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C-5A Subs: The Waters Get Muddier

By JIM STROTHMAN

BURBANK, Calif. — Lockheed Aircraft Corp.'s decision last week to accept the Pentagon's Cheyenne Helicopter offer while rejecting the \$200 million fixed-loss proposal for the C-5A has muddied the waters swirling around its major subs.

There was a flurry of activity in the strategy rooms of the subcontractors, but their deliberations were shrouded in silence to the outside world.

While Lockheed said it will go to the courts to seek a solution to its financial dispute with the government on the C-5A, some subs are wondering what Deputy Defense Secretary David Packard had in mind last month when he said he was seeking a solution which would not ruin Lockheed's subs, particularly on the C-5A.

A Lockheed spokesman said its C-5A electronics sub-

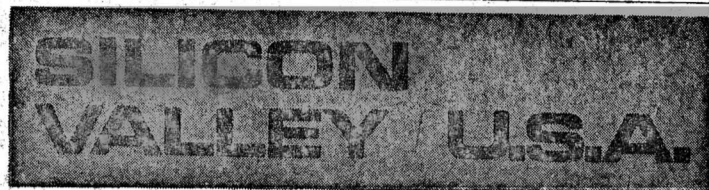
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Valentine Exiting Nat'l Semicon

SANTA CLARA, Calif. — Donald Valentine, the marketing director who put National Semiconductor on the map with aggressive stratagems and no-holds-barred pricing, is leaving the company effective Friday.

Joining the firm a few months after Charles E. Sporck became president in 1966 and brought in a new management team from Fairchild, Mr. Valentine was

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(This is the first of a three-part series on the history of the semiconductor industry in the Bay Area, a behind-the-scenes report of the men, money, and litigation which spawned 23 companies — from the fledgling rebels of Shockley Transistor to the present day.)

By DON C. HOEFLER

It was not a vintage year for semiconductor start-ups. Yet the 1970 year-end box score on the San Francisco Peninsula and Santa Clara Valley of California found four more new entries in the IC sweeps, one more than in 1969.

The pace has been so frantic that even hardened veterans of the semiconductor wars find it hard to realize that the Bay Area story covers an era of only 15 years. And only 23 years have passed since the invention of the transistor, which made it all possible.

For the story really begins on the day before Christmas Eve, Dec. 23, 1947. That was the day, at Bell Telephone Laboratories in Murray Hill, N.J., three distinguished scientists, Dr. John Bardeen, Dr. Walter Brattain and Dr. William Shockley, demonstrated the first successful transistor. It was made of germanium, a point-contact device that looked something like a crystal detector, complete with cat's whiskers.

The three inventors won the Nobel Prize for their efforts, but only one of them, Dr. Shockley, was determined to capitalize on the transistor commercially. In him lies the genesis of the San Francisco silicon story.

It was only by a quirk of fate, however, coupled with lack of management foresight, that Boston failed to become the major semiconductor center San Francisco is today. When Dr. Shockley left Bell Labs in 1954, he headed first for New England to become a consultant to Raytheon Co., with a view toward establishing a semiconductor firm there under its auspices.

His financial plan called for a guarantee to him of \$1 million over a 3-year period — hardly unreasonable by today's standards. But the Raytheon management 16 years ago couldn't see it, so Dr. Shockley left the company after only 1 month.

See SILICON, Page 4

Peripherals Firms Dig in Against IBM On Tape, Disk Price

Independent peripherals makers dug in last week for a long and strenuous price war with industry leader IBM.

The battlefield is the market for plug-compatible tape and disk drives, and the independents had to move their trenches back after a series of IBM advances involving cheaper models of both.

The list of companies that cut rental prices last week reads like a who's who of the independents — Telex, Potter, CalComp, Marshall and Tracor for openers, with Ampex and Memorex understood to be poised on the brink of cuts of their own.

This new tactic follows an earlier attack through legal channels when the independents' trade group, the Computer Peripheral Manufacturers Association, asked the Justice Department and Congress to take anti-trust action against IBM (EN Dec 28).

The targets are IBM's 2319 disk drive and 3420 tape drive families, which have left the independents with an exposed flank — namely prices higher than IBM's.

The price cuts among independents that came to light last week included a 22 per cent slash by Telex on its 5312 disks, to 9 per cent below IBM, and some 25 per cent on its IBM compatible tape drives, effective May 1.

Potter Instrument Co. immediately let it be known that it also was cutting prices and, furthermore, that some cuts would be effective at once and would amount to 10 per cent below IBM.

California Computer Products then got into the act with immediate 10 per cent cuts on its TD 1412 disk in yet another assault on the IBM 2319.

