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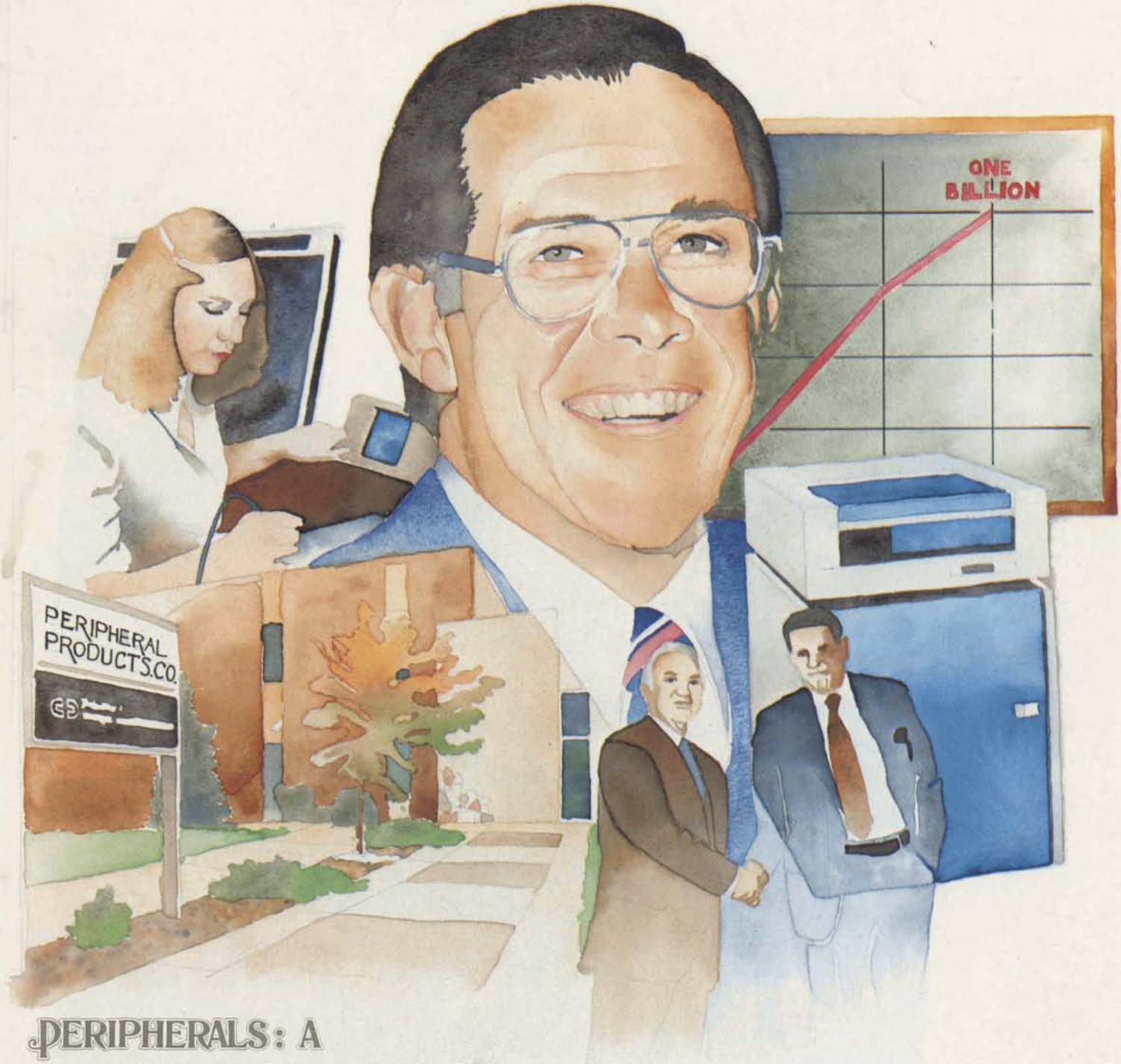

