

How an engineering group at Memorex spawned most of today's disk drive industry

Life After Memorex

BY SABIN RUSSELL



Alan Shugart. Chairman and CEO. Seagate Technology, Scotts Valley, Calif. In 1969 brought key IBM engineers with him to Memorex, where he was R&D vice-president. Launched Shugart Associates in 1973, co-founded Seagate in 1979.

They were probably the finest collection of engineers of their kind in the world. In an obscure department at Memorex Corp. during the early 1970s, they designed the "3670," a complex computer memory that stored data on a spinning stack of magnetic disks, which became one of Memorex' most successful products.

But the real story is what has happened since to the men who designed it. Memorex, drained of resources by a failed attempt to compete with IBM in the mainframe computer business in 1972, had no real followup projects for the charged-up engineers. Inspired by their own success, they scattered for ventures of their own. Out of that Sunnyvale, Calif., unit, which never numbered much more than 100 engineers, at least 29 went on to found companies. The group's entrepreneurial fervor continues a decade after it began. Don Massaro's Metaphor Computer Systems will launch a sophisticated office computer workstation this fall. Tony LaPine's LaPine Technology is bringing out an advanced compact disk drive for portable computers.

When the group's engineers began to go their separate ways in 1973, not one was a top figure in Memorex' corporate hierarchy. But in the years since, many have become key players in today's disk drive industry, which last year had worldwide sales of \$15 billion, according to analyst James Porter of Disk/Trend Inc. From the group, officially known as the Development Engineering Department for Storage Systems, several generations of innovative companies were spawned in somewhat the same manner as Fairchild Camera & Instrument mothered much of California's semiconductor industry. "Silicon Valley is populated by companies run by or founded by people from that [Memorex] group," observes venture capitalist Jim Bochnowski of Technology Venture Investors.

Who are some of these company founders from the group? Herb Thompson, chairman of Drivetec Inc.; Duane Meulners, president of Dymek Corp.; Brent Nilson, president of Microtek Storage Corp.;



Tony LaPine. Chairman, CEO, and President of LaPine Technology Corp., Santa Clara, Calif., which he founded in July, 1983. Left Memorex in 1980 after 11 years. Used R&D partnership to develop compact Winchester disk drive.



James Morehouse. Founder and vice-president of Amcodyne Inc., Longmont, Colo. Left Memorex in 1973 for jobs at Disk Systems and Storage Technology. Founded Amcodyne in 1981. Maker of removable hard disk drive.



Mike Monett. President of Memory Technologies Inc., Santa Clara, Calif. Left Memorex in 1974. Founded MTI in 1976 after stints at Diablo Systems and Storage Technology. Disk drive analysis tools reaped sales of \$2.5 million in 1984.



Geoffrey Lee. Executive vice-president, Britton-Lee, Los Altos, Calif. Lee founded firm in 1978, one year after leaving Memorex to start International Memories Inc. Projects \$20 million sales of data base management systems in 1984.



Finis Conner. Vice-Chairman Seagate Technology, Scotts Valley, Calif., which he co-founded in November, 1979. In 1973 he co-founded Shugart Associates. Sales of 5 1/4-in. rigid disk drives topped \$243 million during nine months of FY 1984.

Bill Silbert

MEMOREX SCRAPBOOK



Drivetec Inc. founders: **Johan Willems**, vice-president of engineering, **Herbert Thompson**, chairman, San Jose, Calif. maker of floppy disk drives was launched in 1981. Thompson played key role in development of floppy disk at IBM before moving to Memorex. Later he co-founded Shugart Associates. Franchini left Memorex in 1973 to join Shugart Associates, and was director of engineering there when he quit in 1981. Willems left Memorex in 1974 and worked at Storage Technology, back at Memorex, and at Fortune Systems before co-founding Drivetec. Projected 1984 disk drive sales of \$35 million.



