Initial tests of the first short dipole of this new design, built at KEK, required only two or three training quenches, then reached about 7000 A before quenching. The design current is 6500 A. Two short magnets at Brookhaven operated at about 7500 A before quenching. At lower temperatures, of course, the Brookhaven magnets reach higher currents before quenching. In January another short magnet tested at Fermilab reached 7600 A before quenching, following one training quench at 7100 A, still well above the design current.

The first 15-m dipoles with a 5-cm bore and improved cables will be assembled at Fermilab and Brookhaven this spring. These will be delivered in October to the SSC's new magnet development laboratory, now under construction near Waxahachie. Five of these dipoles and a single quadrupole will be picked for a "string test" to be conducted late next year. This test will be critical in confirming the performance of the magnets. "It will help answer the key questions," says Schwitters.

—IRWIN GOODWIN

WASHINGTON INS & OUTS

DARPA AND CONGRESS STAFF CHANGES; NEW JOBS FOR GRAHAM, BOSTOCK, RIORDAN

In mid-November DARPA acquired a new director, **Victor H. Reis,** a veteran of wide-ranging technology posts in government and industry. Reis replaced Craig Fields, whose removal from the Defense Advanced Research Projects Agency came about because of his support of high-risk dual-use research, which his Pentagon bosses deemed to be steering DARPA into the rough seas of so-called government–industrial policy (PHYSICS TODAY, November, page 70). Sources within the Administration says Reis is less likely to sail the agency into any troubled waters but rather will maintain a safe course. He is expected to return DARPA to an era instigated by Mike Mansfield's controversial Senate amendment to the 1970 Defense appropriations act, which directed the Defense Department to restrict all projects to its military mission.

The 33-year-old agency, founded in response to the Soviet Sputniks, operates as a sort of high-technology venture capital fund, awarding research contracts to industrial firms, universities and consortiums of both for the pursuit of broad fundamental research as well as narrow unconventional technologies. For fiscal 1991 Congress handed DARPA a whopping budget increase, to $1.46 billion, over the objections of the Administration. With this amount the little agency supports programs in computer science, microprocessor manufacturing, data transmission, advanced materials and radar-avoiding "stealth" technologies. President Bush's proposed 1992 budget asks for $1.17 billion for DARPA. Some proponents of the agency in Congress believe this reduction in funding to be mistaken, considering that DOD is seeking more for R&D than it got this year, due principally to its request for $5.2 billion for the Strategic Defense Initiative, which is currently operating with $2.8 billion.

Senator Jeff Bingaman, the New Mexico Democrat who heads the Armed Services subcommittee on defense industry and technology, calls the Pentagon's cuts at DARPA "even more disturbing when one looks at specific areas. The bottom line is that virtually every Congressional initiative taken last year, in effect, has been jettisoned, including our $50 million precompetitive technology initiative, x-ray lithography, high-resolution displays and manufacturing technology. Clearly, the Administration's actions indicate that it does not share Congress's view that DARPA can and should play a central role in reversing the adverse technological trends." Indeed, after reviewing DARPA's budget, Bingaman found only one bright spot—high-performance computing, one of the Administration's three "grand challenges" in the 1992 budget. Bingaman believes that DARPA "has consistently shown its ability to identify critical technological areas and establish quality R&D programs in those areas.... With adequate funding DARPA would be in a much better position to foster development of the dual-use technologies that provide the underpinnings for both our national security and competitiveness in the long run."

DARPA advocates high-definition video systems, better known as HDTV (see page 57), as an "enabling technology" to advance the country's military competence and economic competitiveness. But the agency has been able to back its vision with only a trickle of research funds: $40 million over the past two years. Congress opened the spigot by appropriating $74.5 million for high-definition systems in fiscal 1991. With this money in hand, DARPA sent out a solicitation on 24 January for research proposals covering all facets of high-definition technology, including innovative manufacturing processes—things that would have incurred the wrath of the White House only a few months ago, when subsidizing American industry seemed an anathema. But that was before the Administration issued its policy statement on generic precompetitive technologies (PHYSICS TODAY, December, page 54). Among the HDTV research targets are better phosphors for video screens and novel data storage devices for handling huge amounts of information in video images. DARPA also is ready to invest in holographic memories for advanced video systems that the military could use.

Recruited for DARPA by Fields, Reis was named deputy director in December 1989 and became acting director last April, when Fields stepped aside. Previously, Reis was special assistant to the director of Lincoln Labs, a Pentagon-supported facility at MIT. With a PhD in mechanical engineering from Princeton University, Reis won a reputation as a specialist in the functioning of large systems. He was senior vice president for strategic planning at Science Applications International Corporation, and he served as the national security expert in the White House Office of Science and Technology Policy in the early 1980s, when OSTP was headed by George Keyworth II.

In his seven months as DARPA's acting director, Reis is said to have emphasized teamwork and to have stressed the need to turn research more quickly into results for the Pentagon. He has avoided talking with members of Congress and their staffs, which Fields regularly risked doing and which helped cause his downfall. Reis also has avoided crossing the line between military and commercial interests in rapidly advancing technologies.

