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IMMIGRANT WOMEN WORKERS IN SILICON VALLEY

We have for many years pointed out that for every Silicon Valley professional there is a Valley production worker earning barely enough to survive. We haven't written as much as we would like about the production workers—largely non-white women—because we travel in the world of the professionals, a distant world culturally, financially, and in the checkerboard of Valley neighborhoods, even geographically.

When the **San Jose Mercury News** conducted its survey of Valley workers a few years ago, it actually reached many of those women at the bottom of the high-tech ladder. But the **Mercury News** thoroughly isolated workplace questions from those of family life. It didn't even ask if workers had children!

Santa Cruz sociologist Karen Hossfeld has produced a much more useful study, providing a respectful, valuable glimpse at the lives of Valley production workers. Now on the faculty of Ithaca College in New York, Hossfeld has completed her 400-page UCSC doctoral dissertation, "Divisions of Labor, Divisions of Lives: Immigrant Women Workers in Silicon Valley," (June, 1988).

From 1982 to 1986, Hossfeld conducted 171 in-depth interviews in Silicon Valley, including 84 with production workers and 41 with managers and employers. She indeed confirmed that production workers at electronics assembly subcontractors and semiconductor fabrication plants are underpaid, harassed, and exposed to unhealthy working conditions.

More important, she asked the right questions, linking questions about the workplace to questions about the home and family. She has developed a portrait of immigrant workers—with suitable attention to ethnic differences—which helps explain the conditions that immigrant women workers face, their consciousness of those conditions, and their attitudes toward change.

Hossfeld's thesis not only explains why Silicon Valley is not unionized. It is a valuable resource for anyone who wants to understand the changing fabric of American society. Hossfeld writes, "The central objective of the study is to provide new insights into the relationships between class, sex, race and nationality in the contemporary capitalist social division of labor."

In this brief review we do not claim to evenly summarize Hossfeld's findings. Rather, we provide a taste of her research and analysis. We hope that the paper will be available in published form soon.

Hossfeld found, for example, that most of the workers she interviewed work at least a double-shift. Eighty percent are the largest income-earners in their families, but they are also responsible for most housekeeping and child-raising functions. Other members of the family—usually women from the extended family—do help take care of children during working hours, but that usually imposes a obligation of time or money that must be repaid.

Though immigrant women are often primary breadwinners in their households, most accept discriminatorily low pay because they believe that men are normally the primary breadwinners.

Hossfeld helps explain a conundrum posed by statisticians who have looked at the Valley workforce: How do these women survive on such low pay in an area where living costs are so high. Hossfeld found that most women not only work two shifts—electronics and family—but they take on a third shift, informal employment, such as baking tamales for sale or taking in laundry.

She also observes, "In working class immigrant families with young children and/or others who are unable to work, *economic survival usually requires the labor of a minimum of three adults, usually including at least two women.* One woman is need to work as domestic 'caretaker,' and child care provider, and two additional adults are needed as income earners."

Hossfeld found that many women share their employers' preferences to segregate workers by sex. Women are channeled into assembly jobs, while unskilled men often enter the high-tech workforce as technicians. Many women believe it would disrupt their husband's family authority if they worked on jobs similar to their wives.

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Two women from Taiwan, however, broke into technician's ranks by offering to temporarily do the work until their husbands showed up. (Their husbands never planned to work at the plant.)

Workers do not generally blame racism for their poor treatment in America. Most did not experience racism at home, coming from majority ethnic groups. They generally believe—and there is reason to think they are wrong—that they are at the bottom because they are the newest arrivals. After a while, they or their children will achieve the American dream.

Many Vietnamese feel this way, largely because the original immigrants from Vietnam were upper class in the first place, and they have become role models for the boat people who now make up the bulk of the area's Vietnamese population. But the boat people lack the training, socialization, and even the capital to make the quick climb of their predecessors.

Managers use sexism and racism to control immigrant women workers, but they uniformly fail to recognize the special needs of women or immigrant workers. That is, they pay women less because women are people with a defined inferior social role, but they refuse to subsidize child care, although the child-rearing role of women is equally reinforced by social norms.

