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OFFSHORE DISKS

Tandon, the high-flying disk drive manufacturer based in Chatsworth, (southern) California, has announced plans to shift the bulk of its manufacturing overseas. In early March it announced plans to terminate 1,000 domestic employees. When lay-offs are completed, the company's domestic employment will have fallen to 1,575, about half of Tandon's 1983 workforce.

Company founder, Indian national Sirjang Lal "Jugi" Tandon, blamed competition from other firms' offshore plants, but Tandon himself pioneered offshore disk drive work. Today, reports *Electronics News* (March 12, 1984), "The workforce employed at Tandon's wholly-owned Singapore plant and its contract assembly operations in Bombay, India, managed by members of the Tandon family, now total four times the remaining U.S. workforce."

Manufacturers of disk drives face limited options in today's highly competitive market. *Electronics* (April 19, 1984) calls the choice, "automate, emigrate, or evaporate." Seagate, reportedly the largest U.S. builder of hard-disk drives, makes half its drives in Singapore, but the company only assembles "mature" products abroad. Priam and Micropolis have chosen to automate production within the U.S., but disk-drive automation technologies are still in their infancy.

SURPLUS CAPITAL

The flood of venture capital unleashed upon Silicon Valley by the 1978 easing of capital gains taxes encouraged the formation of numerous high-tech start-up companies, and it has been credited with re-infusing the Valley with the innovative spirit for which it is known. But over the past year, some of high-tech's best known - and richest - entrepreneurs have warned that the investment boom may have gotten out of hand.

Hewlett-Packard co-founder David Packard, for instance, said, "There's a little too much venture capital available today, which makes it possible for some people to get into things when they're really not quite prepared for it." ("Silicon Valley" special advertising section, *Business Week*, June 11, 1984.)

The *Peninsula Times Tribune* (June 17, 1984) agrees that 1983 was a year of free-flowing cash, but it suggests that the capital glut has finally undermined the venture capital market, thus correcting itself. A series of unsuccessful high-tech ventures has depressed the stock prices of initial public offerings. Less likely to strike it rich in future offerings, many venture capitalists are investing much more carefully now.

"ALIEN" CRACKDOWN

After catching the attention of Silicon Valley employers with a series of raids this Spring, the Immigration and Naturalization Service is now co-operating with high-tech firms. Reports the **San Jose Mercury News** (June 23, 1984), "Federal immigration officials are quietly working with a Mountain View electronics firm to purge it of more than 100 illegal employees, who make up nearly one-half the company's work force. Rather than raiding the firm, U.S. Immigration and Naturalization officials said they are allowing executives of the company, California Circuit Assembly, to find legal replacement before removing the scores of illegal aliens." The purpose, of course, is to deport undocumented immigrants without disrupting production. The INS determined that 45% of the firm's workers had counterfeit employment cards by subpoenaing and inspecting CCA's records.

It is likely that the recent crackdown, plus any tighter enforcement resulting from Federal Immigration Reform legislation (the pending Simpson-Mazzoli bill), will drive more undocumented workers into the so-called underground economy. Hundreds, perhaps thousands of workers in Silicon Valley already "stuff" chips and other components into printed circuit boards in their homes or garages. This process, a major step in the production of computers, communications equipment, and instruments, can be done on expensive automated equipment, but it usually requires nothing more than a pair of hands. Since the INS has focused its energies on PC-board assembly subcontractors, it is likely that immigrants who fear to work in a large factory where wages and conditions meet minimum standards will seek to do the same work at home, where pay is by the piece.

It is unlikely that the INS will be able to prevent expand homework production, even if it wishes to, since previous anti-homework enforcement efforts by other government agencies have failed to even discover the depth of this little known sub-sector of high-tech industry.

JAPAN

A multidisciplinary team of scholars from the U.S. and Japan have written a booklength study on competition between the U.S.-based and Japanese semiconductor industries. In **Competitive Edge: The Semiconductor Industry in the U.S. and Japan** (Stanford University Press), Daniel Okimoto, Takuo Sugano, and Franklin Weinstein shy away from apocalyptic warnings. They eschew the charges of unfair competition trumpeted frequently by industry leaders in the U.S.

In **Competitive Edge**, the scholars highlight the advantages enjoyed by chip makers in both countries. U.S firms are especially innovative. Japanese producers benefit from that country's stable political-economic system. Rather than recommend that the U.S. mimic Japan's industrial policy to retain U.S. leadership, the authors suggest measures to support research and training, capital formation, and structural adjustments, as well as "upgrading the institutional infrastructure to deal with trade-related issues, such as more effective anti-dumping measures."

