state & society

Hinners of NASA looks ahead to the Spacelab era

Space science, an "inherent component" of the National Aeronautics and Space Administration's mission, will get a big boost when the Space Shuttle begins carrying experiments aloft on a routine basis, according to Noel W. Hinners, NASA's Associate Administrator for Space Science. Hinners discussed with us the role of scientific research within the space agency and the new problems and programs he expects the Spacelab era to bring. In the use of Spacelab, he looks forward to a shift in NASA's approach to space-science activities, toward more discipline- rather than mission-oriented research and greater responsibility for academic and industrial scientists in the design and operation of space experiments; however, he told us he views as premature at this time suggestions that the agency establish a special x-ray-astronomy institute to coordinate research in that field.

Hinners holds responsibility for NASA's Physics and Astronomy, Lunar and Planetary, and Life Sciences Programs. Before he became Associate Administrator in June 1974, he served as deputy director and then director of Lunar Programs, where his domain included continuing scientific exploration of the Moon, analysis and interpretation of lunar data and planning for future missions. In 1963 Hinners earned his PhD in geochemistry and geology at Princeton University; he then joined Bellcomm, where he headed the lunar-exploration department. Hinners edits an American Geophysical Union journal, *Geophysical Research Letters*.

Role of space science. The part played by scientific research in space—as distinguished from the scientific and engineering R&D associated with the Apollo project, the Space Shuttle and so forth—has been much obscured, Hinners acknowledged, by such NASA spectaculars as the race for the Moon. But he told us that the objectives of the space-science program (which was written into NASA's charter, the Space Act of 1958) are essentially unchanged, in the large scale, from what they were in the 1960's, and he is pleased with the agency's support for the science effort. "There's no doubt," he said, "that the main funding now is for the Shuttle, and other programs—such as Aeronautics Applications and Space Technology—compete with us for recognition, but I'm very happy; in view of the external constraints, I think space science is receiving internally from NASA all the support it should and could."

A NASA study on the "Outlook for Space" over the next 25 years, released this year after long delay, sets as agency priorities improved understanding of Earth's climate and of the evolution of our solar system (see PHYSICS TODAY, June

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HINNERS

ERDA plans to close Argonne ZGS two years hence

The Zero Gradient Synchrotron at Argonne National Laboratory will almost certainly be shut down at the end of 1978 or shortly thereafter, according to James S. Kane, director of ERDA's Division of Physical Research. The primary reason cited for the facility's termination is the tight funding situation for high-energy physics. The 1976 ZGS Review Panel, headed by Robert L. Walker (California Institute of Technology), concludes in its report that most of the ZGS program could end two years from now, but that its unique polarized-proton-beam capabilities should continue to be exploited for an extra nine months operating time. A proposal to ERDA from Argonne seeks to have the ZGS's life extended even further, as a dedicated polarized-proton accelerator.

Kane told us the fate of the ZGS is not in doubt—the only question is one of timing. "We see little chance," he said, "that the Argonne facility could continue beyond the Walker panel's recommended time limit." William Wallenmeyer, head of the high-energy physics program within Kane's division, enlarged upon ERDA's outlook: A definite schedule for the shutdown, he said, depends in part on the recommendations of the High-Energy Physics Advisory Panel. (HEPAP was to consider the ZGS question at a 29 November meeting at SLAC.) The motivation of closing down the Argonne synchrotron, he told us, is an economic one; ERDA wishes to go ahead with the building of new high-energy facilities, such as PEP at Stanford, and the budget for high-energy physics—measured in constant dollars—has been shrinking since 1968. One of the present facilities, therefore, must be terminated, according to Wallenmeyer, and the 12-GeV ZGS is the lowest-energy accelerator in the program.

Argonne's weak-focusing synchrotron began full intensity operation in 1967, and the polarized-proton-beam work commenced in 1973. Beam intensity in the polarized mode is now 2×10^{10} protons/pulse and is expected to reach 5×10^{10} protons/pulse.

The Walker plan. The nine-member Walker panel, most of whom also served on the physics subpanel of the 1974 ZGS Study Committee (sponsored jointly by the President's science adviser and AEC) has produced a plan for the optimal utilization of the ZGS during its remaining lifetime. The panel proposes the following allocation of time for the ZGS program's three major components:

Argonne's ZGS complex includes neutrino beam line and 12-foot bubble chamber at lower right. Two halls for polarized-proton-beam experiments are at upper left.

