GLOBAL ELECTRONICS

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THE CRASH OF 1987 MAY LEAD TO AN INDUSTRIAL POLICY

The October 19, 1987 crash of the global capitalist securities market appears to signal fundamental changes in American economic policy. High-tech executives are likely to win a federal commitment to a Japan-like industrial policy. But they won't willingly share the benefits of their increased government aid.

It is too soon to call the direct impact of the crash on the economy. A severe recession is possible, but not inevitable. Oversight agencies and the markets themselves will enact new regulations designed to minimize speculation, but capitalists will quickly create new avenues for high-stakes gambling.

Perhaps more important, the crash is already influencing the way that American corporate leaders look at the economy. It has cast a shadow of uncertainty over the country's economic future. The crash has demolished the optimism and commitment to *laissez-faire* capitalism epitomized by Ronald Reagan's economic aphorisms.

Though the New York Stock Exchange did not "melt down" on October 20, stock averages are likely to bounce up and down for months, if not years. To the lords of finance such unpredictability is nearly as bad as a steady decline.

Unable to plan effectively, the big banks, securities firms, and other financial interests will seek—indeed demand—a greater Federal role in planning the economy. To those of us who have grown up in the post-World War II era, this looks like an unprecedented shift. Big business has always sought subsidies or protection for specific companies or even industries, but in our memory, it has always advocated a minimal government role in economic planning.

In fact, a quick look at U.S. history shows that government involvement in economic planning has increased when and only when the financial elite has backed it. Franklin Roosevelt's New Deal and the "Progressive Era" associated with Theodore Roosevelt both were implemented largely at the behest of Wall Street.

The financial sector is the branch of American capitalism that has the greatest influence on general policy in Washington. Other sectors—agri-business, aerospace, trucking companies—may dominate individual agencies or departments, but financial leaders generally hold top policy jobs because their private sector work also requires that they balance the interests of competing sectors.

Therefore, high-tech industrialists who have embraced elements of national planning over the past few years will henceforth have powerful allies, no matter which party holds the White House.

The high-tech argument for national planning—known as industrial policy this time around—has flaws, but it is relatively simple: 1. The computer and semiconductor industries are strategically important. The U.S. must lead in those industries if it is to remain competitive in the global market. 2. Japanese-owned companies already dominate many advanced electronics technologies, and they threaten to take over the entire industry. 3. The U.S. needs a coherent, comprehensive industrial policy to take on Japan, Inc. and maintain our economic standing in the world.

In the short term, electronics industry spokesmen are willing to let the Department of Defense (DOD) function, as it has since the late 1940's, as the Federal government's chief instrument of industrial policy. Especially during the Reagan years, the Pentagon has been the only department that could afford ventures such as Strategic Computing, VHSIC, and Sematech. Hence, even the semiconductor industry, which works with the Defense Department in an atmosphere of mutual distrust, sought Pentagon money for Sematech.

That's about to change. The thaw in U.S.-Soviet relations, marked by the Washington summit and the medium-range missile treaty, is likely to undercut the anti-communist mood that has helped boost the Pentagon budget since the late 1970's.

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It may soon be easier to wring money out of Congress to take on Japan's industrial might, rather than the USSR's military power. This should suit high-tech leaders, since the Pentagon routinely imposes secrecy and export controls on new technologies. When they do support new technologies, the armed services do not care whether prodiucts can be produced cheaply in large quantities, but that's just what industrial competition requires.

To develop and implement a high-tech industrial policy, many high-tech leaders would like to see a cabinet-level agency, comparable to Japan's Ministry of International Trade and Industry, dedicated to international industrial competition and focusing on high-tech.

Assuming that the financial sector supports the creation of a U.S. Department of Technology or Department of Trade and Industry, before long this new organization will be busy coordinating U.S. trade policy, tax policy, research funding, and other policies.

The stated rationale—"Beat Japan!"—for a coherent industrial policy is suspect. It smacks of excessive national chauvinism, if not racism. And, as pointed out frequently in **Global Electronics**, many of America's leading Japan-bashers cooperate cozily with their Japanese counterparts.

Still, it makes sense for the U.S. government to coordinate the myriad of individual policies that now influence the strength and direction of the U.S. economy, and in many instances it makes sense for the government to consciously determine economic goals.

To the captains of high-tech industry, industrial policy means "We're important; aid us." But their needs are not necesssarily those of the country. The people who work in high-tech industry, residents of high-tech enclaves like Silicon Valley, and the various elements of the left side of the American political spectrum must develop an alternate vision of high-tech industrial policy.

Fortunately, the U.S. is more pluralistic than Japan. The leaders of finance and industry cannot run a new department without cooperation from other groups. Thus, the probable adoption of some form of conscious American industrial policy presents an opportunity, not only to shape that policy, but to insist on a *quid pro quo*.

During the New Deal, national planning was accompanied by the increased empowerment of the American workforce, embodied in the organization of the unions of the CIO. If big business again needs government to help it compete, then it should be prepared again to share the rewards.

VALLEY OF THE DISK

Santa Clara County, California and its environs are known worldwide as Silicon Valley, for its concentration of semiconductor and related companies, but it is also a leading center of computer memory device technology and production. In fact, the disk drive was invented in Silicon Valley, at IBM's San Jose laboratories in 1952.

A majority of the principal U.S.-owned merchant disk drive manufacturers are based in Silicon Valley, and IBM, by far the largest producer, still builds its drives in San Jose.

The disk drive industry has a long history of spin-offs, companies set up by specialists at IBM and other established disk drive manufacturers. Today the pace of start-ups continues, with a new generation of firms pushing the development of "super microfloppies," insertable 3.5-inch disks capable of storing as many as 40 million characters. (See **San Francisco Examiner**, December 20, 1987, p. D-3.)

