



Aging Advances, Space Elevators, Bantering Bacteria, and Virtual Maps to Maya Ruins Explored in Penetrating New NOVA scienceNOW

NOVA scienceNOW with Host Neil deGrasse Tyson
Tuesday, January 9, 2007 at 8 pm ET on PBS



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125 Western Avenue
Boston, MA 02134

617.300.2000

www.pbs.org/nova

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BOSTON, MA – How close are scientists to developing a pill that could extend the human lifespan? Will space elevators one day make it possible for people to vacation in orbit? Find out how satellite imaging is revolutionizing archeology and helping to uncover 2,000-year-old Maya ruins—as a result of one man’s perilous journey into the jungle. Next up: Talking bacteria? Hear all about it in a profile of “The Bacteria Whisperer,” who has discovered a language that nearly all bacteria use to communicate, and that could have huge implications for developing new antibiotics.

NOVA scienceNOW catapults viewers into 2007 with a penetrating hour featuring four of the most fascinating stories yet from the frontlines of science, and another thought-provoking “Cosmic Perspective” from host and astrophysicist Neil Tyson. The fast-paced science magazine show explores all of the above and more in a new premiere on Tuesday, January 9, 2007, at 8 pm ET on PBS (check local listings).

AGING & LONGEVITY

Only one in 10,000 people will defy all the odds and live a long, healthy 100 years. How do they do it? NOVA scienceNOW introduces viewers to a remarkable group of centenarians, who reveal they have not exactly been following doctor’s orders—claiming instead dubious diets of french fries, roast beef, and Scotch. Family histories of longevity have led scientists to look for what protects these individuals from the environment and their own excesses, while other researchers are tapping into animal and human genetic codes for insight into the processes that cause aging, with some startling results. Can they use this information to create a life-prolonging elixir for the rest of us? In a piece full of riveting hard science and whimsical human stories, correspondent Chad Cohen heads to the labs for the latest findings on longevity genes and age-defying factors that could extend the human lifespan, and also learns some surprising secrets to a long life from some of the people who may have won the genetic lottery.

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SPACE ELEVATORS

Going up . . . next stop, outer space! What if traveling 22,000 miles into orbit were just an elevator ride away? Host Neil Tyson investigates the viability of this intriguing new route that could one day be safer and cheaper than rockets. In this lively story, viewers meet an imaginative group of garage inventors, students, and engineers who are battling it out in a NASA-funded competition to see who can develop the best space elevator prototype. With names like "Turbo-Crawler," some of these creations sound fierce enough, but will they make it to the top in the time needed to claim the \$150,000 prize? The concept and design of the space elevator are fairly simple: launch a satellite into geosynchronous orbit and then lower a cable or ribbon down and attach it to a platform at sea. But how close are we to making it a reality? The promise of a radical new material called carbon nanotubes could mean that technology may soon take the space elevator out of the realm of science fiction and give people routine access to the solar system.

MAYA MAPPING

Space-age technology is also revolutionizing archeology. It turns out that there are secrets about our ancient past hidden down on Earth that are best revealed from space. Correspondent Peter Standring heads to Guatemala with renowned archeologist William Saturno, who recounts the tale of his expedition into the jungle that nearly claimed his life, and the stunning discovery that transformed it instead.

Saturno teams up with NASA archeologist Tom Sever to make use of the space agency's satellite remote-sensing technology. Together, they uncover some of the hidden treasures of ancient cultures--a collaboration that has resulted in an amazingly accurate method for peeling away layers of the rain forest to provide virtual road maps to Maya ruins buried for over 1,000 years. Saturno and Sever return to the jungle to test this new system. It's a tool that will change the entire way scientists approach archeology in a tropical environment. It can also provide clues to help solve one of archeology's most enduring mysteries: the 1,200-year rise and sudden collapse of the Lowland Maya civilization.

BILINGUAL BACTERIA?

Meet "The Bacteria Whisperer." This episode's profile piece introduces Princeton molecular biology professor, MacArthur fellow, and aerobics instructor Bonnie Bassler, a leading researcher in the study of quorum sensing, or the way bacteria communicate. That's right, bacteria talk to one another. They also prefer not to act alone, but in communities, the way people do. Bassler has discovered a language that practically all bacteria use to communicate—even demonstrating bacteria's ability to be bilingual. Initially shrugged off as a crazy notion, quorum sensing is now a key idea that is helping shape a path to new drugs. Antibiotics currently work by killing bacteria, and more and more bacteria have grown resistant to these drugs. If Bassler and others can disrupt the bacterial communication, they might be able to create entirely new drugs that could help people fight deadly pathogens and prevent the spread of harmful bacterial disease.

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NOVA scienceNOW is produced for PBS by the WGBH Science Unit at WGBH Boston. The director of the WGBH Science Unit and senior executive producer of NOVA is Paula S. Apsell; the executive producer of *NOVA scienceNOW* is Samuel Fine; Neil deGrasse Tyson is host and executive editor.

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Pressrooms

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Press contacts

Eileen Campion	Yumi Huh
Dera, Roslan & Campion PR	NOVA National Promotion
212.966.4600	617.300.4287
eileen@drcpublicrelations.com	yumi_huh@wgbh.org

Photography contact

Lindsay de la Rigaudiere
NOVA National Promotion
617.300.4258
lindsay_delarigaudiere@wgbh.org

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