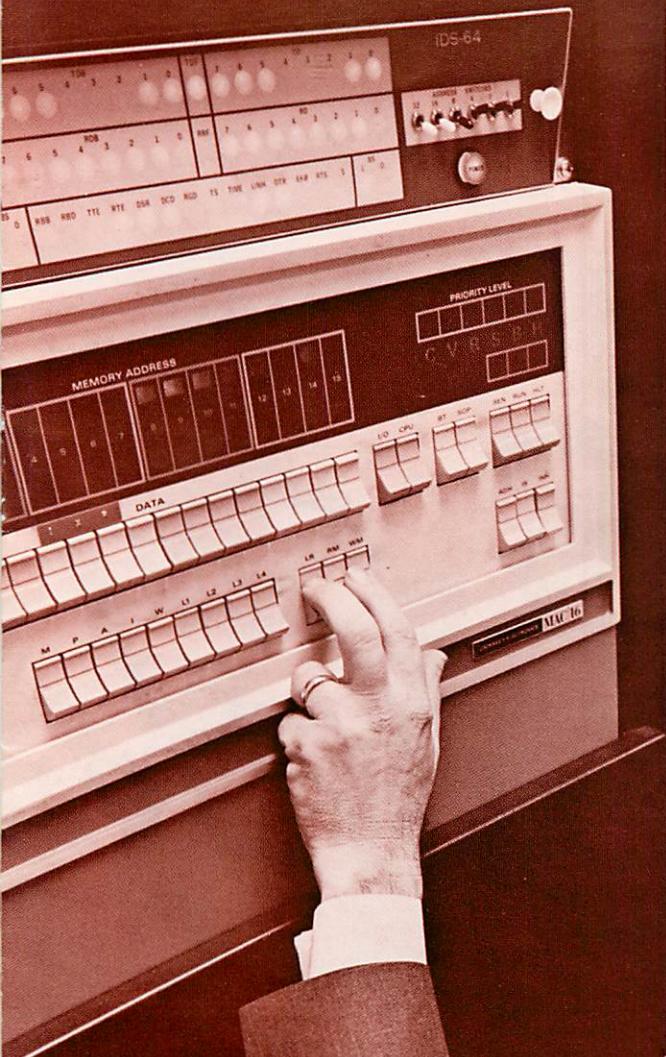


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THE COMPUTER HISTORY MUSEUM

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COMPUTER

Computer Ribbons Added To IMG Product Line

Jack Stark puts a new Memorex ribbon on an IBM 1403 Line Printer in the IMG Computer Center. With him is Dean McCoid, manager of Product Planning. Notice the plastic gloves Jack is wearing to keep his hands clean. They come with the ribbon, in the box Dean holds.

The Computer Media Division of IMG began marketing a complete line of computer ribbons early this year, according to Dean McCoid, manager of Product Planning.

The product line includes inked ribbons for line printers made by IBM, Honeywell, CDC, GE, Burroughs, NCR, RCA, Data Products and others. In addition, we have a wide range of computer ribbons for other data processing equipment like keypunch, interpreter and unit record machines.