William R. Graham, who was science adviser to President Reagan

and to President Bush for the first six months of his Administration, left Jaycor Inc, where he was senior vice president, to become chairman and chief executive officer of Xsirius Inc (pronounced "Ex-serious") in January. The principal customers of both companies are government agencies: Jaycor, headquartered in San Diego, designs and develops laser beam and pulsed power weapons for the Defense Department's Strategic Defense Initiative. Xsirius, started in 1985 by two physicists at the University of Southern California and now located in Marina del Rey, California, conceives such high-technology products as high-temperature superconducting microchips, microwave superconductors for electronic circuits above 30 gigahertz, mercuric iodide crystals for x-ray detectors and solid-state devices for photomultipliers; users include NASA, the National Institutes of Health and EG&G Inc. Graham says Xsirius is "one of only a handful of companies around the world in a position to rapidly take to the marketplace some of the most promising advances in science." The firm has two US subsidiaries and one in Israel.

Graham holds physics and electrical engineering degrees from Stanford. He joined the Reagan Administration in 1985 as deputy administrator at NASA and had the misfortune of being elevated to administrator a few months before the Challenger explosion in February 1986. He became Reagan's top scientist and director of the Office of Science and Technology Policy in October 1986, after the resignation of George Keyworth II. Graham departed the White House on 5 June 1989, the same day President Bush nominated D. Allan Bromley to be his science adviser (PHYSICS TODAY, July 1989, page 47).

Judith L. Bostock has left the White House Office of Science and Technology Policy, where she was special assistant to D. Allan Bromley and assistant director for industrial technology, to be chief operating officer of the South Carolina Universities Research and Education Foundation. To be known by its initials, SCUREF sounds oddly like a malady, but its functions are much more benign. Backed by a consortium consisting of Clemson University, the University of South Carolina system, the Medical University of South Carolina and the historically black South Carolina State College, it will assemble collaborations among scientists from those institutions and from industrial partners for demonstration projects in hazardous waste and environmental restoration R&D. SCUREF also intends to coordinate educational activities by scholars from its sponsoring schools so as to advance the goals of President Bush and state governors, who have vowed to raise science and math achievement levels of US precollege students to first in the world by the year 2000.

One of Bostock's first efforts is to assemble a team of scientists and management specialists to work with the Department of Energy and Westinghouse Electric in developing a remediation program for the Savannah River nuclear weapons production complex.

Bostock earned a PhD in solid-state physics in 1971 from Georgetown University, then joined the faculty at MIT, where she taught condensed matter physics and engaged in research in low-temperature superconductors. She came to Washington in 1984 as a science policy analyst at the White House Office of Management and Budget, where she worked until she joined Bromley's staff in 1989.

Benjamin S. Cooper became staff director of the Senate Committee on Energy and Natural Resources at the start of the 102nd Congress in January. This powerful committee, under the chairmanship of Senator J. Bennett Johnston, Democrat of Louisiana, has jurisdiction over all of the government's energy policies and programs, including nonmilitary R&D supported by the Department of Energy at universities and national laboratories. Cooper joined the committee staff in 1974, following a one-year Congressional science fellowship supported by The American Physical Society. Cooper and N. Richard Werthamer, now executive secretary of APS, were the society's first Congressional fellows in 1973–74.

As a professional staff member for the committee, Cooper has been involved in arranging hearings and writing bills on nuclear waste, uranium enrichment, R&D projects, energy conservation, and oil and natural gas policies.

Cooper received a BS in physics from Swarthmore in 1963 and a PhD in theoretical physics from the University of Virginia in 1968. He taught physics at Iowa State University before becoming a Congressional fellow. In addition to his post on the Senate energy committee, Cooper is an adjunct professor of physics at American University in Washington, DC.

In his position as chairman of the House Science, Space and Technology Committee, Representative George E. Brown Jr, a California Democrat, has appointed **Radford Byerly Jr,** a University of Colorado physicist and director of the university's Center for Space and Geoscience Policy, as the committee's executive director. Byerly is an experienced hand at the committee. Prior to his work at the University of Colorado, he had been staff director of the House's space science and applications subcommittee from 1975 to 1987, a period when Brown served on the committee. So when Brown became chairman of the full committee and decided he wanted a scientist as director, he turned to someone he knew and trusted. Byerly succeeds Robert C. Ketcham, a lawyer who was chosen for the top staff job after Harold Hanson, a former university physics professor and administrator, retired last year (PHYSICS TODAY, November, page 69). Ketcham had been special counsel to the full committee.

Byerly received his PhD from Rice University in 1967 and spent two years as a postdoctoral fellow at the Joint Institute for Laboratory Astrophysics at Boulder before joining the National Bureau of Standards, where he managed programs in fire research and environmental measurement. He recently edited a book entitled *Space Policy Reconsidered* (Westview Press, 1990).

In December, **Michael Riordan** departed SLAC, where he was chief spokesman, and joined Universities Research Association, the organization that represents some 77 universities in the US and Canada in managing Fermilab and the Superconducting Super Collider Laboratory. Riordan's new title is assistant to URA's president, John E. Toll, and staff scientist. Riordan is a high-energy physicist who came to SLAC in 1970 as an MIT graduate student and worked on deep inelastic electron–hadron scattering for his PhD under Jerome Friedman.

Riordan stayed at SLAC as a postdoc until 1976, when he decided to become an author and publisher. To his surprise, his first book, *The Solar Home Book*, published by his own company, Cheshire Books, sold 250 000 copies. He rejoined SLAC in 1985 as a research scientist with the University of Rochester. In this period he completed a popular book, *The Hunting of the Quark* (Simon and Schuster, 1987), which won the American Institute of Physics's 1988 prize for science writing by a scientist (PHYSICS TODAY, December 1988, page 93). —IRWIN GOODWIN ■