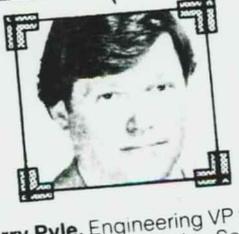
Syed Iftikar, Chairman, CEO, and President Syquest Technology, Fremont, Calif. Founded in 1982. Co-founded Seagate Technology in 1979 after nine years at Memorex. Syquest produces removable hard disk drive.



Don Massaro, President Metaphor Computer Systems, Mountain View, Calif. Founded in October, 1982. Co-founder in 1973 of Shugart Associates. Named president in 1974. Sold to Xerox in 1978. Office workstation due out this fall.



Duane Meulners, President of Dymek Corp., San Jose, Calif. Left Memorex in 1973. Founded Dymek in 1978 after jobs at Xerox K-Tronic, and Tandon. 1983 sales of \$7 million making tools for manufacture and test of disk drives.



Larry Pyle, Engineering VP for Data Management Labs, San Jose, Calif. Co-founded Shugart Associates in 1973, Bicar Corp. 1976, and DML 1978. Sold majority of DML to Dysan in 1983.



Terry Johnson, President of Miniscribe Corp., Longmont, Colo. Left Memorex in 1973. Founded Miniscribe in 1980 after jobs at Disk Systems Corp. and Storage Technology. Winchester disk drive sales of \$76 million in 1983.



David Brown, Engineering vice-president of Quantum Corp., Milpitas, Calif. Quit Memorex in 1973 for Shugart Associates, where he stayed seven years. Founded Quantum in 1980. Disk drive sales of \$67 million for FY 1984.

OTHER NOTED '3670' ALUMNI

Other Memorex Storage Systems alumni who have become entrepreneurs include: **Brent Nilson**, president, and **Warren Dalziel**, director of engineering, for Microtek Storage Corp., San Jose, Calif. Founded in 1982. Now a subsidiary of Tandon Corp., an original backer. Microtek makes tape memories used to back-up rigid disk drives.

Mike Juliff, engineering vice-president of Qubex Corp., San Jose, Calif. Founded in 1980. Rigid disk drive test equipment maker that went out of business 1984.

Howard Steinhoff, president Garlic Technology, Morgan Hill, Calif. Founded 1982. Makes disk drive recording heads.

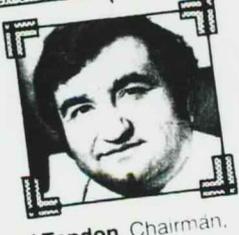
Neil Glover, Worked briefly at Memorex in 1972. In 1979 founded Data Systems Technology, a Boulder, Colo., consultancy specializing in error-correction codes. Now an engineer at Storage Technology Corp., Louisville, Colo.

Roy Applequist, Co-founded Miniscribe, Longmont, Colo., in 1980. In 1973 was a co-founder of Disk Systems Corp., a startup funded by Storage Technology Corp. and acquired by it in 1974. Remains a Miniscribe director.

Bill Krajewski, Co-founder and vice-president of Syquest Technology, Fremont, Calif., in 1982.



David Osborne, Founder, marketing VP Entrepo Inc., Sunnyvale, Calif. Left Memorex in 1973 for Spectra-Physics. Founded Entrepo in 1982. Maker of fast cassette tape memories for portable computers.



Jugi Tandon, Chairman, President Tandon Corp., Chatsworth, Calif. Quit Memorex in 1973 for Porter Computer. Founded Tandon in 1975. Disk drive sales topped \$303 million in FY 1983.



Most of the founders of the computer disk drive industry are pictured in this collage, a photograph of a bulletin board at Memorex' elite Storage Systems engineering corps. Venture capitalist Art Spinner of Hambro International tracked down this copy in an alumnus' office

and Terry Johnson, president of Miniscribe Corp. For the most part, they have achieved success as entrepreneurs that would not likely have been possible at Memorex. Consider Sirjang Lal "Jugi" Tandon, a design engineer in the Memorex group: Today he's president of Tandon Corp., a Chatsworth, Calif., firm that is the leading maker of small floppy disk drives for personal computers. The company he founded in 1974 earned \$23.7 million on sales of \$303 million in fiscal 1984, and Jugi Tandon's 10% of the company is worth about \$40 million, despite the depressed stock market.

