery at age 90, after more than 60,000 operations and training thousands of surgeons, many of whom now head their own departments, DeBakey still keeps a busy schedule. Now 96, he is chancellor emeritus of the Baylor College of Medicine and director of The DeBakey Heart Center of Baylor and Methodist Hospital in Houston.

Sigma Xi Executive Director Patrick D. Sculley and Committee on Development Chair Raymond Lutz recently visited DeBakey in Houston.

"I told him how proud Sigma Xi is that he has been such a loyal and devoted member," Sculley says. "Dr. DeBakey has exemplified the highest principles of our Society for 70 years, and we wanted to recognize and celebrate this milestone."

DeBakey's many honors include Sigma Xi's 1995 William Procter Prize for Scientific Achievement and the 1997 Common Wealth Award for Science and Invention, based on Sigma Xi's nomination. He is also the recipient of the Albert Lasker Award, the National Medal of Freedom with Distinction and the National Medal of Science.



Astronaut's Seal of Approval

Former astronaut Kathryn Sullivan signs autographs at the 2005 Sally Ride TOYchallenge™ East Coast National Showcase at the Sigma Xi Center in May. This was the second year Sigma Xi has been a national sponsor of the innovative toy- and game-design competition for middle school students. Visit www.sigmaxi.org for a photo gallery from this year's Showcase. (Photograph by Jay Mangum)

Kip Thorne and Tim Berners-Lee Receive Common Wealth Awards

Sigma Xi nominated two distinguished scientists for the 2005 Common Wealth Awards. In April, astrophysicist Kip S. Thorne received the award in science and invention, while the award in mass communications went to computer scientist Tim Berners-Lee.

Established by the late Coca-Cola executive Ralph Hayes and administered by PNC Bank (formerly the Bank of Delaware), the Common Wealth Award includes a cash prize of \$50,000.

Other award categories honor achievements in literature, sociology, public service and government, and the dramatic arts.



Kip S. Thorne

For four decades, Kip Thorne, 64, has been opening new windows on the universe for scientists and lay audiences alike. He is the Feynman Professor of Theoretical

Physics at the California Institute of Technology, where he has taught since 1966.

He is widely known for mentoring young scientists and for his groundbreaking work in applying general relativity to astrophysics. His innovative research has elucidated gravitational waves, black holes, neutron stars and the nature of space, time and gravity. Thorne has been at the vanguard of researchers studying gravitational waves, hypothetical ripples in space produced by disturbances in the universe.

He was one of three scientists who conceived and founded the Laser Interferometer Gravitational-Wave Observatory (LIGO). Using LIGO's

instruments, physicists hope to detect and measure gravitational waves and use them to probe the nature of gravity and the dark side of the universe. Thorne co-authored the classic textbook, *Gravitation*, and wrote a bestseller for lay readers, *Black Holes and Time Warps, Einstein's Outrageous Legacy*.

Tim Berners-Lee, 49, revolutionized modern communication with his landmark invention of the World Wide Web.

As director of the World Wide Web Consortium (W3C) at the Massachusetts Institute of Technology, he continues to guide the Web's ongoing development.

Berners-Lee envisioned a global information space where documents stored on computers everywhere could be interconnected and available to everyone. He developed a global hypertext system to retrieve and access information using the power of the Internet.

He wrote the underlying technical codes—URLs, HTTP and HTML—and also created the first Web server software and the original browser program.

Dubbing his new creation the World Wide Web, Berners-Lee posted the Web software on the Internet in 1991, creating the first Web site and making it freely available to the world. He has never profited from his invention.

Berners-Lee is now spearheading work on the "Semantic Web," a universal medium that will make information understandable by machines as well as humans.



Tim Berners-Lee

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Stamps Honor Four Scientists

In May, the U.S. Postal Service issued stamps honoring four American scientists: Barbara McClintock, John von Neumann, Richard Feynman and Josiah Willard Gibbs.

Although Sigma Xi did not have a role in recommending them to be honored, the Society notes that three were longtime members and the fourth had a distinguished career, much of which predated the founding of Sigma Xi.

McClintock and Feynman are among the nearly 200 Nobel laureate Sigma Xi members commemorated in the Hall of Honor at the Sigma Xi Center.

Barbara McClintock (1902-1992) conducted maize plant research that led to her discovery of genetic transposition. She was inducted into Sigma Xi as an undergraduate in 1924 and received the Nobel Prize in 1983.

Richard P. Feynman (1918-1988) developed a new formulation of quantum theory based, in part, on diagrams he invented to help him visualize the dynamics of atomic particles. He joined Sigma Xi in 1939 and won the Nobel Prize in 1965.

John von Neumann (1903-1957) was a pioneer in pure and applied mathematics, especially in the areas of quantum mechanics, game theory, computer theory and design. He was inducted into Sigma Xi in 1933.

Josiah Willard Gibbs (1839-1903) formulated the modern system of thermodynamic analysis.