PERIPHERALS: A BILLION-DOLLAR BUSINESS

November 1980

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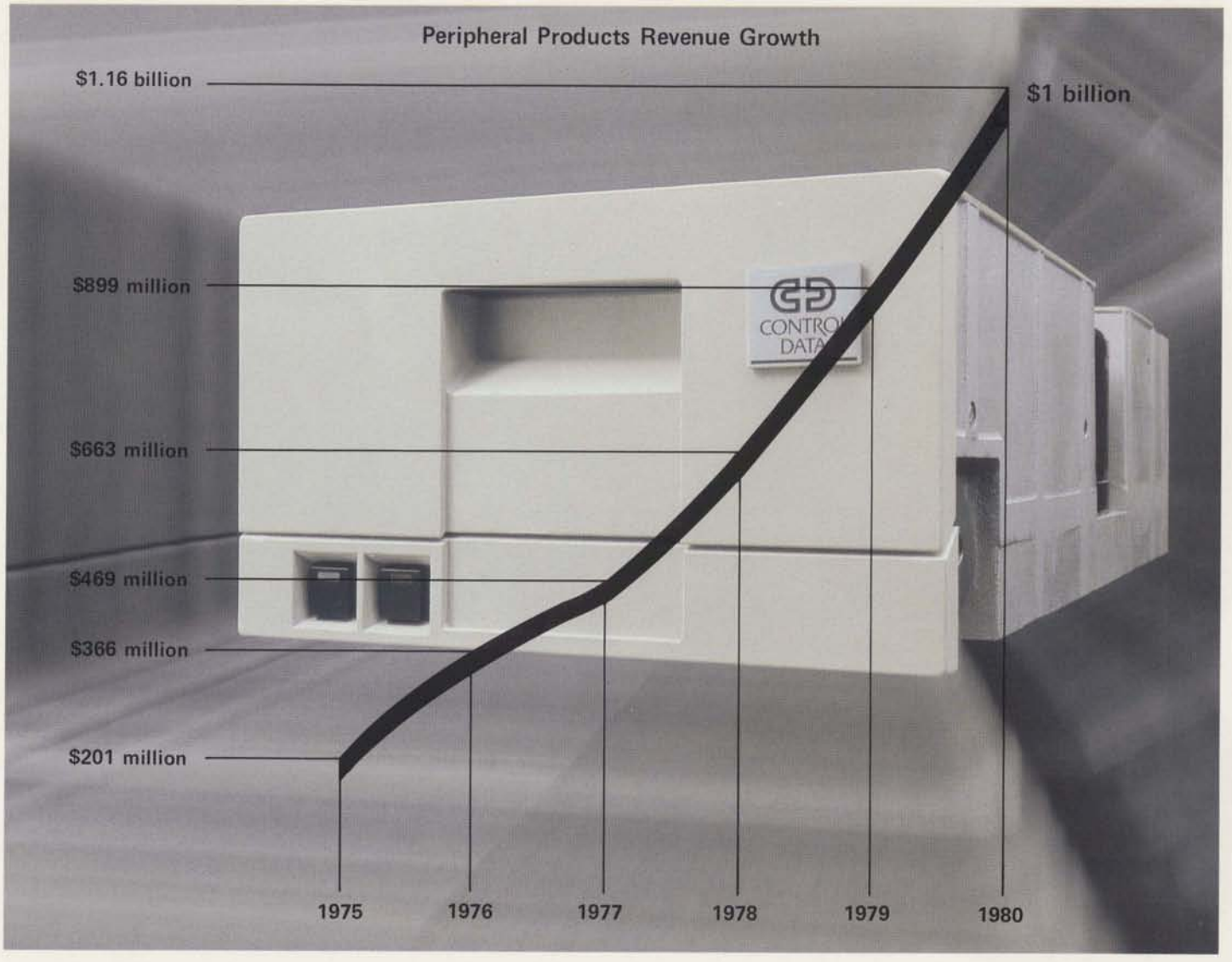
On its 20th anniversary, the Peripheral Products Company, has reached $1 billion in revenue.

This month for the first time Control Data's Peripheral Products Company will break the billion-dollar barrier in annual sales revenue. By year end, the Peripherals Company is forecasting total revenues of $1.16 billion.

That is a monumental accomplishment for Peripherals, which over the last few years has been one of Control Data's stellar performers contributing a major portion of the corporation's revenue and profit.

Peripheral Products—which builds and sells computer peripherals, those products such as disk drives, tape drives and printers, used by computers for storing data and moving data in and out of the central processor—has seen a dramatic rise in revenue over the past five years. In 1975 the business' revenue was $200 million. Each succeeding year, revenues jumped significantly and last year hit $900 million. From 1975 through this year revenue has climbed 480 percent.



Peripherals has more than 17,000 employees, occupies four million square feet of manufacturing space in 34 facilities around the world, and, according to company figures, produces a peripheral product every 36 seconds, around the clock, seven days a week. It is the largest supplier of peripheral products, other than IBM, in the computer industry, and some industry observers are not sure that they aren't surpassing IBM in total products produced.

With this year's record level of business, Peripherals by itself would rank near the midpoint in the Fortune 500 ranking of the 500 largest industrial corporations in the United States.