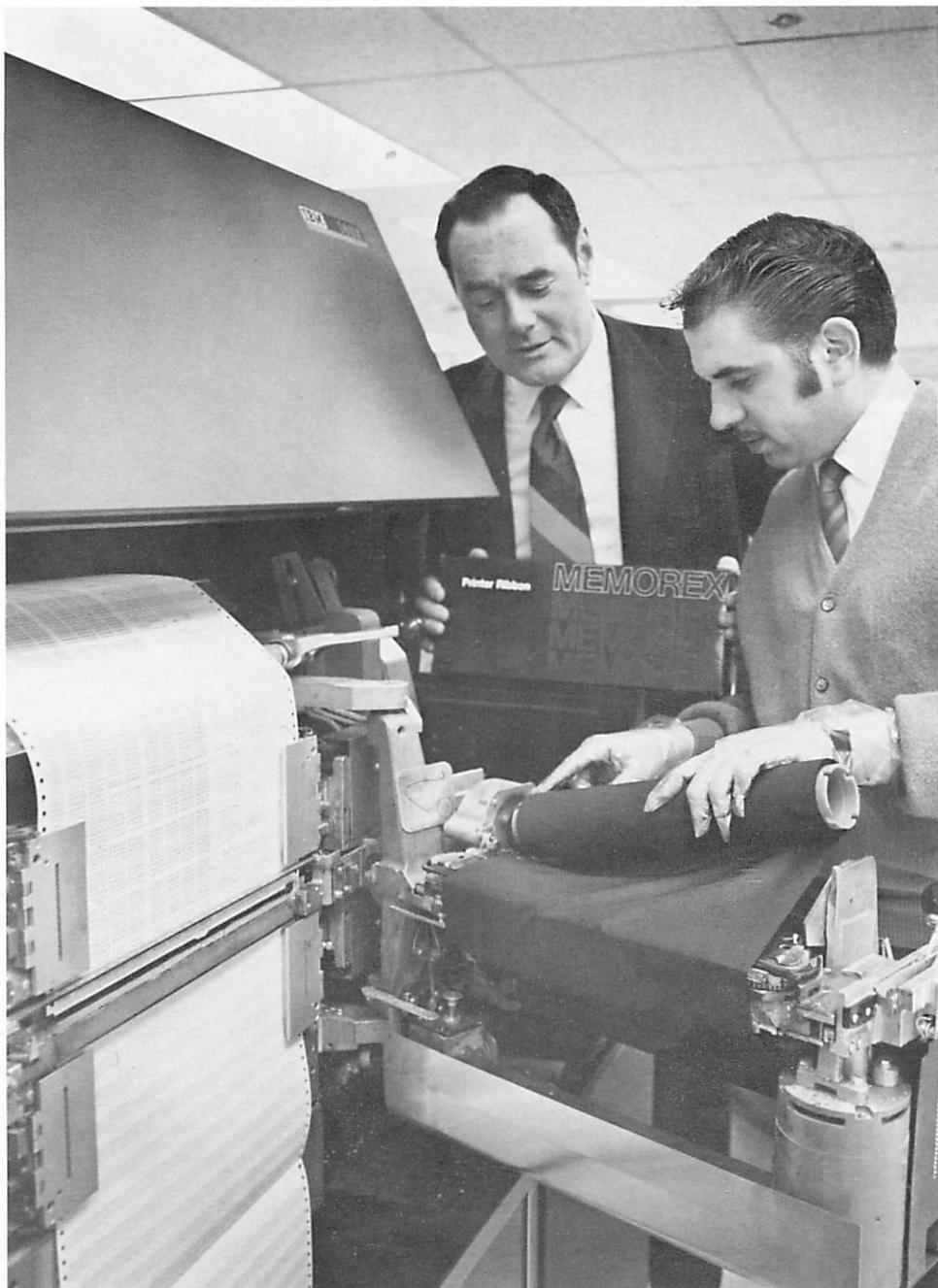
The new line is somewhat different from the type of products we usually sell, since ribbons are not in the same category as high technology products like tape and disc packs. However, there is a good market for computer ribbons and they are "revenue producers."

"Memorex probably would have entered the ribbon business, at least on a limited basis, to supply our 1240 and 1280 Communication Terminals," explains Dean. "So we decided to handle the entire line in the Computer Media Division as 'add-on' products, ones which our media salesmen can sell to the same people who buy our tapes and disc packs."

Line printer ribbons are expected to make up most of our sales, and most of them will be for IBM 1403 (1100 lines per minute) machines. The 1403 is the most widely used printer in the computer industry and an average machine will use about 100 ribbons each year.

Ribbons for the 1403 and other printers are made of nylon and Mylar to meet a variety of requirements. We sell two all-purpose inks—Record and Silvertex—plus Offset and Scanning for special applications; basic ink colors

(Continued next page)



Intercom

A monthly publication for employees
of Memorex Corporation,
Santa Clara, California 95050

Editor: Gary Williams

ABOUT THE COVER

Frank Nehse operates the Company's Remote Terminal Analysis Center, a new service for users of Memorex Communication Terminals. Frank is shown with the Center's Lockheed computer and a Memorex 1240 Terminal. The story is on page 4.

are black, purple, blue, red and green; and customers can specify ribbons which have anywhere from light to heavy inking.

