



INTERROOM

CBS-Memorex Form Joint Venture Company

The joint venture announced last month by Memorex and CBS has been named CMX Systems, reports Bill Butler, the new organization's general manager.

Bill has been with Memorex since 1966, most recently as administrative assistant to John Del Favero, executive vice president of the Information Media Group. He will continue to report to Mr. Del Favero in this new position.

A news release issued late in May by Memorex and CBS indicated the new company will be working in the field of specialized television equipment. The company, which is headquartered in Sunnyvale, developed out of technical discussions that began between Memorex and CBS more than a year ago.

Key personnel on the project include Technical Director Ken Taylor, Director of Administration Bill Ruehle, Product Development Manager Jerry Youngstrom, Advanced Development Manager Martin Fletcher, and Systems Manager Dave Bargaen.

Ken was director of Electro-Mechanical Research and Development on the Information Media Group Technical Staff. Jerry and Martin continue to report to Ken, as they did in IMG. Bill Ruehle, who joins the new organization from CBS, reports to Bill Butler. Dave Bargaen comes to CMX Systems from Xerox Corporation, where he was systems engineering manager for the Medical Diagnostics Operation, and will report to Jerry Youngstrom.

Jerry Youngstrom (from left), Cal Strobele and Dave Bargaen gather around some test equipment at CMX Systems. In the lower picture are Tony Eppstein (left) and King Anderson. Jerry and the four men who report to him are in Product Development.



INTERCOM

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ABOUT THE COVER

Dale Humphriss (left) and Dr. Gordon MacBeth are shown with a videotape recorder playing a reel of Memorex's new chromium dioxide tape. The television show in the background was taped off the air with an iron oxide coated tape, and then duplicated on chromium dioxide. The story is on page 4.

Training Center Moves To Specially Designed, Larger Building

The Memorex Training Center has moved into a building that has been specially designed to take advantage of the latest in educational aids.

The center is on Shulman Ave., directly across the street from the main cafeteria, in the same building which housed Information Media Group Purchasing. Purchasing is moving into the building on the corner of Shulman and Ronald St., where training used to be.

The Training Center is completely carpeted, and the rooms are well insulated and air conditioned. These features help to make the building a cool and quiet place for learning. There are 10 classrooms; each equipped with variable intensity lighting and a remote control slide projector. One room, designed for customer training, has a projection booth and tiered seating for 31.

Two of the rooms are separated by a moveable wall, which can be opened to provide



seating for 97. Four of the classrooms are designed so that role-playing simulations can be video-taped and replayed in class.

The Center also has a sound and video recording studio, which the Audio-Visual Department will be using to support the corporation's training activities. Audio-Visual support includes art work, photography, video recording and audio recording.

Finishing touches are still being applied to the Training Center, and its classrooms are already busy. This is a class of Equipment Group field managers and field service representatives. The instructor, who's not shown, is Ron Jordan, from MEG Technical Education and Training.

In one area of the building, Equipment Group Technical Education and Training has a lab filled with equipment products. The lab is used to train the men who will service those products.

Offices in the building will be occupied by training personnel from Information Media Group, Equipment Group and the Corporate Staff.



Company Wins Merit Award

Memorex and Container Corporation of America have won a Merit Award for our MT/ST cartridge carton at the 27th Folding Carton Competition, sponsored by the Paperboard Packaging Council.

According to the Council, there are 18 categories and each entry is judged on how well the package accommodates the product from the production line, through the channels of distribution and into the hands of the ultimate consumer.

Specific areas taken into account during the judging include packaging innovation, consumer convenience, communication excellence, market excellence, distribution excellence and production excellence.

John Del Favero, IMG executive vice president, holds an award presented to Memorex for our MT/ST carton, and talks with David Whitehouse, a Container Corporation vice president.

Future Looks Bright For Chromium Dioxide

Last month Memorex announced a breakthrough in the recording industry—a way to make mass duplications of video tapes. We also announced that the process relies on a video tape coating which contains chromium dioxide rather than iron oxide, the material used in our present tapes.

The news release actually drew together two different, but related, research projects. The first part of the story began back in February of 1969, when Memorex purchased a licensing agreement from DuPont, allowing us to work with chromium dioxide. We could not otherwise use chromium dioxide because of DuPont's patents on the material.