The Peripheral Company's largest business segment is supplying peripherals to original equipment manufacturers (OEM). Nearly 1,000 other companies that manufacture computers, such as Digital Equipment Corporation, Honeywell and Wang, buy peripherals from Control Data, put their name plates on them and ship them to customers with their mainframes. Last year Peripherals' OEM business received orders of nearly $500 million, and as of October of this year, that level has been far surpassed.

In addition to OEM, the Peripherals Company serves two other business segments—computer supplies and the IBM end-user peripherals market. In the first area, Business Products is one of the computer industry's leading suppliers of magnetic disks, magnetic tape and printer ribbons. Business Products has had a sustained record of revenue growth ever since the first quarter of 1976 and this year is no exception. It is predicting in excess of $200 million in revenue through year-end, even though it divested itself of the computer forms business in order to focus its resources on manufacturing magnetic disks, its best selling product line.

The third business segment involves the IBM plug-compatible market, supplying Control Data peripherals to users of IBM computers, both large-scale mainframes as well as the Series 1 minicomputers. Although not as large as its fellow OEM and Business Products divisions, the Peripheral Systems Group, as it is called, supplies products to over 2,000 installations among some 850 customers.

Tom Kamp, president of the Peripheral Products Company, says Control Data chose this market because it increases product volume thereby lowering individual unit manufacturing costs and because it keeps Control Data aware of IBM's peripheral products and technologies.

Peripheral Products Company's success and phenomenal growth has resulted, according to Kamp, who has headed the business since its inception, from five factors. First, he says, was Control Data's recognition—particularly Bill Norris' shrewd intuition—in the early 1960s that there was an attractive market in selling peripherals to other equipment manufacturers, despite the fact that it was a unique new business not accepted in the then infant computer industry.

"We recognized that the investment required to stay in the peripherals business was so large that unless you had massive volume, you couldn't afford to be in it," Kamp remembered. By the late 1960s, technology was advancing so rapidly that when other companies just entering the business would announce products, they would already be out of date. "It turned out

FORTUNE 500 LARGEST INDUSTRIALS

RANK	COMPANY	SALES ($000)
251	Sherwin-Wil[illegible]	1,196,343
252	Baxter T[illegible] [illegible]field, Ill.)	1,191,193
253	Ches[illegible]	1,174,274
254	Cl[illegible]	1,169,248
255	[illegible]	1,168,811
256	[illegible]	1,161,295
257	[illegible]	1,157,700
258	[illegible]	1,148,105
259	[illegible]	1,144,922
260	[illegible]	1,140,813
261	[illegible]	1,132,897
262	[illegible]	122,391
263	Na[illegible]	[illegible]96
264	Airco [illegible]	[illegible]
265	Interlake [illegible]	1,104,[illegible]
266	**Richardson-Merrell** (Wilton, Conn.)	1,090,546
267	Superior Oil (Houston)	1,085,394
268	**Pennwalt** (Philadelphia)	1,079,303
269	Hammermill Paper (Erie, Pa.)	1,076,560
270	**Zenith Radio** (Glenview, Ill.)	1,075,165
271	Whittaker (Los Angeles)	1,073,634
272	**Gannett** (Rochester, N.Y.)	1,065,244
273	Amstar (New York)	1,056,376
274	**Crown Central Petroleum** (Baltimore)	1,054,771
275	Blue Bell (Greensboro, N.C.)	1,029,453
276	**Avnet** (New York)	1,028,133
277	Pitney-Bowes (Stamford, Conn.)	1,024,949
278	**Johnson Controls** (Milwaukee)	1,024,448
279	CF Industries (Long Grove, Ill.)	1,023,149
280	**National Gypsum** (Dallas)	1,017,565
281	AMP (Harrisburg, Pa.)	1,013,241
282	**West Point-Pepperell** (West Point, Ga.)	1,012,560
283	Akzona (Asheville, N.C.)	1,012,398
284	**Rexnord** (Milwaukee)	1,010,225
285	Campbell Taggert (Dallas)	1,007,360
286	**Liggett Group** (Montvale, N.J.)	995,213
287	Lone Star Industries (Greenwich, Conn.)	991,864
288	**G. D. Searle** (Skokie, Ill.)	984,006
289	ACF Industries (New York)	982,896
290	**Harris** (Melbourne, Fla.)	982,111
291	Knight-Ridder Newspapers (Miami)	979,919
292	**Universal Leaf Tobacco** (Richmond, Va.)	978,174
293	Kaiser Steel (Oakland, Calif.)	975,247
294	**Witco Chemical** (New York)	966,758
295	Ex-Cell-O (Troy, Mich.)	961,867
296	**R. R. Donnelley & Sons** (Chicago)	957,807
297	Lever Brothers (New York)	951,500
298	**Wheelabrator-Frye** (Hampton, N.H.)	946,923
299	Harsco (Wormleysburg, Pa.)	945,275
300	**Scovill** (Waterbury, Conn.)	941,602

With $1.16 billion in revenue this year, the Peripheral Products Company by itself would place about 256th in last year's Fortune 500 largest industrial corporations.

they could buy from us cheaper than they could make peripherals themselves," Kamp said.