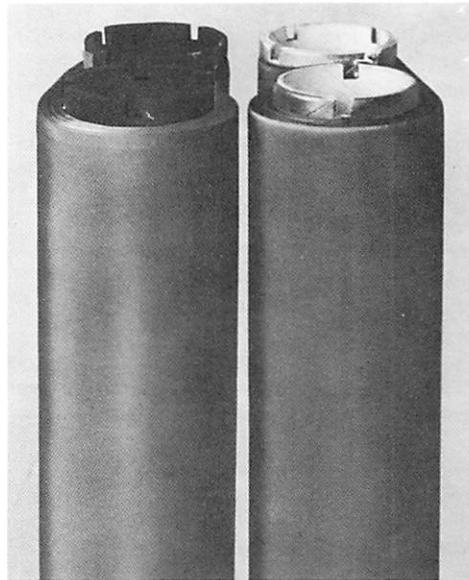
We also have a feature which ribbons from most other manufacturers don't have—a plastic color-keyed end-core. The end-core is similar to the cardboard core in a roll of paper towels. On computer ribbons, this core is notched to hold the ribbon in the machine and keep the core from turning. Unfortunately, cardboard cores frequently wear out before the ribbon, and the ribbon must be discarded even though it still has plenty of

ink left. The plastic core in Memorex ribbons eliminates this type of waste.

Our plastic cores are color-keyed so the operators know exactly what ribbon inks they are using for particular jobs. For instance, a red core identifies Record All-Purpose ink, a blue core is for Scanning ink, and so forth.

A further bonus with each package is a pair of plastic gloves to protect operators' hands from the ink when changing ribbons, and a premoistened towelette to wash their hands, "just in case."

Customers get a maximum number of printings hours by using Memorex computer ribbons with nearly indestructible plastic end cores (left). Ordinary cardboard cores (right) often wear out before the ribbon does.



News Notes

This year's annual Shareholders' Meeting will be in the San Tomas Employee Center on Friday, April 30. On the following day, May 1, an Open House will be held at the site so that employees and their families can tour the MEG facilities and the Memorex Administration Building.

Santa Clara MAG is sponsoring a fashion show and luncheon for Memorex ladies or wives of employees, and their daughters. The show will be held at the Palo Alto Golf and Country Club on Saturday, April 3. The event begins with no host cocktails at 11:30 a.m., and lunch will be served at 12:15. An hour-long fashion show follows lunch. Admission is \$2.00 per person, and tickets must be purchased at the MAG Box Office.

Santa Clara MAG's Spring Dance will be at Rickey's Hyatt House in Palo Alto on Saturday, April 17. The theme is casual, and mod or casual clothes will be appropriate.

Dancing will be from 8 p.m. to 1:30 a.m., and there will be two bands to provide a variety of music. There will also be an informal buffet dinner (turkey, salami, ham, roast beef, potato salad, etc.).

There are a limited number of tickets available and they must be purchased in advance (\$4.00 per couple) from the MAG Box Office. See Update 5 or 6 for box office locations and hours.

Sunday, April 4, is the date for Santa Clara MAG's annual Easter Egg Hunt. The event is for employees' children (under 12).

The Hunt will be at Bowers Park in Santa Clara from 1:30 to 3:00 p.m. Soft drinks and Easter baskets will be provided for the children. Children must be accompanied by an adult and should wear one of the special free tickets available at the MAG Box Office.

In Memoriam

Charles Maitski, a 36-year-old electronic technician in the Equipment Group, died on March 8 of a heart ailment. Charles, who had only been with Memorex since November, was the husband of Ann Maitski, and the father of Barbara, Stephen and Joseph Maitski. He was a native of Pennsylvania and final rites were held in that state.

Diagnostic Service Offered For Terminal Customers

Frank Nehse encourages people to call him when they have a problem, but he's no Dear Abby. He's interested only in calls dealing with Memorex Communication Terminals.

