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AEROSPACE PAY

Faced with skyrocketing costs in the production of weapons systems, some Pentagon officials have argued for restraints on pay to workers at military contractors. For this reason, the U.S. General Accounting Office has compared pay and fringe benefits in the aerospace industry against compensation in U.S. industry as a whole. The GAO compiled data on the pay rates at 12 aerospace contractors - generally Defense-oriented divisions of aerospace companies and conglomerates - which employed a total of more than 177,000 in 1982. It compared earnings at those firms against figures from the American Management Association and the federal Bureau of Labor Statistics. ("Compensation by 12 Aerospace Contractors," GAO/NSIAD-85-1, October 12, 1984)

The GAO found that executives, who make up about 1% of the aerospace workforce, earn an average of 42% more than their counterparts in all industries nationally. Professionals, who make up anywhere from 40% to 75% of a contractor's payroll, earn slightly less (2.5%) than the national average. Clerical and technical employees, 10% to 20% of the contractors' workforce, receive about 9% above the U.S. average. And factory workers, who are generally unionized at aerospace firms, earn about 8%

above the national average. Factory workers make up 5% to 40% of the payroll at the contractors sampled.

HIGH-TECH MUSEUM

The trustees of the proposed High Technology Center of Silicon Valley have chosen downtown San Jose as their site, after months of inter-city competition in which the Center board extracted ever-increasing promises of subsidies from Sunnyvale, Mountain View, and San Jose. The Center is touted as a hands-on learning center, but it is also expected to serve as a monument to high-tech industry's financial success. Appropriate to a Silicon Valley monument, a poor neighborhood will be bulldozed and "redeveloped" to make room for the project.

JAPANESE CAPITAL

Japanese interests, which have little tradition of venture capital investment, have begun to back start-up companies in the U.S. Tokyo Venture Capital, a division of Dai-Ichi Kangyo Bank, Japan's largest, is putting money into Racet Computers, a peripherals manufacturer in Southern California, and Komag, Inc., a Silicon Valley producer of disk media. (Electronics Week, January 1, 1985)

TESTING

As semiconductor components become increasingly complex, the importance of testing, at various stages of production, is rising dramatically. The **Corporate Times** (January, 1985) cites a top exec from Microtest, a producer of test equipment: "Just a couple of years ago, test accounted for no more than 10 percent of a semiconductor device's total price. Today, test already accounts for 30 percent, and the percentage is increasing so quickly that it may soon approach 70-80 percent. In some devices, such as discrete devices for military applications, test may already account for 90 percent of a device's price."

Military testing requirements are particularly rigid, and the Pentagon has charged most major merchant chip manufacturers with failing to test their products to military specifications. Interestingly enough, no firm has been charged with marketing faulty circuits. Still, the military is starting to require weapons manufacturers to re-test components before assembling them into systems. (**San Jose Mercury News**, December 19, 1984)

The **Corporate Times** describes the "rule of fives," which it says illustrates the value of testing. "If it costs a semi manufacturer \$5 to catch a faulty chip during burn-in, it will cost him \$50 to replace it once it has been installed in a system, and \$500 to replace it in the field, where it has to be serviced by a technician."

"Burn-in" is a process in which chips are placed in chambers heated to 125 or more degrees Celsius, to simulate 1,000 hours at normal operating temperatures. Since chips which withstand burn-in without failure are likely to function properly for as long as 25 years, burn-in testing provides a strong indication of reliability.

TEMPORARY WORK

Silicon Valley reportedly has the highest concentration of temporary employees in the United States. Nationwide, only one in two

hundred non-agricultural workers is a "temp." In Santa Clara County, there are 12,000 in a workforce of 730,000, or about one in sixty. Some high-tech firms, faced with a competitive, cyclical market, rely heavily upon short-term employees. For instance, one third of computer-maker Convergent Technologies' 2,200 workers are listed as temporaries. Most are employed in production. (**San Jose Mercury News**, December 7, 1984)

EPSON AMERICA

Epson, the Japanese manufacturer of computer printers and personal computers, is expanding in the U.S. Epson already has a chip-making subsidiary, S-MOS Systems, in Silicon Valley, and it is opening both a software branch and its Advanced Products Division there. Like many other Japanese operations in Silicon Valley, Advanced Products will serve as a lookout post for the company's R & D staff in Japan.

The company also has announced plans to build a plant, employing 200 people, to produce dot-matrix printers in Portland, Oregon, stating that it prefers Oregon to California because the former has dropped the unitary method of determining corporate income taxes. Epson reportedly holds 40% of the world market for dot-matrix printers.

