

IBM sponsors New York Exploratorium show

On 29 January a show of selected exhibits from the San Francisco Exploratorium opened at the IBM Gallery of Science and Art in New York, where it will remain until 26 April. Thereupon the exhibit will move to the New York Hall of Science, which is to reopen next July.

The show is called "Seeing the light with the Exploratorium" and it consists of 83 Exploratorium exhibits involving light, color and visual perception. In one exhibit, for example, three spotlights in primary red, blue and green are cast against a wall, where they combine to make white. If one walks in front of one of the lights, one's shadow appears in the white field in the color complementary to the one blocked out.

The New York Hall of Science, the next home for the IBM-Exploratorium show, originally was built for the New York World's Fair of 1964-65, where it attracted a half million visitors a year. It was closed for renovation in 1981 and currently is being refurbished and rebuilt under the direction of Alan Friedman, a respected science-museum designer who has worked at the Lawrence Hall of Science in Berkeley, California, and as a consultant to Parc de la Villette, a gigantic science and technology exhibition complex outside Paris that is to open this March. Friedman is a frequent lecturer on science and is the coauthor of *Einstein as Myth and Muse*, which has just been published by Cambridge University Press.

Friedman strongly favors the interactive science exhibits pioneered by the Exploratorium under the leadership of the late Frank Oppenheimer.

The core of the remodeled Hall of Science, when it reopens next summer, is to consist of two sets of exhibits—on feedback mechanisms and the quantum-mechanical atom—each of which will comprise about 20 items. One of the feedback exhibits will be a model windmill designed along classical lines that turns into the wind and changes blade pitch in response to feedback mechanisms or manipulation by the viewer; another will enable one to match one's ability to regulate the temperature against a thermostat, with the results recorded by a computer. One of the quantum atom exhibits is to be a three-dimensional light sculpture of a hydrogen atom consisting of a laser beam shining onto a large fan, which will simulate oscillations among low energy states and excitation to higher states. Interactive controls will demonstrate quantum leaps and the uncertainty principle.

The feedback and quantum exhibits will be located on the main floor, while



In this Exploratorium exhibit, spotlights cast primary red, blue and green light against a wall, where they combine to make white. If one blocks one of the beams, a shadow appears in the white field in the color complementary to the one blocked.

the IBM-Exploratorium exhibit will be arranged in the mezzanine that surrounds the main floor. One of the most attractive aspects of the museum is that from any point on the circular floor or mezzanine, a person will be able to see much of the rest of the room, which means that children will be able to roam among the interactive exhibits more or less at will without worrying much about their parents or their parents worrying about them.

In all, Friedman has about 35 000 square feet of exhibit space to fill. This

is not a huge area by museum standards—New York's American Museum of Natural History contains a million square feet—and Friedman's staff has been hard at work building exhibits on location. Even so, Friedman and his staff face a daunting task, considering that the museum was still virtually empty at the end of 1985.

IBM paid to have the Exploratorium exhibits duplicated for the Manhattan exhibition and has lent it on a long-term basis to the Hall of Science.

—WILLIAM SWEET

British science adviser resigns too

Coincidentally with George A. Keyworth II's departure as President Reagan's science adviser, British Prime Minister Margaret Thatcher also lost her top scientist. Sir Robin B. Nicholson announced in December that he was abiding by his agreement to serve a limited time and would leave Whitehall at the end of January to join Pilkington, the big glass manufacturer that invented the float-glass process now used by all leading producers. Nicholson had been chief scientist to Britain's cabinet since 1981.

In commenting recently on the twin resignations of Keyworth and Nicholson, the British newsweekly *The Economist* rightly observed, "Giving technical advice to governments is often dull (they seldom listen) and generally thankless (it is hard to be popular with politicians and fellow

scientists at the same time)." Though both Keyworth and Nicholson were respected by their bosses, of the two only Sir Robin seemed to have his leader's ear on issues that went far beyond scientific matters. (See our interview with Keyworth, page 57.) With Thatcher's blessing, Nicholson introduced the first detailed annual reviews of Britain's R&D policy and worked behind the scenes to get more technology transfers from the relatively large fraction of research money that the country spends on defense. But he courted controversy by trying to preside over a modest, but painful, switch in Britain's research priorities—from basic science to applied science that results in commercial products. Keyworth, by contrast, took government funding of US science in exactly the opposite direction, advancing bud-

gets for academic research.

In a report last December, Nicholson's office indicated that of the five most industrialized nations, Britain was at the bottom of the league in nondefense R&D funded by the government. What's more, British industry contributes a smaller proportion of research money than industry does in the other nations—42% in 1983, compared with 49% in the US, 58% in West Germany and 64% in Japan.