Frank, who is a service planning engineer in MEG, operates the Memorex Remote Terminal Analysis Center. The center became operational in November after several months of development. Working with Frank much of that time have been Bill Rhodes, service planning representative, and Paul Reeves, a programmer from Pete White's Diagnostic Programming Department. David Lehmann is the center's newest member. He moved over from Quality Assurance in MEG.

Frank notes that "there are no turn-key systems, no packages which could provide the diagnostic services we desired, so we had to hand tailor our center. We have a Lockheed Electronics MAC 16 Computer, a Memorex 1240 Terminal to print out data from the calls, and a number of phone lines. Two of the phones are on incoming WATTS lines, which allow customers to call toll-free from anywhere in the United States."

The analysis center has several important uses. For our customers, it's a place to call when they suspect that their terminal or communication line is malfunctioning. They can phone the center any time of the day or night and go on-line to the Analysis Center's computer. The computer is programmed to automatically run a series of diagnostic tests on the terminal. The Analysis Center eliminates unnecessary service calls because it enables the customer to tell in minutes if his terminal is actually malfunctioning and where the trouble lies. In many cases, the terminal is working, but the operator has it set incorrectly, or there is a failure elsewhere in the customer's communications network.

If the terminal is faulty, the customer can pick up his telephone receiver and talk with Frank or Bill (they man the center 12 hours per day). If they can't clear up the problem over the phone, a field support representative is sent from the nearest branch office. Even in this latter case, the center helps customers obtain quicker service by supplying the field support representative with a

diagnosis of the malfunction so that he knows what he has to fix before he leaves his office. The Analysis Center is also being used by MEG Manufacturing, to check every newly completed terminal, and by our field support representatives, who check each terminal a second time after it is installed. Test Engineering is developing its own system to check terminals as they are built, and when it is operational it will take the assembly calls.

"A couple of other terminal manufacturers have similar analysis centers, but ours actually encourages customer calls. The Analysis Center's phone number is printed on every terminal. The others usually restrict the use of their centers to their own customer engineers." Our sales representatives are using this feature as a strong sales point when talking with prospective customers. Our field sales force also uses the center to

Bill Rhodes uses a recording oscilloscope to help analyze terminal line problems when they are diagnosed by the Remote Terminal Analysis Center's Lockheed computer.

demonstrate the 1240 at its 60 character-per-second speed. Most time-share computer systems can't be used for this type of demonstration since they only run at 30 cps or slower speeds.

Data from every phone call to the center is printed out on paper by a 1240 terminal. Eventually, disc and tape files will also be used. Frank explains, "We give the information to data processing to analyze, and they extract information about the number of calls from various areas of the country, types of problems, etc. This information will help us pinpoint problem areas and spot trends, like a particular reoccurring malfunction or type of shipping damage. We also meet with Engineering and Sales each week to give each other feedback, but when we get a pulse on a problem we call Engineering right away. They react very quickly to iron out any difficulties."



CMX Systems Announces Its First Product— The CMX 600 Editor

CBS and Memorex, through their CMX Systems joint venture, this month announced a breakthrough that allows either video tape or film to be edited electronically with equal ease and with a higher level of artistic flexibility than any previous editing system. Called CMX 600, the new system also will automatically assemble broadcast-ready video tapes.

