



EIRNS/Stuart Lewis

Benjamin Deniston

THE SDI PARADIGM TO SAVE MANKIND TODAY

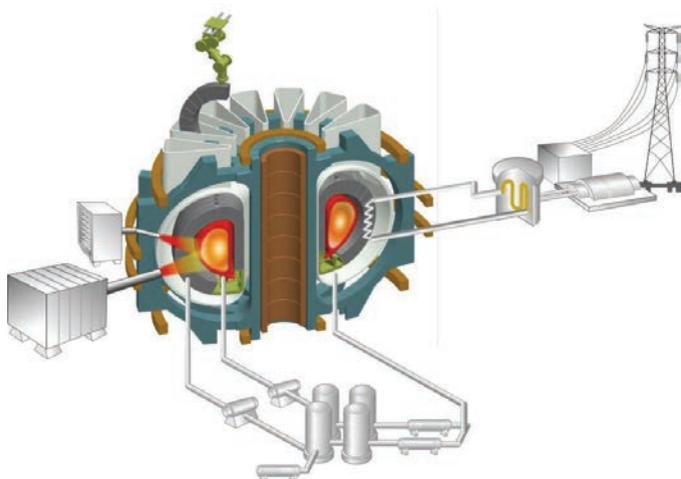
An extraordinary conference was convened by the Schiller Institute on March 23, on the occasion of the 30th anniversary of President Ronald Reagan’s announcement of the Strategic Defense Initiative (SDI). The Institute was founded in 1984 by Helga Zepp-LaRouche, whose husband, Lyndon LaRouche, was instrumental in formulating the SDI, and organizing the President to adopt it.

The 350 conference attendees heard presentations covering the history of the SDI program, including the Soviet rejection of the President’s 1983 offer of cooperation, the resistance to the joint program in the U.S., and the consequences of the failure to implement the SDI. But today, the offer of cooperation is again on the agenda. *21st Century Science & Technology* author Benjamin Deniston described the magnitude of the threat to mankind from celestial objects, and mankind’s unpreparedness to mitigate them. A video presentation, provided by the Russian Committee on Implementation of the International Global Monitoring Aerospace System (IGMASS) project, stressed the global nature of natural disasters as well as cosmic threats, and the internationally coordinated response that is required. (See the Fall/Winter 2012-2013 issue of *21st Century Science & Technology*.)

PRINCETON FUSION SCIENTISTS TO AID SOUTH KOREAN DEMONSTRATION REACTOR DESIGN

South Korea’s National Fusion Research Institute has signed an agreement with the Princeton Plasma Physics Laboratory (PPPL) in New Jersey, for collaboration in designing the next-step fusion demonstration reactor. While the U.S. fusion program, and the Princeton program itself, face the budgetary shut-down of experiments and the loss of hundreds of scientists and engineers, South Korea is pushing ahead, developing a conceptual design for its K-DEMO machine. This device will be its last step before construction of a commercial magnetic fusion power plant. K-DEMO is planned as the follow-on to the International Thermonuclear Experimental Reactor (ITER), currently under construction in France, which includes South Korea as a partner.

According to PPPL, the agreement calls for Princeton specialists to provide engineering analysis of the Korean design. Princeton will be able to use the agreement to explore cutting-edge designs and technologies for fusion (which are not being invested in, in the U.S.), and South Korea will gain access to the decades of U.S. experience in fusion design and engineering. Princeton helped South Korea design its currently-operating KSTAR superconducting tokamak in the 1990s, and participates in experiments on KSTAR. An interview with the head of the South Korean fusion program, Dr.



Princeton Plasma Physics Laboratory

A schematic illustration of the K-DEMO fusion reactor.

Giyoung-Su Lee, appeared in the Winter 2009 issue of *21st Century Science & Technology*.

