

state & society

The Federation of American Scientists raises its voice

Among Nelson Rockefeller's first jobs as vice-president was the task of studying whether the position of White House science adviser should be re-instituted. In what has become almost a trademark, the Federation of American Scientists lost no time in making its opinion known to Rockefeller and anyone else who would listen. At a December press conference led by physicists Philip Morrison, Francis Low and Nina Byers, the Federation urged the Administration to establish a three-member White House Council on Science and Technology.

Support for COST is nothing new. Recently, the National Academy of Sciences, among others, has called for the re-establishment of science advice in the White House. However, FAS has been campaigning to get science back in the White House since the day more than two years ago when it was removed. In addition FAS is a somewhat unique voice in a growing chorus of Administration critics, because behind FAS is an impressive track record in influencing policy and a board of sponsors that includes half the nation's Nobel Prize winners.

The press conference on science advice—the third in a month's time—capped a year of hectic activity for FAS, the self-proclaimed "voice of science on Capitol Hill" and the "conscience of the scientific community." Last year, FAS took on the rights of Soviet scientists, land-based missile disarmament, the Moscow Test Ban Treaty, US wheat shortages, and the defense budget, to name a few. In December alone FAS tackled such diverse issues as the firing of the director of the National Institutes of Health and the Vladivostok Arms Agreement, as well as the issue of science advice.

New course. This diversity is startling to many who still think of FAS as concentrating only on arms control. Though it has gone through periods of relative quiescence in its 29 years, FAS has always emerged as vocal as ever when issues demanded action. Now, FAS is on a course charted to take it permanently into the political and scientific limelight. For this, credit must go to the Federation's governing council, which had the foresight to hire Jeremy Stone as its Washington executive director-lobbyist. Stone, at 39, is a



STONE

mixture of the intellectual and the entrepreneur, a mathematician-turned-arms specialist. He is intent on making diversity in FAS commonplace.

Stone brought five goals for the Federation when he came in 1970, four of which have now been reached. Under his direction, FAS has quadrupled its membership, from 1500 in 1970 to 6500 in 1975; recruited a large number of eminent scientists to provide advice and

act as spokesmen; set up a tax-deductible arm to do research and education and raised enough money to buy a permanent building for the Federation, a few blocks from the Capitol. For economic reasons Stone has had trouble reaching a fifth goal—raising a one-million dollar endowment to hire three retired professors who would advise, write and report for FAS.

"All these pieces are necessary," Stone told us in a recent interview, "to bring together a critical mass that is also self-sustaining and permanent." That FAS has gone so far toward reaching this level today is due largely to Stone. At the same time, FAS probably is less dependent on a single personality than most other public-interest groups because it is now so broadly based.

Science lobby. Stone variously describes FAS as "the living link and the missing link between the scientific community and government," and "one of the most eminent scientific societies in the country—absolutely unique and without competition." While it may sound immodest and a little overstated, Stone's assessment of the FAS role is probably true. FAS was organized as the Federation of Atomic Scientists in 1946 for the specific purpose of legislative lobbying to help ensure civilian control of atomic energy. It remains

continued on page 72

Nuclear-power speed-up draws comment

Forty scientists, including 16 Nobel laureates, have lined up publicly on either side of the nuclear-power debate as signers of two opposing letters released on 16 January in Washington. Hans Bethe, organizing chairman of one of the letters (addressed to the public), was joined by 31 others in saying there is "no reasonable alternative to an increased use of nuclear power to satisfy our energy needs." Eight scientists joined Ralph Nader in a letter to President Ford saying, "We are particularly anxious about a massive speedup of nuclear power-plant construction, exacerbating the tendency to overlook necessary safety precautions." They asked the President to review personally the Administration policy of pushing nuclear power.

The Bethe letter points out the seriousness of the energy crisis and the need for long-range realistic plans. It notes that there are many interesting proposals for alternative energy sources, "but none of them is likely to contribute to our energy supply in this century." The conclusion: "We shall have to make much greater use of solid fuels. Here coal and uranium are the most important options . . . The US choice [however] is not coal or uranium, we need both. Coal is irreplaceable as the basis of new synthetic fuels to replace oil and natural gas . . . We see the primary use of solid fuels, especially uranium, as a source of electricity."

It continues, "Nuclear power has its critics, but we believe they lack perspective as to the feasibility of non-nu-



BETHE



NADER

clear power sources and the gravity of the fuel crisis." Further, "all energy release involves risks and nuclear power is no exception." However, "civilian nuclear power has been under public surveillance that is without parallel in the history of technology . . . We have confidence that technical ingenuity and care in operation can continue to im-

prove the safety of all phases of the nuclear-power program . . ."