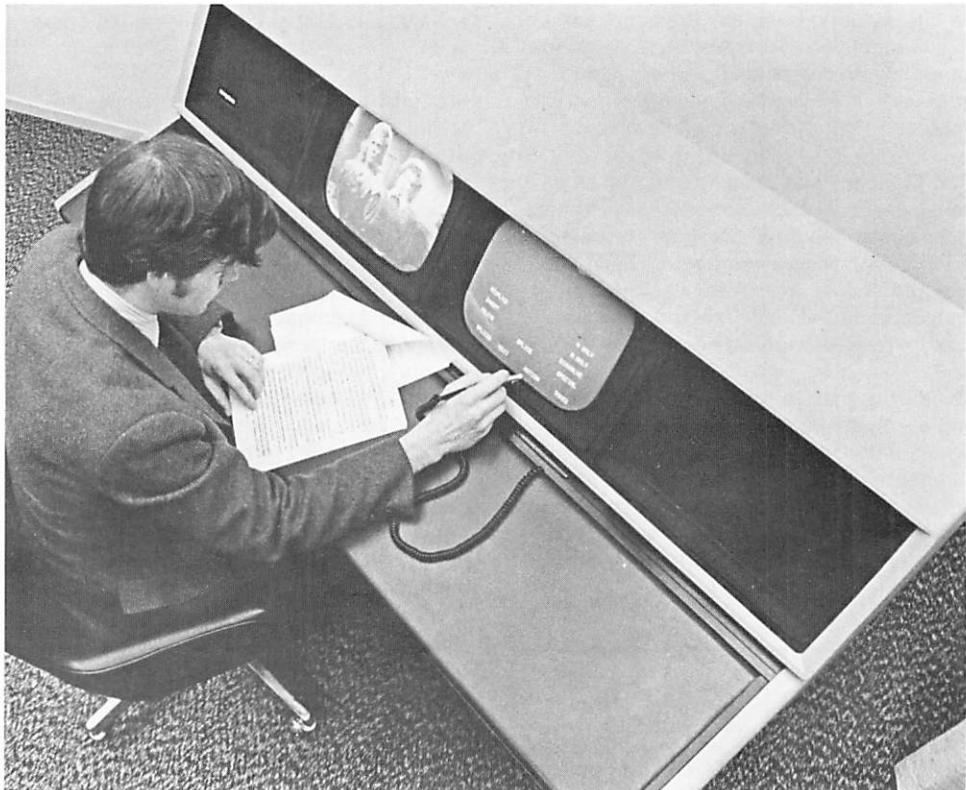
A front page story in the New York Times termed the system "a major technological advance in Hollywood's methods of producing films and tapes for television and motion pictures . . ."

The CMX 600 is engineered so that the individual in control can devote all his attention to his art. High speed minicomputers perform the tedious chores of remembering edit decisions and assembling the finished masters. By combining tape recorders, computer memory banks and disc packs, the system provides direct access to any frame in an hour-long film or tape.

One of the most remarkable characteristics of CMX 600 editing is that at any point the operator can review his progress to re-edit, cut to time, move or delete before assembly. This is because the minicomputer has stored all of his commands and automatically controls the disc drives to produce smooth "work prints" regardless of each frame's location within the various disc packs. At the completion of the editing process, the instructions are transferred to digital tape which is used to produce—automatically—the finished air tape. For film negative cutting, the minicomputer prints out a complete instruction list and frame numbers.

The editor operates the CMX 600 while sitting at a console with two side-by-side monitors and an audio speaker. By using a special light-pen pointed at the screen, he can manipulate all the recorded "takes" in forward, reverse or stop modes. By jockeying a last-frame on one screen and a first-frame on the other screen, he can electronically splice two takes together at any place he desires. Also included in the system (but usually located away from the editing console) is a control console housing the video signal processing circuitry, minicomputer and power supplies, and from one to 12 specially modified disc drives. The drives use a new type of high energy 20-surface pack and each pack has a capacity of 8,000 images (or 4,000 images of standard 8½" x 11" documents).

Seated at the CMX 600 console, the operator uses a light pen to electronically edit video tape or film. High-speed minicomputers remember the editing decisions and automatically assemble the final product.



According to studies made by CMX Systems, the unit is expected to reduce by more than one-half the time required to edit and assemble filmed television programs. The CMX 600 is now in operation at the company's facilities in Sunnyvale, and the first CMX 600 Editor is scheduled for delivery in mid-April to CBS Television's Studio Center in Los Angeles.

The CMX 600 Editor is the first application of instant image access, a technology which CMX developed and which is expected to have broad applications for the information storage and retrieval field. A machine which gives the operator instant access to stored images has numerous possibilities for business and government applications.