What was the source of this entrepreneurial drive? Most fingers point to the group's leader, Alan Shugart, a charismatic IBM technologist who brought most of the engineers from the labs of IBM to Memorex in 1969. Dubbed the Pied Piper by his followers, he had quit IBM in 1969 to set up Memorex' Storage Systems Dept. Shugart himself oversaw the engineering group in his role as corporate vice-president of research and development. In 1973, he walked out of a financially ailing Memorex with a group of his engineers to found Shugart Associates. The new company subsequently commercialized the floppy disk drive used by most desk-top computers today. In 1979, he pulled another group of his engineering acquaintances to launch Seagate Technology, which today is the leading maker of rigid Winchester disk drives.

Actually, Shugart's Storage Systems group—initially a subsidiary—was an entrepreneurial model from the start. Key engineers were recruited with Storage Systems stock options at \$1 a share and the promise, later fulfilled, that their stock would be converted to Memorex shares—which were trading as high as \$180 each. "It allowed for a decompression from IBM through an IBM-like situation. It gave [the engineers] a place to transfer from a paternal culture to entrepreneurship," says Tony LaPine, who left Memorex in 1980. Yet, Memorex' failure to capitalize on the talent it had left many

engineers hanging. "When they wrapped up the '670 project, what was there to do next? Nothing," says Dymek founder Meulners. "They almost encouraged them to walk out the door."

Memorex' financial position was so precarious, Shugart says, that he was uncertain it could meet its payroll. "Things looked bad at the end of 1972," he says. Memorex stock, once a Wall Street favorite, was trading by then in the \$30 range, and would hit a low of 1 $\frac{1}{8}$ in 1975. Shugart was among the first to break ranks, leaving in January, 1973.

One year later, it was mounting losses that forced him out of his own company, Shugart Associates, in December, 1974. After a stint as a commercial salmon fisherman, bar owner, and independent consultant, in November, 1979, he re-entered the disk business with Seagate Technology, where today he is chairman and chief executive of the company that racked up \$243 million in sales during the first nine months of fiscal 1984. Among the co-founders were two alumni from the Storage Systems department: Syed Iftikar, who would spinout his own firm in 1982, and Finis Conner, now Seagate vice-chairman.

The wave of entrepreneurship started at Memorex continues to roll. Don Massaro followed Al Shugart from IBM to Memorex, and from Memorex to Shugart Associates. He took over that company on Shugart's exit, made it profitable, and sold it to Xerox, where he became president of the Office Products division. Today, he is president and co-founder of Metaphor Computer Systems, a two-year-old firm that will introduce this year a system of office workstations with custom-designed software that can be linked to mainframe computers.

Geoffrey Lee quit Memorex in 1977 to help found disk drive maker International Memories Inc. (IMI). A year later, he joined IMI co-founder David Britton to launch Britton-Lee Inc., today a manufacturer of database management processors designed to sort enormous batches of information. Larry Pyle left Memorex in 1973 and co-founded Shugart Associates. Three years later, he teamed with John Henry, another Storage Systems alumnus, to found Bicaro Corp., an unsuccessful attempt to make small business computers. Undaunted, in 1978, the two co-founded Data Management Labs (DML), a maker of equipment that controls disk drives used with Digital Equipment Corp. mainframes. In 1981, Henry quit DML to start OMTI, a maker of controllers for smaller Winchester disk drives. (The acronym stands for One More Time Inc.) Indeed, Memorex' Storage Systems group was entrepreneurial by design, and with its collapse, many alumni became entrepreneurs out of necessity. Bitten by the entrepreneurial bug, they never got over it. ∇