Letter to the President. The Nader letter was organized by the Union of Concerned Scientists but signed by the eight scientists and Nader speaking as individuals. They say that the nuclear-power issue "involves not only technological, but also institutional problems. For example, even if safe nuclear power-plant designs were available, the actual safety of the power plants could be compromised by improper construction, maintenance or operation. The utilities who own nuclear power plants say they will be careful, but there is no guarantee of this . . . Already during the brief experience with commercial nuclear power in the United States more effort seems to have been devoted to building the nuclear-power plants quickly than to building them safely." The group also notes that "it has become clear that the early nuclear-power proponents failed to appreciate the practical problems that could prevent the safe implementation of their ideas."

—RAS

Letter signers

The scientists who signed the Bethe letter are Luis Alvarez (Lawrence Radiation Laboratory), Peter Auer (Cornell), Robert Bacher (Caltech), William Baker (Bell Laboratories), John Bardeen (U. of Illinois), Hans Bethe (Cornell), F. Bloch (Stanford), Norris Bradbury (former Los Alamos Scientific Laboratory director), Harold Brown (Caltech), Richard Chamberlain (U. of Pennsylvania), Cyril Comar (Cornell), Arthur Kantrowitz (AVCO-Everett Research Laboratory), Ralph Lapp (energy consultant), Joshua Lederberg (Stanford), Willard Libby (UCLA), Franklin Long (Cornell), Edwin McMillan (Lawrence Radiation Laboratory), Kenneth Pitzer (UC Berkeley), Edward Purcell (Harvard), I. I. Rabi (Columbia), Norman Rasmussen (MIT), Roger Revelle (Harvard), Glenn Seaborg (U. of California), Frederick Seitz (Rockefeller University), Edward Teller (Lawrence Radiation Laboratory), James Van Allen (U. of Iowa), Warren Weaver (mathematician, New Milford, Conn.), Alvin Weinberg (former director of Oak Ridge National Laboratory), Edward Wenk Jr (U. of Washington), Eugene Wigner (Princeton) and Richard Wilson (Harvard).

Signers of the Nader letter are Hannes Alfvén (UC San Diego and Royal Institute of Technology, Stockholm), Barry Commoner (Washington University), John Edsall (Harvard), Henry Kendall (MIT), Ralph Nader, Linus Pauling (Caltech and Stanford), Harold Urey (UC San Diego), George Wald (Harvard) and James Watson (Harvard).

Large Space Telescope leads priority list

In sifting through many possible space-research programs, the National Research Council's Space Science Board has chosen to recommend the Large Space Telescope as the only new NASA project (in the Office of Space Science) for FY 1976. The board also recommends that several programs start in FY 1977, including the Lunar Polar Orbiter, the Electrodynamic Satellites, the Gamma-ray Explorer and the Solar Maximum Mission. These assessments are included in an NAS publication *Opportunities and Choices in Space Science, 1974*. In addition to the recommendations for new programs, SSB reaffirms its strong support for the ex-

isting High-Energy Astronomy Observatories and Pioneer Venus and Mariner Jupiter Saturn missions. These were all started in response to this report's predecessor, the 1971 NAS publication *Priorities for Space Research 1971-1980* (PHYSICS TODAY, August 1971, page 19). *Opportunities and Choices* was considered a necessary update, says the board, and was prepared by disciplinary committees in mail consultation with active researchers. The board feels that annual revisions of the report will be of value.

Space physics. The fundamental questions that remain, according to the board, include determining how the solar-wind flows into the Earth's magnetosphere, the coupling mechanisms between the ionosphere and magnetosphere and the mechanisms for generating nonthermal radiation from the magnetosphere. The board recommends missions to measure parameters such as magnetic fields and particle fluxes, simultaneously in the ionosphere and the magnetosphere at points chosen to identify or isolate particular physical phenomena. Continuity and economy in this research effort can be achieved by alternate launching of Electrodynamic Satellites and Atmospheric Explorers at three-year intervals.

Space astronomy. The goal here is to operate permanent observatories in space in conjunction with the space shuttle. The first of these observatories is the Large Space Telescope, probably with a two-meter telescope with diffraction-limited resolution of 0.10 sec of arc. Originally a three-meter telescope was planned, but cost considerations now make this size doubtful. Another high-priority observatory would include a 1.2-meter imaging x-ray telescope; eventually others would operate in space at gamma-ray, infrared and radio wavelengths.

Planetary and lunar exploration. "The ultimate objective of planetary investigation," the board says, "should be to return samples for detailed study in terrestrial laboratories. In the near term, the board advocates the Viking Extension in addition to the Lunar Polar Orbiter. The Viking Extension provides for a longer data-collection period for the Viking Mars mission, which at present has only 90 days for postlanding experimentation. If the FY 1976 and 1977 budgets are the size anticipated, the board "reluctantly" recommends elimination of the Jupiter-Uranus program and delay of the Pioneer Jupiter Orbiter to allow other near-term projects (the Large Space Telescope, Solar Maximum Mission, Lunar Polar Orbiter and the Electrodynamic Satellites) to proceed without delay. For the outer solar system, the board recommends a NASA examination of strategies for exploration during the next decade.