
GLOBAL ELECTRONICS INFORMATION NEWSLETTER

No. 7

February, 1981

"DELICATE BONDS" AVAILABLE

"Delicate Bonds: The Global Semiconductor Industry," is now available from PSC. This special issue of **Pacific Research**, written by PSC director Lenny Siegel, summarizes and analyzes the growth of the semiconductor industry and its impact on its workforce at home and abroad. It also explores the "Japanese threat" to American semiconductor dominance and the problems associated with sales of solid state components and technology to the Soviet Bloc.

Single copies may be ordered from PSC for US\$1.50 (add US\$2.00 for foreign airmail). The bulk rate (5 or more copies) is US\$.90/each via surface mail.

FIRE HAZARDS

Sunnyvale, California (Silicon Valley) public safety officials have reportedly begun citing electronics firms that store or ship flammable liquids in containers designed for soft drinks. According to the **Peninsula Times Tribune** (January 31, 1981), the city has been aware of the risks of that storage method for years, but it has only recently begun citing violators. The city initiated enforcement after it developed, working with Advanced Micro Devices, a safe, economic alternative container.

ASSEMBLY TRENDS

Semiconductor International (January, 1981) predicts that merchant semiconductor firms will increasingly shift assembly work back to the U.S. It cites a tenfold increase in direct labor costs (pushing US\$2.00 in some countries), a shortage in skilled personnel in Asia, growing freight costs, increased duties resulting from the use of foreign-source packaging materials, and expatriate personnel costs now exceeding US\$150,000 per person per year.

In fact, a graph comparing wage and fringe costs in various offshore locations belies the magazine's own analysis. Only South Korea is shown offering \$2.00 in wage and fringe payments, with only Hong Kong, Singapore, and Tijuana exceeding \$1.00.

Semiconductor International reports, in addition, that integrated circuit assembly in the Philippines continues to grow, accounting for 7% of that country's exports. Labor costs range from US\$.50 to \$.70 per hour.

G.M.-SINGAPORE

General Motors' Delco subsidiary is expanding its Singapore printed circuit assembly plant, adding S\$7 million to an earlier investment of S\$20 million. The plant opened in 1978. (**Asia Monitor**, Q2&3, 1980)

UNIVERSITY OF CALIFORNIA

Stanford University, with its numerous research labs, has been more responsible than any other institution for the gathering of advanced technology industry in Silicon Valley. Stanford last year established the Center for Integrated Systems, funded by the Defense Department and private industry. Some Silicon Valley leaders, however, remained unsatisfied with Stanford's new lab, and urged the publicly owned University of California to establish a similar facility. Intel's Robert Noyce, for instance, complained that too few Stanford graduates ended up in local firms.

This January California governor Jerry Brown responded with a proposal to fund the Microelectronics Innovation and computer Research Operation (MICRO), at the University's Berkeley campus. The state would provide \$2.6 million for capital improvements and another \$5 million to match a projected \$5 million from private industry. The University budget could supply another \$1 million.

Officials have justified MICRO as a defense against Japanese competition and to discourage California firms from moving to other states, such as North Carolina and Minnesota, which have recently established similar research centers. Unfortunately, no political leaders have yet questioned exactly who would benefit from such an additional subsidy to the industry.

BORDER PROGRAM CONFERENCE

The Institute for International Trade at Laredo State University (Laredo, Texas, 78040) is sponsoring a two-day conference March 2-3 on "Mexico's Assembly Program and Border Industrialization: New Government Policies and Opportunities." For more information, call (512)722-8001, ext. 315.

MASSACHUSETTS

In PSC writings about semiconductors, we have always considered production wages to be highest in the Northeast states, largely because that region contains most of the industry's unionized plants. A correspondent in Massachusetts, however reports that wages in that state are lower than in any other major semiconductor-producing area. He points out, "Massachusetts has increased its share of U.S. high technology employment fastest in those industries (computers, electronics components) where Massachusetts hourly production wages are lowest compared to other major producing states." He hypothesizes that the regional average is boosted by the large, well paid (and probably unionized) workforce at Western Electric (AT&T) plants at Allentown and Reading, Pennsylvania.

	Production Workers (000's)	Average Hourly Wage
<u>United States</u>	<u>62.4</u>	<u>\$5.31</u>
Massachusetts	3.0	4.12
Connecticut	0.5	3.40
New York	3.8	5.38
New Jersey	1.2	6.21
Pennsylvania	7.9	7.07
Ohio	1.4	5.32
Florida	2.3	4.06
Texas	12.7	5.88
Arizona	7.0	5.08
California	17.3	4.82
all other states	5.3	4.34

(1977 Census of Manufacturers)

JOB SHIFTS

Although no Silicon Valley semiconductor plant is likely to shut down, some companies are shifting particular production sections to other parts of the U.S. The United Electrical Workers Organizing Committee reports that the entire Signetics Military Production Division is being moved from Sunnyvale to Sacramento. Employees were given the choice of moving or accepting any job assignment in Sunnyvale.