Meanwhile, the Electronics Industry Association of Japan has launched the English-language **Japan Semiconductor Quarterly**, a newsletter offering a Japanese perspective on high-tech competition between the U.S. and Japan. EIA-J head Akio Morita writes, "The Electronics Industry Association of Japan (EIA-J) regards competition and cooperation between the U.S. and Japan as the key to sound development of the semiconductor industry. Accepting this premise, it has decided to publish the **Japan Semiconductor Quarterly** in order to provide timely information and data of interest to both countries and to break down some of the myths which have hindered understanding between the two industries." (Available from Gray and Company, 3255 Grace St., NW, Washington, DC, 20007)

TOXICS MODEL

In Issue No. 40 we told the story of a printed circuit board manufacturer, CTS Printex, which was leaving Mountain View, in Silicon Valley, because it could not comply with sewage pre-treatment and hazardous materials storage standards. Since then, numerous other printed circuit board makers have come under fire from local, regional, and Federal authorities.

Nevertheless, it appears that it is possible for board-makers to meet the pollution control standards now in effect. Norcal Technology (NTI), a ten-year old PC-board maker with plants in Colorado as well as Silicon Valley, has just opened a new, automated board fabrication facility in Mountain View. NTI installed a sophisticated new pollution-control system, and the company claims, in a press release announcing the plant's opening, that "a spokesperson for the city said the NTI plant will serve as a model to which all future companies will be scrutinized regarding safety and disposal of pollutants."

LOW-POINT AT ZENITH

The struggle of women assembly workers at Zenith's Reynosa, Mexico parts plant (see issue No. 37) appears to have been broken. The company fired several leaders of the pro-worker faction of the union, the Confederacion de Trabajadores Mexicanos (CTM). Local and national leaders of the CTM worked against the workers, who had closed the plant in a "wildcat" strike in November. And police broke up a hunger strike in Reynosa's central plaza this April. Meanwhile, Zenith's Mexican assembly workers continue to earn a sub-standard \$3.31 per day. (Labor Notes, April 26, 1984)

The Reynosa facility is the sole source for certain Zenith television components, so the shutdown there forced the company to cut back operations in Springfield, Missouri. To avoid a repeat, and to serve other markets better, Zenith is planning to produce those com-

ponents in Ireland, Chihuahua (Mexico), and possibly Taiwan. (Electronics News, May 21, 1984.)

CONTROL DATA

Control Data Corporation has taken some steps to help assembly workers laid off when the firm shut down its South Korean production facility in 1982, but it has not fully kept promises it made to U.S. church groups concerned about the plight of Control Data's Korean workers. Control Data has enrolled 100 of the 270 laid off workers (in some cases, the enrollees are family members) in vocational training programs, but it did not create a Control Data Institute. Nor has the company taken steps to help the workers find new jobs. Church activists report, "The future of the laid-off women is highly uncertain and few are likely to find work again without explicit support from Control Data." (This quote comes from a four-page backgrounder, "CLOSED: Control Data Korea - WANTED: A Future for Blacklisted Workers," available from the Interfaith Center for Corporate Responsibility, Room 566, 475 Riverside Drive, New York, NY, 10115, for \$.60 each in small quantities.)

COUNTING COMPANIES

The U.S. Census Bureau, in a report based upon the 1982 Census of Manufacturers, has counted 1,566 computer manufacturers within the U.S. There were only 518 computer builders in 1972, and 808 in 1977. Employment by these firms rose from 144,000 in 1972 to 193,000 in 1977 to a whopping 339,600 in 1982. Five states accounted for nearly two-thirds of the total. (San Jose Mercury News, June 7, 1984).

State	Plants	Jobs
California	659	106,000
Massachusetts	140	32,000
New York	99	24,600
Texas	91	25,500
Minnesota	70	32,000

CONTROLS DROPPED

The Reagan administration has quietly abandoned a Pentagon plan to clamp controls on the dissemination of unclassified university research results. If adopted, the military would have been able to prevent publication of information considered to be useful to the Soviet Union and its allies. Leading universities, many of which already reject classified (secret) research projects, vociferously opposed the proposed new restrictions because they considered the proposal antithetical to academic freedom. In addition, opponents of the controls argued that America's open research environment is a key reason why the U.S. finds itself in a position of global technological leadership.

MAC-PLANT SLOWDOWN

Apple Computer's "state-of-the-art" Macintosh assembly plant (see issue no. 39) ran into trouble this June. The company's "just-in-time" inventory system, modeled after Japanese industrial organization, had no "just-in-case" provision. The Mac plant relies heavily upon imported parts, and a shortage of good parts, primarily custom integrated circuits, forced Apple to shut down production "for the better part of a week." (San Jose Mercury News, June 28, 1984)

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