'Brain drain.' Nicholson is known to have welcomed Britain's participation in the research program for the Strategic Defense Initiative as the best way of attracting US funds for his country's scientists and engineers. The decision to sign on to SDI came after the Advisory Board for the British Research Councils sounded the tocsin once more that basic science in Britain is in danger of collapse, with increasing

numbers of scientists emigrating overseas for better pay, newer equipment and greater flexibility in setting their research agendas. In its report, based on a survey of 40 research organizations, the Advisory Board warned of an imminent "brain drain" similar to the emigration of scientific and technical talent to the US and Canada that reached crisis proportions in the 1950s and 1960s.

A metallurgist, Nicholson taught the subject at Cambridge and Manchester universities before becoming the first director of Inco Europe Ltd's research laboratory at Birmingham in 1972. In 1979 he also took on cochairmanship of Inco's partly owned biotechnology company, Biogen NV. He is a fellow of the Royal Society and a foreign associate of the US National Academy of Engineering. —IRWIN GOODWIN

AAPT elects Resnick vice-president

Robert Resnick of Rensselaer Polytechnic Institute has been elected vice-president of the American Association of Physics Teachers for 1986. He succeeds Donald F. Holcomb of Cornell, who is 1986 president-elect. Robert Beck Clark of Texas A&M University is this year's AAPT president.

Resnick received his BA in 1943 and his PhD in 1949 from Johns Hopkins University. He worked with the National Advisory Committee for Aeronautics from 1944 to 1946 and taught at the University of Pittsburgh from 1949 to 1956. He has been at Rensselaer since 1956, where he is professor of physics and Edward P. Hamilton Distinguished Professor of Science Education. He has been chairman of RPI's interdisciplinary science curriculum since 1973. He was principal

investigator in the recent APS-AAPT survey of physics-department chairmen (see page 65). Resnick is a fellow of APS and AAAS, and he was honored with AAPT's Oersted Medal in 1974. He is the author or coauthor of seven textbooks, including, with David Halliday, *Physics*, which has been translated into 41 languages.

As an officer of AAPT, Resnick hopes to find support for more educational research on the teaching of physics at the college level, find ways of making modern physics more accessible to introductory physics students, initiate cooperative programs with other professional societies and "strive to increase significantly the number of women and members of minorities in physics."

Karen L. Johnston of North Carolina State University has been elected a member of the AAPT executive board. She received a BA in 1971 and an MS in 1974 from Sam Houston State University. She received a PhD from the University of Texas, Austin, in 1979. Johnston taught at Conroe High School in Conroe, Texas, in 1971-72, at Brazosport Community College in 1974-77, and at Memphis State University in 1979-82.

AIP history center wins award from archivists' society

The AIP Center for History of Physics has been honored with the Distinguished Service Award of the Society of American Archivists. Joan Warnow, associate director of the AIP physics-history division, accepted the award on

behalf of AIP at the annual meeting of the Society of American Archivists last fall in Austin, Texas. John A. Wheeler, an early leader in efforts to document modern physics, was her escort at the ceremony.

The AIP Center for History of Physics is the 13th institution to be honored with the archivists' award since 1964. All the other Distinguished Service Awards have gone to state or city archives except for one, which went to a public university. The Center for History of Physics is the first archives connected with a group of professional societies representing an intellectual discipline to be honored with the award, and it is the first archives to be honored that is not mainly a repository for documents.

AIP's physics-history program was started in the early 1960s with three main projects: to assemble and manage the Niels Bohr Library at AIP headquarters, to collect oral histories on tape and to advise other institutions and individual physicists on saving documents. The history center recently completed a large project that involved providing advice to DOE-funded laboratories on how to preserve their historical records.

The Society of American Archivists, in its citation honoring the Center for History of Physics, said that the center "has shown that it is possible to document fields that previously seemed beyond our ken because of their mystery and complexity, the volume of records or the excess of minutiae.... [The center's work] has had widespread influence in the archival profession, showing itself applicable to other disciplines and records. The center serves as the repository for records of AIP and its member societies, but perhaps more importantly educates, encourages and assists many and varied repositories across the nation in preserving the history of science."

The directors of the Center for History of Physics have been W. James King (1961-64), Charles Weiner (1964-74) and Spencer Weart (since 1974). Warnow has been with the center since 1965 and is responsible for most of its archival work.

Hecker succeeds Kerr as head of Los Alamos Laboratory

Siegfried S. Hecker took over in January as head of Los Alamos National Laboratory, replacing Donald M. Kerr Jr, who resigned last October after serving six years as director. Hecker previously was chairman of the Los Alamos Center for Materials Science, and before that he headed the laboratory's materials-science and technology

RESNICK