Occasionally, women workers, are able to win small concessions by playing on the sexism and racism of managers. For example, one woman could not get a transfer, even though chemicals were causing a rash on her arm. One day, faced with an unusually harsh solvent, she told her boss that the chemicals would ruin her manicure for her sister's wedding. She got the day off.

Hossfeld says that women workers in Silicon Valley normally use many forms of low-level resistance—slowing work, for instance—to make work more tolerable. They recognize that their employers are not benevolent new-age leaders, as high-tech managers are frequently pictured.

Few immigrant women workers, however, have considered unionization. To a large degree, it appears, this is because organizers have not considered many of the questions that Hossfeld asks and helps answer in her dissertation.

CHINA

Flextronics, a Silicon Valley-based contract manufacturer, opened a printed circuit board plant this January in the People's Republic of China. The facility employs 380 people.

Flextronics, the second largest contract manufacturer in the U.S., employs 3,000 people worldwide, "roughly half in the United States and half in Asia." Flextronics carries out production for almost fifty electronics companies, but Sun Microsystems currently accounts for over 28% of its business. Flextronics assembles Sun's engineering workstations. (**San Jose Business Journal**, June 20, 1988)

Meanwhile, China has erected an obstacle in the efforts of American developers of personal computer software to establish universal copyright protection for their products. In March, a Chinese trade delegation told representatives of Ashton-Tate, Autodesk, Claris (Apple), and Microsoft that "China's first modern copyright law won't include protections for software." (**San Jose Mercury News**, March 23, 1988)

MISSED ISSUES?

Once again, it looks like you missed issues of **Global Electronics**, but you probably didn't. In reality, we haven't published since May, when we put out our "March issue," Number 83.

We try to come out monthly, we don't have the resources right now. We've missed months before, but we've managed to hold the newsletter together for eight years.

Please bear with us. Remember, we calculate subscription expirations based upon the number of the issue, not the date.

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VDT'S REGULATED

Local legislators in Suffolk County, New York, have enacted the first U.S. law specifically regulating private employers' use of video display terminals. The law focuses on ergonomic issues, requiring adjustable equipment, periodic breaks from VDT work, and improved lighting. It also provides for annual eye examinations.

The legistlators enacted the law over the veto of the county executive and the opposition of high-tech companies. Computer companies generally endorse the standards the law sets, but they don't like public agencies to get involved.

SEMATECH UPDATE

Semiconductor industry leaders and the Pentagon have ironed out their differences long enough, at least to start Federal funds flowing to the Sematech, the semiconductor manufacturing technology research consortium. They annnounced an agreement in mid-May that allows the Pentagon to share Sematech findings with non-member military contractors, as long as the technology is used solely for military products.

The project is still hampered by a lack of leadership, however. Not only has Sematech not found a chief executive, but its temporary chief operating officer, Carroll Nelson of Motorola, resigned in mid-June to head manufacturing operations at VLSI Technology. (**San Jose Mercury News**, June 17, 1988)

Meanwhile, many smaller chip producers are unhappy with Sematech. T.J. Rogers, founder of Cypress Semiconductor, a fast growing Silicon Valley niche-market start-up, told the **San Jose Business Journal** (May 30, 1988) that "the cost of joining is not only prohibitive for smaller companies but represents a conspiracy to shut them out of research efforts." Rogers also asserts that his company's production technology already surpasses some of Sematech's goals.

Member firms must pay a minimum $1 million annual Sematech membership fee, a $62,000 Sematech sign-up fee, and a minimum $65,000 annual dues for the Semiconductor Research Corp. They must also donate at least five scientists or engineers to the consortium for at least two years, bringing the total price tag to close to $2 million, a little steep for most small semiconductor manufacturers.

GALLIUM ARSENIDE SHIFT

Gallium arsenide semiconductors, which we've always considered a predominantly military technology, may be moving into the commercial sector. **Electronics** (June, 1988), citing GaAs-chip producer GigaBit Logic, says the military and aerospace share of the digital GaAs integrated circuit market may fall from 69% in 1987 to 23% in 1992.