The CMX system's computer-compatibility makes it ideal for such applications as inter-office hookups in large real estate firms where, as an auxiliary to customary digital storage, an image access system could provide additional visual data such as floor plans, elevations, etc., along with the means for rapid updating of available property throughout the entire firm's listing. Any number of viewing stations, each equipped with a video monitor, document address keybook and hard copy output device, can

be employed. This allows dozens of co-workers in various locations to "browse" through the same documents simultaneously.

Insurance companies and libraries are among the many other potential users. Operating with a microfilm system, for example, the CMX system would be addressed directly to acquire in advance, either manually or under computer control, each day's projected work file. By transporting the pertinent images from the master file past a television camera, every document addressed is recorded instantly on the disc pack. Thereafter, each image in the new video work file can be displayed immediately and repeatedly, and all images—or documents—can be "browsed" through in a matter of seconds. In this manner, a work file can be created from the master storage system without preempting another worker's use of the same documents.

The system is also ideal for government applications. National security and law enforcement agencies, for instance, could use the system to assemble documents from among millions to prepare briefings, dossiers, summaries, etc., from video or microfilm sources.

Profit Sharing Pointers

In late January, Company President Laurence Spitters notified employees that Memorex faces severe competitive and economic pressures in 1971 which make the goal of increasing our profits a difficult one.

The Company has recently undertaken a number of cost reduction measures to help accomplish this goal. Budgets are being cut back, new investment programs have been delayed and all are asked to spend money only for activities which fit into the Company's near-term objectives.

Each of us plays a meaningful part in limiting expenditures to only critical needs. Often, it doesn't take a specialized financial analyst to show where improvements in operating efficiencies can be made. Together, our job experience and the desire to pare unnecessary expenses can help Memorex

achieve substantial economies in its operations.

Profitability is of highest importance—to Memorex, because it assures the availability of capital for continued growth; and to us, the Company's employees, because it can mean better job opportunities and a share of those profits.

As with other rapidly expanding companies, Memorex is judged by outsiders on its corporate performance—the continuity of growth and the successive improvement in profits. The better Memorex's record is, the greater outsiders' confidence becomes in the Company's ability to extend its performance record. This confidence translates into an outsider's willingness to invest in Memorex at a price which fully reflects expected future profits. If investors believe that the years ahead will bring above-average profits, they

will be inclined to value them at a premium. The benefits of premium valuation accrue first to the Company because, when there is a need for new capital, a fewer number of shares will have to be sold in order to raise the required funds.

The benefits also hold importance to all investors, whether they be outsiders or employee members in the Savings and Investment Program, because as Memorex's profits grow, the continued valuation of Memorex shares at a premium can be expected to result in investment growth over the years.

The above discussion illustrates why profits as an indicator of success are important to Memorex and to employees. Presently, we face the challenge of improving profits under difficult operating conditions. Despite immediate problems, we must also focus on the longer term growth aspect of the business.



Why isn't Memorex Corporation represented in local displays, like the week-long Festival Days celebration in Santa Clara a few months ago?

While the Festival Days celebration was important, we did not participate because we did not view the celebration as appropriate as other opportunities available for us to promote our products and to participate in community activities.

Our usual purpose for participation in public shows is to display Memorex and its products to an audience that is directly related to the purchase of Memorex products. Therefore, our prime interest has been in trade shows; i.e., shows directed to users of data processing media and equipment. Now, with our markets expanding, we shall also be broadening our advertising, sales promotion and our participation in public shows and exhibitions.

At the same time we do view the Santa Clara community as one of the important constituencies that we as a corporation serve. Besides product promotion, we are interested in participating in important community affairs and activities to the extent that our resources allow. This includes such programs, for example, as the United Fund campaign, blood drives, campaigns for improved community services, such as hospital facilities, adult education, transportation and recreational services, and educational and training programs for the disadvantaged.

Would it be possible to publish the MAG financial statement periodically?

The most recent MAG financial statement has been posted on the MAG bulletin boards and each subsequent report will be posted directly after the regular monthly meeting.

Will the Company review its practice of replacing people who are on medical leaves?