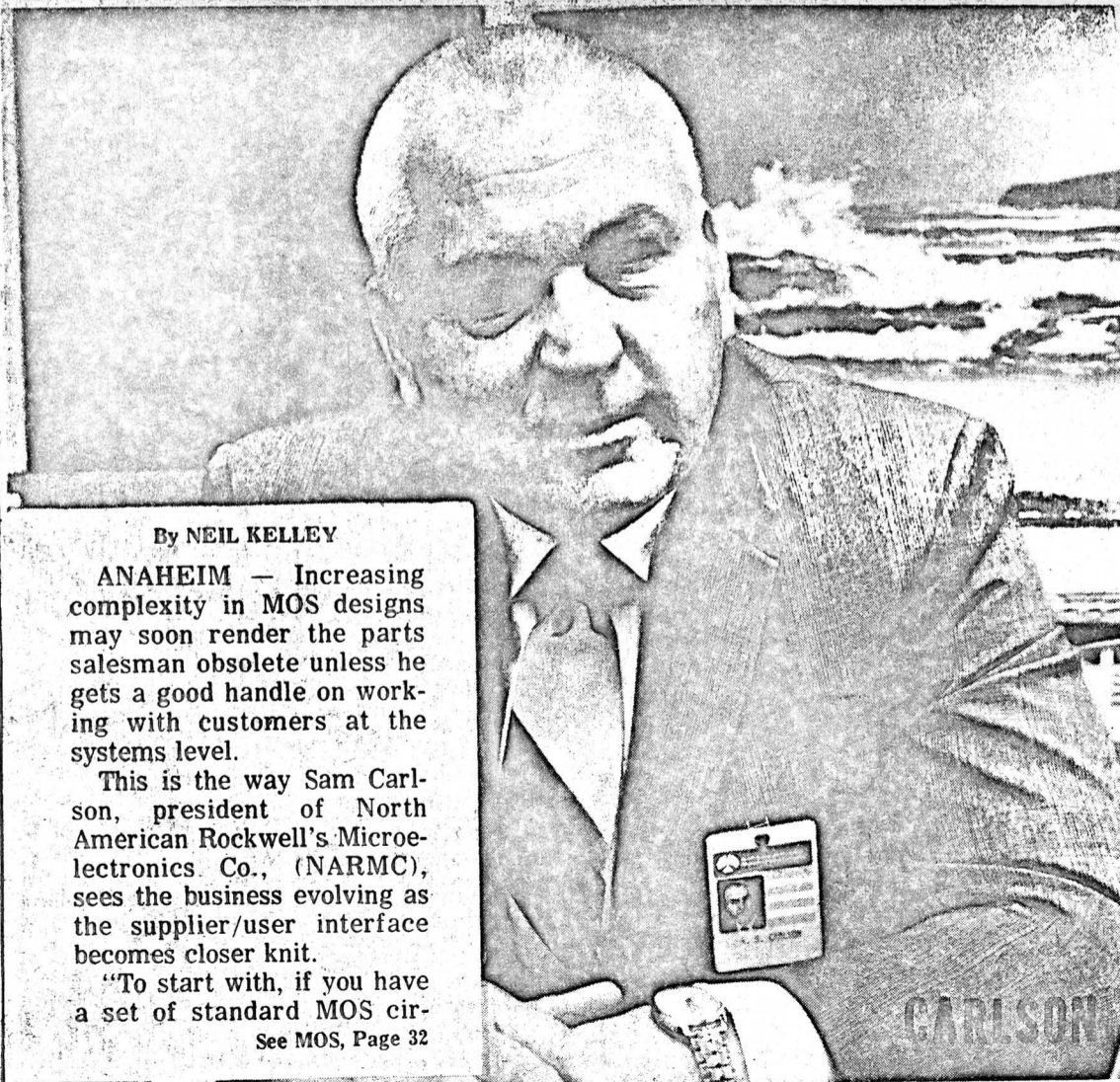
Not to be outdone, Tracor Data Systems slashed the prices of its TDS-733 833 disk drives to a level the company claimed was 15 per cent below IBM. There was no mincing

See PATTERNS, Page 16

Stock Price Wrapup

Minus signs were rampant among the glamor issues in 1970 as prices dropped along a broad front of semiconductor, computer and instrument companies. Value of some issues dropped as much as 78 per cent for the year.

Details of the 1970 price range of major industry issues appear on page 44.



By NEIL KELLEY

ANAHEIM — Increasing complexity in MOS designs may soon render the parts salesman obsolete unless he gets a good handle on working with customers at the systems level.

This is the way Sam Carlson, president of North American Rockwell's Microelectronics Co., (NARMC), sees the business evolving as the supplier/user interface becomes closer knit.

"To start with, if you have a set of standard MOS cir-

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