



FUSION POWER ASSOCIATES

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AMASA S. BISHOP DIES AT 76 - FIRST U. S. FUSION PROGRAM DIRECTOR

IN MEMORIAM: AMASA S. BISHOP

Dr. Amasa S. Bishop, first director of the U. S. fusion program, died May 21, 1997 at his home in Switzerland. He was 76.

"Am" was Chief of the U. S. Atomic Energy Commission's Controlled Thermonuclear Branch, Division of Research, from 1953 to 1956. He then became the AEC's European Scientific Representative. As plans evolved for the declassification of fusion research worldwide at the International Atomic Energy Agency's 1958 Conference on the Peaceful Uses of Atomic Energy, Bishop was asked to write a book that could be released at the time of the conference. That book, *Project Sherwood - The U. S. Program in Controlled Fusion* (Addison-Wesley, 1958), became the inspiration for many students who entered the field from the late 1950's to the present day. It discussed, in simple terms, the many concepts under investigation and traced the history of the U. S. program and its pioneer researchers from the inception of the U. S. program in 1951. His book is still one of the best introductions to fusion.

In 1961, Bishop returned to the U. S. and took a research position at the Princeton Plasma Physics Laboratory, where he did spectroscopy experiments on the Model C Stellarator. In January 1966, with the fusion program under intense scrutiny by the Congressional Joint Committee on Atomic Energy, he was summoned back to again head the U. S. program at the Atomic Energy Commission. His first action was to prepare, with the assistance of then staff member Steve Dean and Dick Post of LLNL, the "AEC Policy and Action Paper on Controlled Thermonuclear Research." This document, delivered to Congress in the Spring of 1966, provided U. S. program policy and planning guidance for the rest of the decade. In 1968, Bishop hired Bob Hirsch to replace Steve Dean, who was transferring to the U. S. Naval Research Laboratory to start an experimental plasma research program there using high power



Dr. Amasa S. Bishop - 1958

lasers. Hirsch later became U. S. fusion program director and orchestrated the rapid program buildup in the mid-1970's.

In 1970, Bishop once again left the AEC and the fusion program and joined the United Nations as Director of Environment for the U. N. Economic Commission in Europe. He was based in Switzerland and was to spend the rest of his life there. He was an avid skier, a man of boundless energy and optimism, and rarely was known to rest. He put as much enthusiasm and energy into his vacations and family as he put into his work. While in Washington in the 60's, he and his wife Barbara and daughter Jennifer hosted legendary social events at their large home in Bethesda, MD. On hearing of Bishop's death, former head of the Los Alamos fusion program Fred Ribe commented, "I am sorry to hear that Amasa is gone. He was a classy guy who gave fusion research a good name."

Bishop maintained occasional contact with the fusion effort over the years. He was a supporter of Fusion Power Associates as an

Individual Affiliate and has periodically sent us letters responding to articles in our newsletters or alerting us to an event in Europe. In 1992, he was a recipient of Fusion Power Associates Distinguished Career Award.

Amasa Bishop was born in Cleveland, OH, graduated from the California Institute of Technology (B.S. Physics, 1943) and earned his Ph.D. degree in Physics (1950) from the University of California at Berkeley. From 1943-1946 he performed radar research at the MIT Radiation Laboratory and from 1946-1950, he worked on high energy physics at the University of California Radiation Laboratory. He is survived by his wife, Barbara, who lives at their home at Les Acacias, 1261 Genolier, Switzerland, three sons, one daughter and a brother.

NEW AFFILIATE

Coleman Research Corporation, Springfield Virginia, has joined Fusion Power Associates as an Affiliate. Coleman is a subsidiary of Thermo Electron Corporation. Tony Slotwinski, Senior Photonics Scientist, will represent the company. He can be reached at 6551 Loisdale Ct., Suite 800, Springfield, VA 22150-1808; (703)719-9200; fax -9221; email: tony_slotwinski@mail.crc.com

The company has developed and produced a series of laser-based high precision measuring systems which are used to determine three-dimensional coordinates of large-scale objects and arrays of targets. They are working with Oak Ridge National Laboratory to develop a radiation-hardened version of this instrumentation for application in fusion devices such as the International Thermonuclear Experimental Reactor (ITER). The patented technology is based on coherent detection of a swept frequency, large bandwidth (100 Ghz), modulated laser. The systems are currently used commercially in the manufacture of aircraft and in the construction of highway bridges.

PEÑA ON NIF

Speaking at the groundbreaking ceremony for the National Ignition Facility (NIF), May 29, Energy Secretary Federico Peña said, "NIF will unleash the power of the heavens to make Earth a better place." In his prepared speech, Peña said "The project we break ground for today will house a 192-beam laser. It will be the world's largest, delivering 1.8 million joules that will ignite a tiny fusion target. The laser will be housed in a building that will rise seven stories at its highest points and stretch the length of two football fields. This is an ambitious endeavor. This is an important endeavor. The National Ignition Facility has been designed to create — for the first time ever in a laboratory — brief bursts of self-sustaining fusion reactions.

These are the kinds of reactions that power the sun and the stars." Peña said, "NIF will attract a new generation of scientists and engineers to plasma and fusion physics. This facility will be a unique and valuable laboratory that will enable scientists, current and future, to see what they can accomplish with a one-billionth scale star to work with in the laboratory." He added, "Our nation's future depends on our continued leadership in science and technology. Today we move one step closer to a better future."

WHITE HOUSE ENERGY PANEL UPDATE

The Panel on Energy R&D of the White House Office of Science and Technology (See our May newsletter) is making good progress toward delivering a report to President Clinton by its October deadline. The Panel, chaired by John Holdren, Harvard University, has divided itself in several Task Forces. Fusion is being considered by the Nuclear Task Force, chaired by John Ahearne of Duke University. The Task Force received a day of briefings on fusion May 20 from Mike Knotek (formerly Batelle PNL), Dave Baldwin and Tom Simonen (GA), Stewart Prager (U. WI), Miklos Porkolab and Bruno Coppi (MIT), John Schmidt and Rob Goldston (PPPL), Charlie Baker (UCSD) and Mike Manuel (Columbia U.). The Task Force is meeting June 25-28 in San Diego. Fusion presentations are scheduled by Roger Bangerter (LBNL), Mike Campbell (LLNL), Steve Dean (FPA), Bill Ellis (Raytheon) and John Davis (McDonnell Douglas). They also have a meeting scheduled July 14 in Washington, when they are scheduled to hear from ITER director Robert Aymar and fusion representatives from Europe and Japan.

Comments and opinions can be sent to John Ahearne by email (ahearne@sigmaxi.org).

INVESTING IN INNOVATION

A 27-page interim report entitled "Investing in Innovation," from a bipartisan federal advisory group, the Competitiveness Policy Council (CPC), is available on the web (<http://www.ksg.harvard.edu/iip/techproj/home.html>). The report stresses the usefulness of public-private partnerships, encourages experimentation, and urges a greater state and regional role in federal technology activities. It recommends that six principles guide federal technology policy: (1) encourage private innovation, (2) emphasize basic technology research, (3) make better use of available technology, (4) use all policy tools, not just R&D support, (5) leverage globalization of innovation, and (6) improve government effectiveness. Under principle #2, the report says, "R&D agencies should receive strong support for their investments in basic technology research as well as basic science." Under principle #4, the report says the government