The second contribution to success was the recognition that disk drives were superior to tape transports. In the mid-1960s when IBM announced its new disk drives, Control Data soon followed with its own drives.

"We were the only two companies with disk drives," Kamp recalled. "Customers could either buy from IBM at $25,000 a machine or from us for $9,000. A great many bought from us."

A third major factor was Control Data's decision not to follow IBM's lead in 1973 when it announced a decision to stop making disk drives with standard removable disk packs. "Our market analysis showed that customers wanted removable storage. After a lot of planning, we decided to make the storage module drive (SMD) with an inexpensive removable disk pack," Kamp said. "Customers could simply buy another disk pack when they ran out of space instead of buying another new disk drive or another expensive assembly containing heads, disks, and actuators. Since then we've sold more than 80,000 SMDs and it has become the world standard."

The fourth factor was the far-sighted vision in the early 1970s that the greatest growth area in the computer industry would be in minicomputers. "That turned out to be correct and our small disk drives boomed," Kamp said.

The fifth factor was our decision to establish joint and cooperative ventures with other computer companies in order to share development costs and increase production volume. "We were all competing against IBM and the foe was so big and the expenditure to keep up so great that we had to cooperate," Kamp explained.

Although these five factors were instrumental in leading the company to its position today, Kamp added that in the last analysis success has to be attributed to the dedicated people throughout Peripheral Products. "They made it happen. Even with the right decisions, someone has to make it happen," he said.

Plans for the 1980s predict that by 1985 the OEM business alone will generate $2 billion in annual sales from current and future products, ranging from small 5¼-inch disk drives to super Coronado-type disk drives, and from a complete line of band and non-impact printers to a new line of tape products.

But if Peripheral Products is going to make it happen and at the same time dramatically increase profit margins—a first-rate challenge not just for Peripherals but for all of Control Data—Kamp says they need to take a whole step up in the quality of their products.

"It's critical to our future growth and profitability that we go beyond our present reputation for high technology and high quality," he said. "What was considered good quality in the 1960s and '70s is not acceptable in the 1980s."

According to Kamp, it used to be acceptable if nine out of every 10 products shipped worked perfectly when customers plugged them in for the first time—90 percent "plug and play" as he called it. Now the industry is requiring 98.5 percent plug and play.

"The need for improved quality is not just on the assembly floor," Kamp said. "Only 20 percent of the quality of our products can be attributed to the assembly function. The remaining quality has to come from the engineers who design the products, from the salespeople who sell them, from the clerical employees who type the contracts, and from the managers who allocate the capital equipment. If our products are going to be able to compete in the marketplace, everyone of us has to do our jobs *right* the first time."

Kamp is particularly concerned about the competition coming into the marketplace now from both Japanese and German companies. He says both countries' governments subsidize the research and development costs of their computer industries with hundred-million-dollar grants. For that reason their products don't have as big a development cost load and can be priced more competitively. "To stay in business, we have to become extremely efficient and produce even better quality products," he said.

According to Kamp, though, the company is on the road toward meeting these objectives. A major new quality program has been launched and is being implemented with the same dedication typical of Peripheral employees in the past.

"It feels good to become a billion-dollar company because it means we are big enough to afford the development costs it takes to stay competitive," he said. "In that, we are ahead of schedule. We were trying hard to present Bill Norris with a billion-dollar business by Control Data's 25th anniversary. We're not apologizing, though, for getting there two years early. We're going to try to make it a $1.5 billion present."

EARLY DAYS at Peripheral Products

The peripheral products business started in 1959 when the two-year-old Control Data Corporation needed a paper tape reader for one of its 1604 computers because it was having trouble obtaining one from another supplier. Bill Norris turned to Cedar Engineering, Control Data's first acquisition, and asked the electronics firm to build one. Cedar did, and it became the first peripheral product.