Meanwhile, computer manufacturers are increasing their use of gallium arsenide. GigaBit Logic says the computer share of the digital GaAs integrated circuit market is likely to rise from 14% is 1987 to 45% in 1992. Cray Research, the leading U.S. builder of supercomputers, owns a share of GigaBit Logic. Cray uses Gigabit chips in its latest machines. Prisma, Inc., a Cray spin-off, also plans to use GigaBit circuits. And Digital Equipment, the premier manufacturer of medium-range computers, has bought a 10% to 15% share of GigaBit, comparable to the holdings of Cray and component-producer Analog Devices.

Meanwhile, the Pentagon appears to be souring on gallium arsenide. It cut digital GaAs research from a peak of $35 million in fiscal 1987 to $16 million in 1988. It is seeking $18 million in 1989. Although silicon circuits, which are cheaper and denser, do not provide as much "total-dose" protection from radiation as gallium arsenide, it actually reacts better to "single upsets."

Consequently, the Strategic Defense Initiative ("Star Wars") Organization is boosting its silicon research and development from $24 million in fiscal 1988 to a projected $32 million in 1989. It is funding the development of radiation-hardened silicon-based static RAM's that are at least a generation ahead of their GaAs counterparts. Army program manager Dick Dudney told **Electronics** that silicon is winning out because "it's just a more mature technology."

SILICON VALLER WATER SHORTAGE AND POLLUTION

High-tech companies in the northern section of the city of Santa Clara warned officials this April that any drought-induced cut-off of water from San Franscio's Hetch-Hetchy aqueduct would be extremely costly. At the time it looked like San Francisco, faced with a need to reduce system-wide water consumption by twenty-five percent, might take advantage of Santa Clara and San Jose's

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status as "interruptible" customers, and simply turn off the spigot.

If Hetch-Hetchy supplies were cut off, the companies, including Advanced Micro Devices, IBM-Rolm, and Avantek, would get well water like a large portion of the city, but well water contains a concentration of particulates ten times as high as Hetch-Hetchy. Since high-tech companies rely upon super-pure water, their costs of purification would skyrocket. (**San Jose Mercury News**, April 20, 1988)

In Mountain View this July, city officials reacted to Hetch-Hetchy rationing by reopening a closed well located about a half-mile from a Superfund contamination site. The well was closed a few years ago, in part because water experts feared that pumping would spread the plume.

Now the city says that studies of the deep aquifer from which the public water supply is taken, show that pumping will not reverse the natural, "downhill" flow from the well to the polluted zone. Just in case, the city will be testing not only the well, but the water at two nearby monitoring wells that were drilled by the clean-up team hired by the companies that contaminated the groundwater in the first place.

Meanwhile, the California Water Resources Board is proposing, much to the chagrin of local water officials, that IBM and Fairchild Semiconductor stop wasting contaminated water from their South San Jose clean-up sites. Both firms are pumping underground water that is tainted with solvents from their leaks, and then they're pouring it unused into creeks that flow into the San Francisco Bay.

Contamination levels have fallen considerably since clean-up began a few years ago, and the water board believes it can now be used for drinking. Local officials are unlikely to permit that, but IBM is already recycling water for irrigation and industrial use on its own property. (**San Jose Mercury News**, July 5, 1988)

Clean-up in southern San Jose may be progressing, but Silicon Valley is still dotted with hazardous underground industrial waste. In June the Environmental Protection Agency (EPA) added nine Valley locations to the Superfund clean-up program, including seven high-tech firms, one "recycler" that serviced high-tech firms, and a paint manufacturer. (**San Jose Mercury News**, June 22, 1988)

On a related front, environmental groups are asking that Silicon Valley's three major sewage treatment plants no longer be allowed to discharge metallic wastes in concentrations above EPA standards. The facilities release 60,000 pounds of toxic cadmium, copper, lead, mercury, nickel, silver, and zinc concentrates into the San Francisco Bay each year.

The three plants discharge treated sewage, into the shallow southern reaches of the bay, where standards are stricter than the rest of the bay. Since 1975 they have been permitted to exceed the standards while challenging the rules.

Clifford Maurer, a San Jose/Santa Clara plant administrator, told the **San Jose Mercury News**, (June 29, 1988) that the standards might be impossible to meet. He said, "Does that mean Hewlett-Packard will have to move somewhere else?"

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