You are correct in stating that the Company does replace employees who are on Medical Leave of Absence. Naturally, we are concerned with the job security of every employee. Likewise, we are concerned with maintaining a continuing production operation, and, therefore, are often required to replace an employee on Leave of Absence. This policy, as well as other Leave of Absence policies, will be reviewed during the early part of 1971.

An employee who returns from leave whose job has been filled is given preference over all other applicants for any job for which he is qualified. Thus far, we have had a high level of success in returning employees to the same or comparable jobs. In some cases this has not occurred because the employee may have refused the job because it was not on a shift to his liking.

On the Move



Bare



Lore



Youngstrom



Willems



Mattson



Madison

(Some of the following promotions became effective late last year and early in 1971, but were not covered in this column—ed.)

Lyle Bare has moved from manager to director of Corporate Accounting. He came to Memorex in October of 1968. Corporate Accounting is responsible for consolidated financial reporting to corporate management; this department also supervises the accounting in the Profit Sharing and Savings & Investment Plans and the corporation's leasing operations.

Bill Lore has been promoted from manager to director of Disc Pack Development. In this position, he is responsible for both the support of existing disc products and also the development of new disc products. Bill joined the company in April 1967.

Jerry Youngstrom has been promoted to the new position of director of Operations of CMX Systems. He has been managing the development of the CMX video editing system. Prior to joining CMX Systems, Jerry had successfully carried managerial development responsibility for such projects as the "P" certifier, Quantum computer tape, and the early mechanization of the Victor Project (a project to design a means of making mass duplications of video tapes).

Johan Willems has been named launch manager for equipment manufacturing in Liege, Belgium. He has total responsibility for

the project in both Liege and Santa Clara. Johan reports directly to **Larry Wilson**, vice president of Manufacturing in MEG.

Johan received his B.S. degree in Electrical Engineering from the Technical College of Bandung, Indonesia. He joined Memorex in October 1969.

Don Mattson moved from production manager to director of Disc Products Manufacturing. Don, who holds an MBA from the University of California, has been with the Company since May of 1969. He reports to **John Mandel**, director of Operations in the Computer Media Division of IMG.

Gene Madison has been promoted to director of Video Products Development, reporting to **Hig Tavrow**, vice president of Operations in the Video Tape Division of IMG. Gene was formerly manager of Video Research and Development Projects. He has a B.S. in Chemical Engineering and a B.S. in Business from the University of Colorado. Gene has been with Memorex since January, 1968.

A Testimonial For the 1603

"It Just Cranks Out Microfilm" was the headline of a short article in a recent issue of Business Automation Magazine. The article, an unsolicited testimonial from our first 1603 Microfilm Printer customer, read as follows:

"The box just sits there quietly and cranks out microfilm," is the vote of confidence expressed for the Memorex 1603 Microfilm Printer which was the first to come off the production line and land at the Stanford Linear Accelerator Center (SLAC), in Palo Alto, Calif. Following tests of the unit at SLAC, Mel Ray, assistant director, described the performance of the total system as "head and shoulders above any-

thing else we have seen." The 1603 was tied into an IBM System/360 Model 91 that has 300 users. Ray said the primary interest was to have the printer operate on all System/360 channels and it did. The 1603 can be connected and disconnected at will without affecting the system. He explained that the maintenance was trivial, requiring about three to eight hours per month.

SLAC also served as the field test site for Memorex's prototype microfilm printer. The prototype was installed at the Palo Alto facility in 1970 and was tested over a period of three months.

Intercom

How new Memorex Cassette Recording Tape shattered glass and why it will make your favorite music sound better.

To shatter glass with the human voice a singer must reach and hold the pitch it takes to make a given glass vibrate. That pitch must then be projected with enough volume to vibrate the glass to its shatter point.

We figured if we could capture that precise pitch on our new Memorex Cassette Recording Tape and play it back at the same volume, we'd dramatically demonstrate the exactness with which our tape can reproduce music.

So that's exactly what we did.

Because we can capture and play back a voice with such exacting precision, you can record and play back your favorite music with the same exacting precision.

You should hear us.



MEMOREX Recording Tape
Reproduction so true it can shatter glass.

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