But the peripherals business didn't really begin full steam until 1960. Control Data's 1604, the first transistorized computer, exercised the tape transports supplied by Ampex harder than they had ever been run before. Oxide was smearing on the surface of the tape, resulting in lost data. Ampex didn't respond to correct the problem, so Control Data decided to build its own tape drives. Again, Bill Norris turned to Tom Kamp, general manager at Cedar Engineering.

Kamp started on the project with five employees and 800 square feet of space. They began work on a 16-hour-a-day, seven-days-a-week basis.

At the same time, Control Data's management team decided to develop a full line of peripherals. So in November 1961 Control Data announced the formation of the Peripheral Equipment Division. Its first two products would be the 350 Punched Paper Tape Reader and the 606 Magnetic Tape Unit. The Division was centered in a new 76,000-square-foot facility in a Minneapolis suburb, built on land that had been a marsh. The new facility became known as Normandale.

Tom Kamp (left) and Lloyd Thorndyke (right) posed with Control Data's first disk drive built in 1964.

At the opening of the Control Data, Ltd., manufacturing plant in Wales in 1974, Tom Kamp (left) presided as the Wales Secretary of State plants a Goldsworth purple maple tree. The tree died two years later, but the business kept growing.

Cedar Engineering Gets New General Manager

A change in the management of the Cedar engineering division of Control Data Corp. was announced today by William C. Norris, Control Data president.

New general manager at Cedar is Thomas G. Kamp, who had been plant manager since 1957. He replaces E. J. Manning, who had been general manager since Cedar was acquired by Control Data in November 1957.

Manning, a vice president and director of Control Data, will be assigned new duties, Norris said.

Kamp, a graduate of the University of Minnesota in 1949, was assistant chief production engineer at Lear, Inc., Grand Rapids, Mich., before joining Cedar. Kamp also has worked for the AC spark plug division of General Motors and for Minneapolis-Honeywell's aero division.

The Cedar division makes high precision airborne electromechanical instruments, including components for the Bomarc missile and the Sparrow III missile.

Kamp

In 1959, Tom Kamp was promoted to head Cedar Engineering, Control Data's first acquisition.

The first three tape units were finished in April 1962. Control Data tested them on one of its small military computers for two weeks, then shipped them to the Spring Joint Computer Conference on May 1 in San Francisco.

"We had dinner with NCR the first night of the conference," Kamp recalls, "because we knew they were also using the Ampex tape transports and were probably having the same trouble we were."

Those initial negotiations eventually led to NCR purchasing thousands of tape units from Control Data over the next eight or nine years. "That was the beginning of the OEM business," remembers Lloyd Thorndyke, one of the first engineers to work on the tape unit. Thorndyke is now senior vice president of Control Data's super computer operations.

Also in January 1964, Control Data launched a joint venture with Holley Carburetor Company called Holley Computer Products Company to develop and manufacture printers. The new firm eventually built a plant in Rochester, Michigan, which today is still the site of Control Data's printer operations.

In 1964 Control Data made another acquisition, Bridge Incorporated, a computer card equipment company in Philadelphia. The firm was set to work producing a card reader and a new plant was built in Valley Forge, which is now where Peripheral Products Company's tape drives are built.

Another acquisition in 1964, Rabinow Electronics, Inc., became the subsidiary working on optical character recognition devices.

The real growth of the peripherals business, though, occurred when Control Data found its way into the disk business. Control Data management saw the advantages of disk drive computer memory and shortly after IBM announced its disk product, in the mid-1960's, Normandale developed the 852 disk drive, which was compatible with IBM's. Prior to that Control Data had been using a 36-inch disk with its 6600 computer. But again, performance shortfalls with that machine added impetus for Control Data to develop its own disk.

The 852 was soon followed by the 853, which had increased capacity over IBM's, using Control Data's own formats, and that was followed by the 854, which doubled IBM's capacity.

By 1965 Control Data had a complete peripheral product line and its jackrabbit entry into the disk business, complemented by a general lack of interest in the rest of the industry, allowed Control Data to be a successful outside builder of IBM-type disks.

It was a bonanza for Control Data. Within a few months, 2,000 drives were sold to Honeywell for $20 million and one Saturday night Control Data wrapped up a $35 million order from General Electric. Eventually Control Data was selling disk drives to nearly every other U.S. computer manufacturer and to many foreign firms as well.

Now, a 675 Mbyte disk drive with an SMD interface...

...from the people who invented the SMD.

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And better yet, it comes with our popular SMD interface. So it can be attached to the same controller that you probably are using already. That means you don't have to change your basic system design every time your storage requirements change. That means easier system integration and simple field upgrades.

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