DOE has initiated still another exercise to strengthen the SSC. Called the Magnet Industrial Program, it is intended to acquaint interested companies with the cos θ superconducting magnets that will steer the colliding streams of protons through the beam tubes. The Central Design Group has invited prospective makers to attend "show and tell" sessions at Brookhaven, Lawrence Berkeley and Fermilab to introduce them to the design, tooling and production of the magnets. The first session is set for 31 August at Brookhaven.

—IRWIN GOODWIN

BOB NOYCE CREATED SILICON VALLEY AND NOW HE'S ASKED TO SAVE IT

After searching for more than a year for a CEO to run Sematech, the coalition of 14 companies formed to restore vitality to the sluggish US semiconductor industry has found its man. It could hardly have done better. The choice is Robert N. Noyce, vice chairman of Intel Corp.

In 1956, shortly after getting a PhD in physics from MIT, Noyce, the son of a small-town Iowa preacher, joined William B. Shockley, who coinvented the transistor at Bell Labs, in producing semiconductors for electronics companies. A year later, creating a pattern that was to become familiar in the industry, Noyce and seven others left Shockley Semiconductors Corp to start Fairchild Semiconductor Corp, the firm that produced the first commercial integrated circuit and thereby became the wellspring of California's Silicon Valley.

The selection of Noyce is ironic in that Intel, which he cofounded in 1968 with Gordon E. Moore, a colleague at Fairchild, had supported a different purpose for the consortium than what was finally agreed upon. Intel, which stopped making memory chips three years ago in the face of intense competition from Japan, wanted the consortium to concentrate on ultimately manufacturing commercial quantities of chips to help US makers reestablish themselves in the business. Sematech's main focus, however, is limited to R&D, centering on demonstrating new technology to make the next generation of integrated circuits. The intent is to surpass Japan's production in efficiency, quality and cost by 1990. Sematech's five-year goal is to develop the technology that would enable US chip makers to market chips that could hold 64 million bits of information—64 times the storage of the most advanced chips now available.

Even before it was created in March 1987, Sematech attracted critics. Some argue that the consortium will not do enough for small companies that often take the lead in innovation. Some say the threat of a decline in the US chip industry is overblown and

Robert Noyce: Answering the call

that American chip makers seek government assistance to help fend off the challenge of Japan and other Far East countries in microelectronics. Some point out that similar cooperative ventures have not worked well in the past.

Congress awarded Sematech $100 million from the Defense Department's fiscal 1988 budget and promised the same amount for the next five years. A similar sum is to come each year from member companies, which include such customary combatants in global electronics as AT&T, IBM, Hewlett–Packard, Motorola, Texas Instruments, Rockwell International, National Semiconductor and Intel. To round out Sematech's $250 million annual budget, the State of Texas, which houses the organization in Austin, along with universities and other sources, will put up $50 million per year (PHYSICS TODAY, February, page 51).

While the Defense Advanced Research Projects Agency, which is charged with overseeing Federal support for Sematech, paid this year's installment last spring, and the House had voted an equal sum for 1989, the Senate trimmed the funding to $45 million on the ground that the consortium, without top executives, was falling behind schedule. After Congressional leaders learned that Noyce had agreed to take charge, he was privately assured that the full $100 million was all but in the bag. Congress was impressed also that the same day Noyce took over, Sematech announced that its chief operating officer would be Paul P. Castrucci, a 32-year veteran of IBM. Castrucci ran Big Blue's semiconductor factory in Burlington, Vermont, widely hailed as the equal of any Japanese chip-making plant. He is credited with playing a key role in designing IBM's first solid-state memory devices in 1966.

One of Noyce's first activities for Sematech was to attend a workshop on synchrotron radiation and semiconductor technology at Louisiana State University on 15 August. At lunch that day Senator J. Bennett Johnston, a Democrat of Louisiana, pointedly thanked Noyce for taking the post at Sematech. Johnston, who heads the Committee on Energy and Natural Resources and sits on the Appropriations and Budget committees, described the government's involvement with the alliance of chip manufacturers as "a model we will watch closely as a way of improving the nation's competitiveness in the global market. What we've seen in the Japanese model is that a consensual society can do some things better than a strictly competitive society. . . . The great secret is . . .they [Japanese manufacturers] undertake long-term strategies," while in the US most companies are concerned with sales and profits in the next quarter or the next year. "It is industrial policy in Japan to pool their resources," said Johnston. "And that's what Congress is supporting in Sematech."

As part of this strategy, Johnston noted in his lunchtime remarks, the government would fund more "centers of excellence" at universities, including LSU's proposed Center for Advanced Microstructures and Devices. Johnston was responsible last year for attaching a $12 million amendment to the Pentagon's appropriations bill to fund the CAMD facility. He assured his listeners that another $13 million of "pork" legislation would be forthcoming in the 1989 budget. The additional funding would go toward buying a $19.9 million compact electron storage ring to be made by a joint venture of Maxwell Laboratories and Brobeck Corp in San Diego. The machine is designed to produce high-flux soft x rays for etching densely packed integrated circuits (PHYSICS TODAY, January, page 49).

—IRWIN GOODWIN ■