- three months for "conventional" research efforts (unpolarized beams),
- five months for the improved study of neutrino interactions in the 12-foot bubble chamber and
- twenty months for the polarized-beam program, available only at the Argonne facility. (Saturne at Saclay could conceivably be adapted to accelerate polarized protons, but at 3 GeV and with low polarization compared to the ZGS's 60% beam polarization at 12 GeV.)

Such a schedule would require nine months of total operating time for the ZGS both in FY 1977 and FY 1978. The panel points out that present funding for the Argonne synchrotron permits only six to seven months of use per year; an additional $1 million per year would be needed, according to Argonne, for the 20 months of operation outlined above, and the panel recommends that the extra money be provided.

Argonne seeks extension. Argonne has proposed to ERDA that the ZGS become a dedicated polarized-proton facility for three years *after* the 1978 shutdown date, according to Thomas H. Fields, Argonne associate director for high-energy physics. Fields told us operation of the ZGS six months per year during that period would be cost-effective and would permit the completion of much polarized-beam research not included in the Walker panel's plan. But the panel does not back the Argonne alternative. "It is clear," the panel says, "that a large program of polarized-beam experiments which could easily occupy the ZGS for the proposed three-year extension can already be foreseen. However, the panel is not now prepared to endorse this commitment of rather large operating expenditures to this specialized (though unique) program for such a long period of time[5½ years]." The Argonne proposal sets post-1978 operation at $5.5 million annually, compared with the present budget of $10.5 million per year. Even the $5.5 million figure would mean elimination of support for the 12-foot bubble chamber and for Booster II, a 500-MeV synchrotron expected to begin operation in Spring 1977.

Fields told us a shutdown of the ZGS could mean that some of the facilities associated with the synchrotron would be employed in other projects. If and when the Intense Pulsed Neutron Source is built at Argonne, he said, it would very likely use ZGS buildings and personnel. Also, the 12-foot bubble chamber might be transferred to another accelerator.

—FCB

White House science office organizes

The flesh and sinew of the new Federal science-advice organism continues to grow on the bare bones of the 1976 science-policy act (Public Law 94-282). President Gerald Ford has recently named Simon Ramo, a founder and top executive of TRW Inc, to head the President's Committee on Science and Technology created by the act, and nine other persons have been appointed to committee membership. Meanwhile, physicist William A. Nierenberg and biologist Donald Kennedy have joined the White House Office of Science and Technology Policy as half-time senior consultants.

The new PCST appointees are William O. Baker, president of Bell Labs (designated as vice-chairman of the committee); Otis R. Bowen, Governor of Indiana; W. Glenn Campbell, director of the Hoover Institution on War, Revolution and Peace, Stanford University; Edward E. David Jr, executive vice-president of Gould Inc, Chicago (formerly White House science adviser to President Richard M. Nixon); Elizabeth H. Leduc, dean of the division of biology and medicine, Brown University; Fritz J. Russ, president of Systems Research Laboratories Inc; Charles P. Slichter, Center for Advanced Study, University of Illinois; Charles H. Townes, University of California, Berkeley, and W. Bradford Wiley, chairman and chief executive of John Wiley and Sons Inc.

Ramo, who headed the now-disbanded Advisory Group on Contributions of Technology to Economic Strength, will be responsible, as chairman of the PCST, for a two-year survey of the entire Federal effort in science, technology and engineering. He and the other committee members will analyze the overall context of the Government's participation in scientific programs—including mission, goals, facilities and other factors. The science-policy act specifically mandates their examination of the need for organizational reform and for a broader base of support for basic research. The committee's preliminary report must be presented to the Congress within one year after the survey commences.

Ramo's group (together with the Advisory Group on Anticipated Advances in Science and Technology, headed by Baker and also terminated this fall) prepared a list of policy questions in eight areas—food, nutrition, government regulation of R&D, energy, the oceans, industrial productivity, basic research and the opera-

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Washington Bulletins

★ **In the Congressional elections,** former astronaut Harrison Schmitt (R–N.M.) won a seat in the Senate. Schmitt was among seven scientist-candidates who sought membership in Congress this year (see PHYSICS TODAY, October, page 63). Mike McCormack (D–4th CD–Wash.), George E. Brown Jr (D–36th CD–Cal.) and David F. Emery (R–1st CD–Me.) were re-elected to the House, and Newton I. Steers Jr (R–8th CD–Md.) won his first House seat. Defeated in the House race were incumbent James G. Martin (R–9th CD–N.C.) and John R. Burcham (R–5th CD–Md.).

★ **The required labeling of fluorocarbon-propelled aerosol sprays,** recently proposed by the Food and Drug Administration, appears to make imminent the Federal regulation of such products. The FDA has proclaimed its intention of phasing out the use of fluorocarbons as spray propellants.