When National Semiconductor shifted a fabrication line from Santa Clara to Salt Lake City, Utah, 180 workers were "arbitrarily transferred to other jobs and shifts. Women who could not accept new shift assignments that conflicted with child care arrangements had to quit or accept layoff." (U.E. Statement before the California Senate Industrial Relations Committee, December 9, 1980)

NATIONAL SEMI

National Semiconductor, a leading flag-waver against the onslaught of Japanese integrated circuits, has signed an agreement with a French government research agency, the Centre National d'Etudes des Telecommunications, to make available N/MOS semiconductor technology, for a price of about \$1.4 million. (Electronics News, December 15, 1980)

EQUIPMENT

Electronic Trend Publications, of Cupertino, California, has issued a survey of capital equipment purchases by the printed wiring industry. In 1970 the U.S. market alone reached \$490 million, and Electronics Trend projects that figure will rise to about \$1,130 million by 1985. The report suggests that the industry is increasing its capital intensity in response to problems of pollution and safety as well as increasing materials costs. (Northern California Electronics News, December 22, 1980)

INWARD INVESTMENT

European firms continue to buy or lend their way into Silicon Valley. BICC, a British wiring manufacturer and contractor, purchased Boschert, the Sunnyvale producer of switching power supplies, for \$29 million. (Peninsula Times Tribune, December 12, 1980). Xicor, a Sunnyvale components maker, received a \$4 million loan from the National Coal Board Pension Fund of Great Britain. (San Jose Mercury, December 16, 1980. Semi Processes, a privately owned circuit-producer in Santa Clara, has sold one quarter of its shares to CIT-Alcatel, a French telecommunications equipment company (a subsidiary of Compagnie Generale d'Electricite). (Electronics, January 27, 1981)

SCHLUMBERGER

See **Business Week**, February 16, 1981, for an excellent discussion of Schlumberger Ltd., the French-owned oil services multinational which owns Fairchild Semiconductor. The article not only describes Schlumberger's successful management style in the oilfield "wireline" business, but it reports how the company hopes to apply its managerial knowhow to Fairchild's chronic problems. For example, Schlumberger is pumping substantially more capital into Fairchild, and it has reduced Fairchild's headquarters staff from 600 to 200 people.

WESTERN ELECTRIC

AT&T's manufacturing arm, Western Electric, has announced plans to construct a \$400 million semiconductor plant in Orlando, Florida. The 350-acre, 700,000-sq. ft. facility is expected to employ 1500 to 2000 workers by 1984. The company currently makes circuits in Reading, Pennsylvania, Allentown, Pennsylvania, and Kansas City, Missouri. (Electronics News, December 15, 1980)

LATIN AMERICAN WOMEN

NACLA's September-October, 1980 **Report on the Americas** is a special issue on Latin American women. The issue contains a report, based on interviews, on the "Maquila" women, workers in Mexican-border assembly plants. The issue can be ordered, for \$2.50, from NACLA, 151 W. 19th St., 9th floor, New York, NY, 10011.

SILICON SUPPLY

Forbes (November 10, 1980) recently evaluated the future supply of high grade polysilicon, the basic material of nearly all integrated circuits. Though the purpose of the article is to weigh claims of possible shortages, several interesting facts are mentioned: First, only ten companies worldwide manufacture polysilicon. German-based Wacker Siltronic is the largest supplier, followed by Dow Corning. Only two U.S.-based firms sell polysilicon, Dow Corning and Great Western Silicon (see issue No. 6). Others, such as Texas Instruments, Motorola, and Monsanto, are captive producers.

Second, Union Carbide supplies 40% of the U.S. market for trichlorosilane, a "key ingredient" of polysilicon. Texas Instruments, however, has its own captive production. And third, the silicon used in photovoltaic cells is of a much lower grade than semiconductor quality silicon.

RECYCLING

Changes in U.S. customs regulations are allowing semiconductor manufacturers to return defective circuits to the U.S. for crushing and reclamation, duty free. Already millions of dollars worth of defective circuits are being recycled through San Jose's Foreign Trade Zone. The process not only conserves valuable minerals, but it helps keep defective parts off the black market. (**Northern California Electronics News**, October 27, 1980)

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