MICRO NICHES

While IBM, Apple, and a number of other personal computer manufacturers battle on TV, in magazine ads, and on retailers' shelves, some of their competitors have chosen or have been forced to seek niches by teaming up with "value-added resellers," or VAR's. VAR's integrate computers with peripheral devices, software, and training, to supply a system for specific industries or groups, such as pharmacists, churches, or hospitals.

Future Computing, reports the **Peninsula Times Tribune** (November 19, 1984), places the VAR share of the personal computer market at 18%. Computer manufacturers working

through VAR's include small firms such as Victor Technologies, TeleVideo Systems, and Eagle Computer, as well as corporate giants such as Digital Equipment and ITT.

IBM-ROLM

IBM overcame a minor stumbling block in its purchase of the remainder of Rolm Corp.'s stock (see Issue No. 47) when it agreed to sell off Rolm's military computer division. IBM bought Rolm because the company is a rapidly growing technology leader in telecommunications equipment, such as multi-function private branch exchanges.

The military computer division supplies the Pentagon with about half of its supply of rugged, "mil-spec" computers capable of running commercially available software. It accounts for 12% of Rolm's sales and employs 800 people, about 9% of the firm's workforce. The firm, initially organized to market telecommunications products, began making mil-spec computers to help it survive its initial hard times.

Anti-war activists in Silicon Valley have criticized Rolm's military work, noting that Rolm's computers are being acquired for the Cruise missile program. Ironically, several top Rolm executives have been associated with the Creative Initiative Foundation and its Beyond War offshoot, a dedicated and decidedly upper-middle-class nuclear peace group based in Silicon Valley.

The Justice Department insisted that IBM sell off the mil-spec division because the colossus of Armonk indicated plans to market its own mil-spec products in 1985. Some observers argue that Justice obtained the token concession from IBM because of the computer firm's growing dominance in several high-tech markets. (**Peninsula Times Tribune**, November 21, 1984; **San Jose Mercury News**, November 21, 1984)

INDIAN COMPUTERS

Computer output in India is expected to quintuple, from 2,000 to 10,000 machines, in 1985, as a result of the government's new computer policy, which eliminates controls on capacity and plant location while reducing the duties on imported components. The new policy is designed to give manufacturers which build computers and peripheral equipment from scratch, using imported components, an advantage over companies that assemble imported kits. Duties on kits will remain high.

The government also proposes to import up to 2,000 personal computers through the Electronics Trade and Technology Corporation, for use by professionals, at very low rates of duty. Similarly, the Computer Maintenance Corporation will be asked to market software from international suppliers.

TAIWAN

Taiwanese industry, known worldwide for its ability to manufacture copies of anything from Gucci handbags to personal computers, is moving up in the world of high technology. The Taiwan government has encouraged the start-up of three California semiconductor firms, Vitelic, Quasel, and MOS Electronics. Each was founded or co-founded by a U.S.-trained Chinese. All three will produce chips at the Taiwan government's Electronics Research and Service Organization (ERSO) facilities initially, before building - they hope - their own fabrication plants in Taiwan.

In addition, Formosa Plastics, the island's largest private company, is constructing an automated plant for producing printed circuit boards. The project is the brainchild of ERSO's director, and the company is paying Hewlett-Packard US\$2 million to help design the factory. (**Business Week**, November 26, 1984)

TELEVIDEO

Now that all major Korean electronics companies have set up shop in Silicon Valley, it pays to look at the employment practices of the Valley's first major Korean venture, TeleVideo Systems, a Valley start-up run by Korean-born Philip Hwang. TeleVideo, which made Hwang one of America's richest men when it pioneered the offshore manufacture of computer terminals, has had difficulty establishing itself in the brutal race to market IBM-compatible microcomputers.

Don Hoefler, the man who first used the term "Silicon Valley" in print, charges that TeleVideo imports minimum-wage workers from Korea, "under the guise of religious immigrants sponsored by the Baptist Church." (*Corporate Times*, October, 1984)

Televideo currently employs 1,000 people in Silicon Valley and 200 more in South Korea and Puerto Rico. It recently moved its headquarters from Sunnyvale to a renovated garment factory, formerly run by Levi Strauss, in San Jose. (*San Jose Mercury News*, October 11, 1984)

INFLATION

The basic subscription rate for the **Global Electronics Information Newsletter**, which has remained US\$5.00 per year since we first published it in 1980, will rise to US\$10 per year effective January, 1985. There will also be a slight additional increase in subscriptions to Canada and Mexico, to cover actual postage costs. The new rates are:

United States: \$10.00

Canada and Mexico: US\$12.00

Overseas: US\$15.00

We also plan to expand the coverage of the newsletter to include reports on the use of computers and semiconductors, in addition to design and production issues. Furthermore, at some time early in 1985 we hope to enlarge the format as well.

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