SUBSURFACE WATER CHANNELS SHOW MARS WAS WETTER MORE RECENTLY THAN EXPECTED

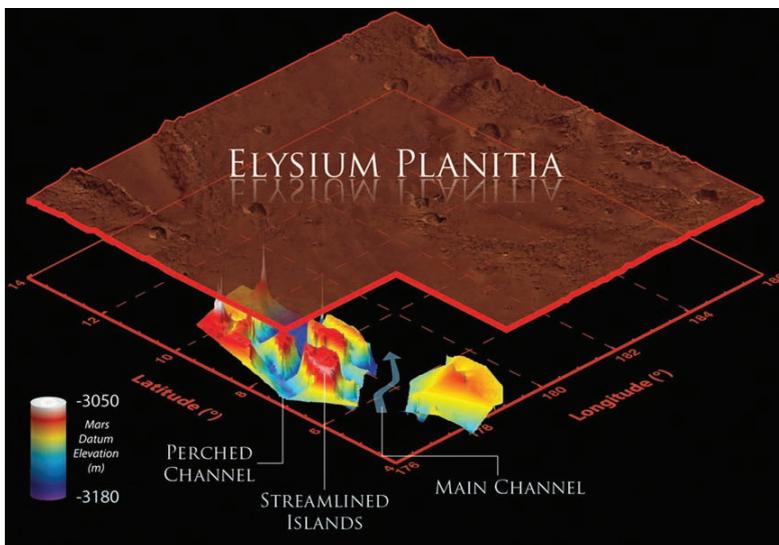
Scientists reporting new results at the 44th Annual Lunar and Planetary Sciences Conference in Texas March 18-22, described new data and results which have enabled them to reconstruct the pathways of ancient water channels below the Martian surface. Using the Mars Reconnaissance Orbiter's Shallow Radar (SHARAD), a 3-dimensional map was created which indicates that catastrophic flooding took place in the Elysium Planitia within the past 500 years. This remarkable finding puts a "wet and warmer Mars" dramatically closer in time to the modern era than previously thought. "The radar picked up multiple 'reflectors,' which are surfaces or boundaries that reflect radio waves, so it was possible to see multiple layers," explained Lynn Carter, from NASA's Goddard Space Flight Center. "We have rarely seen that in SHARAD data, outside of the polar ice regions of Mars."

At the conference, *21st Century Science & Technology's* Ian Overton reports, members of the Curiosity rover team reported that new near infrared data from the rover's Mast Camera, and data from the Dynamic Albedo of Neutrons instrument, indicate that the degree of soil saturation of water is more widespread in the Gale Crater region than previously believed. Rebecca Williams, from the Planetary Science Institute in Tucson, reported that the rounded pebbles seen by Curiosity "provide the first direct observation of an ancient Martian stream bed," in Gale crater.

NEW TECHNOLOGY COULD REVOLUTIONIZE THE PRODUCTION OF FLU VACCINES

The World Health Organization estimates that were a flu epidemic to emerge, similar to the 1918 global pandemic, between 20 and 50 percent of the world's population would be affected. And each year, even with the less-lethal seasonal outbreaks of flu, thousands of lives are lost. In 2009, in response to the H1N1 swine flu outbreak, the Defense Advanced Research Projects Agency began the Blue Angel project, to improve the response to pandemic influenza. Today's egg-based production techniques can take up to six months to produce a viable vaccine. The goal of the DARPA program was to produce large quantities of high-quality vaccine-grade proteins for immunization in less than three months.

In recent tests, under Blue Angel, researchers at Medicago Inc., produced more than 10 million doses (in an animal model) of an H1N1 influenza vaccine candidate in one month. Instead of using eggs, tobacco plants were used, to produce the recombinant proteins that are key to vaccines. Viral genes introduced into the tobacco plants generated proteins within 14 days, with vaccine-grade proteins generated within four weeks. Next would come clinical trials to test the effectiveness of the vaccine on humans, which is awaiting approval from the Food and Drug Administration.



Imaging reconstruction of ancient water channels indicates "a wet and warmer Mars" than previously thought.



photo: DARPA

A DARPA-funded vaccine company working on ways to quickly develop immunizations for potential pandemics, has successfully made over 10 million doses of H1N1 flu vaccine in a single month.