Meanwhile, IBM continues to advance the state of the art. Its researchers recently announced an experimental technique, based on the semiconductor industry's precision lithography, that is supposed to increase the storage capacity of hard disks by a factor of 50.

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The success of the disk drive industry in Silicon Valley demonstrates that the concentration of chipmakers here is no fluke. The same factors that encouraged the development of the semiconductor industry have helped build the disk drive industry: Stanford University's educational and research core; the perceived high quality of life; and the presence of support industries and services, including venture capital.

The disk drive industry has farmed out its most routine, labor-intensive tasks to other areas, notably Singapore, but it remains an important source of production employment in the area that some have started to call Disk Drive Valley.

MILITARY ELECTRONICS BUDGET

Cuts in Pentagon spending on research and procurement (after adjustment for inflation) are hurting manufacturers of military equipment, but military electronics companies are likely to fare slightly better than other producers as their share of the research and procurement budgets rises.

The Electronics Industries Association reports that the Department of Defense spent the equivalent of $134.7 billion on procurement and RDT&E (research, development, test, and evaluation) in fiscal year 1986, but the total is likely to fall 13.5% to $116.5 billion in 1988. (The figures are apparently in 1988 dollars.)

The decline in real military electronics spending, however, is less precipitous. It fell 7.7% from $49.3 billion in 1986 to an estimated $45.5 billion in 1988. In 1986, electronics accounted for 36.6% of the research and procurement budgets. In 1988 it should represent 39.1%.

The EIA expects that the rise in electronics content will slow down. It projects that electronics spending will reach 41% of all Pentagon procurement and RDT&E spending in 1997. (**Electronics**, January 7, 1988)

THEFT AND PIRACY

Most high-tech businesses still don't think that the local police are capable of dealing with the theft of electronic components. Companies that lose goods in transit don't even bother to report the thefts.

In December, authorities arrested a deliveryman for Airborne Express and the operator of a small electronics distributor for stealing and reselling thousands of dollars of electronics components. The arrests climaxed five months of investigation by the FBI, Santa Clara County District Attorney's Office, and the San Jose Police.

This one case, in itself, is unimportant. The amounts are small. But it illustrates a law enforcement dilemma. The victims did not report the crime. An officer from San Jose's computer crime unit told the **San Jose Mercury News** (December 19, 1987), "The firms didn't report losses to the police because in the past police didn't have have the resources or expertise to deal with such crimes."

In this case, the theft was reported by someone who bought the stolen goods.

Perhaps police agencies are now capable of handling the theft of electronics components, but they still do not have the resources to determine when software has been stolen, copied, or even pirated for resale. To overcome the gap in anti-piracy enforcement, particularly in areas overseas where knock-offs are big business—and authorities are not too concerned—five marketers of microcomputer software and Apple Computer have teamed up to form the Business Software Association.

The purpose of the association is to investigate and halt the sale of illegially copied software. Thus far, it has hired detectives for an investigation that led to the November apprehension, by Hong Kong customs officials, of ten alleged high-tech pirates and the seizure of more than 20,000 counterfeit computer disks and manuals.

Ashton-Tate, Autodesk, Microsoft, Lotus Development, and WordPerfect have all contributed $90,000 apiece to the association. Apple reportedly joined as a gesture of support, and non-member IBM cooperates. (**San Jose Mercury-News**, December 7, 1987)

MOTOROLA RAMS

In November Motorola's semiconductor division, a powerhouse in microprocessors and discrete components such as transistors, announced plans to re-enter the random access memory (RAM) business. On the surface, the move signals a victory for the U.S. government's aggressive attack on Japanese chip exports.

But Motorola may have difficulty building market share, and its memory chips, at first at least, won't even be made in the U.S. Motorola will start its RAM production by buying wafers from Toshiba. Even when Motorola gets its own wafer fab plants on line, it will still send the chips to Malaysia for assembly, burn-in, and testing. (**Electronics**, November 26, 1987)

AT&T'S RISING SUN

A few years ago, industry observers were predicting a clash of Titans, as IBM moved into telecommunications and AT&T into computers. The face-off never really materialized. Despite the break-up of AT&T and the deregulation of many phone services, AT&T held onto most of its long-distance market share. And while its tried a series of alliances with computer makers, it never became a key force in the data processing marketplace.

However, AT&T's latest move, an alliance with Sun Microsystems, has raised concern, not primarily at IBM, but from the manufacturers of scientific computers.

In October, 1987, AT&T and Sun agreed to work together to develop computers using AT&T's Unix operating system, now the standard for scientific applications, and Sun's reduced instruction-set computing (RISC) architecture. In January, 1988, AT&T announced an agreement to buy up to 20% of Sun, pumping at least $300 million into the Silicon Valley firm over the next three years. The head of AT&T's Data Systems division will get a seat on the Sun board. (**The Report on AT&T**, January 11, 1988)

The latter agreement sent shock waves through the industry. Within two weeks, representatives of eleven other makers of Unix computers and software met at Digital Equipment's Palo Alto labs to plot strategy against the alliance. The competitors fear that the Sun-AT&T deal will undermine Unix as a public standard shared, under license from AT&T, by the entire industry. **Electronics** (January 21, 1988) explains, "One possible result of the strategy, despite AT&T's promises to the contrary, is that other work-station vendors may be forced to build their hardware around [Sun's] Sparc chip in order to remain current with new releases of Unix."

Reportedly, the participants were Digital, Apple, Apollo, Gould, Hewlett-Packard, Honeywell Bull, MIPS, NCR, Silicon Graphics, UniSoft, and Unisys. IBM, Advanced Micro Devices, Intergraph, and Motorola plan to join the group. (**San Jose Business Journal**, January 18, 1988.)

MAGAZINES NEEDED

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