"We felt that chromium dioxide had the kind of performance potential that would make it a significant factor in magnetic recording," says Dr. Gordon MacBeth, vice president and senior scientist in the Information Media Group. It is superior to iron oxide for a number of reasons. For example, chromium dioxide retains a greater magnetic force than conventional oxides, known in the industry as residual magnetic flux density or retentivity. Also, the microscopic particles which hold the magnetic charge have a uniform needle shape, called acicularity, which can be more efficiently aligned and packed with uniform density. As the result of these inherent magnetic characteristics of chromium dioxide particles, chromium dioxide tapes offer high output and signal-to-noise levels, and extremely good high frequency response.

A third unique property, the one which made possible the development of our duplication process, is the low Curie temperature of chromium dioxide particles. This is the temperature at which particles become non-magnetic.

The project manager for chromium dioxide is Dale Humphriss, who joined the company from Eastman Kodak in February of this year. Al Lohoff is the senior development engineer on the project. It was Al's job to formulate a coating, a dispersion process, the binder system and surface treating methods. Al believes that chromium dioxide has "prob-

ably been the least troublesome of any material we've worked with, from a coating viewpoint."

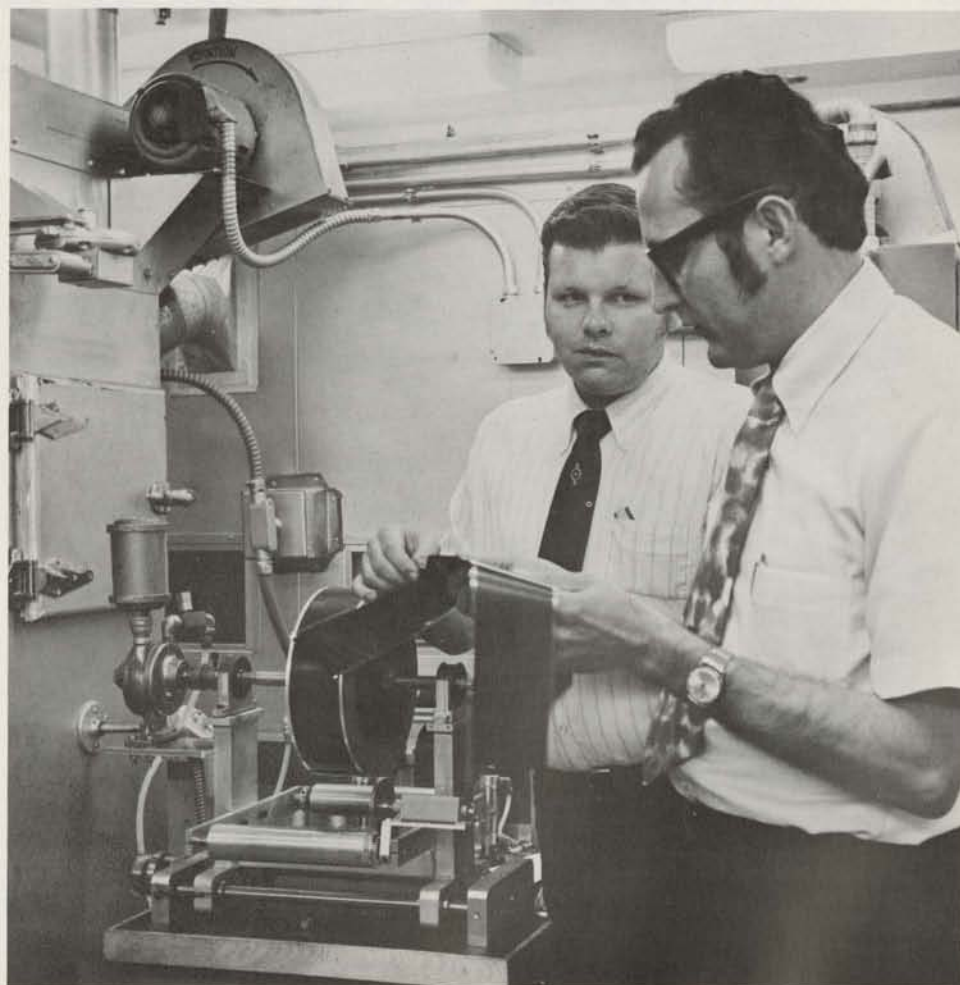
"Our current objectives," Dale explains, "are to characterize and compare our tape with competitive materials, evaluate its total system performance, and eliminate any problems which occur in the field trial sampling process. Typical problems often relate to the tape's use under unusual environmental conditions, or with recorders of unusual design. Headwear must also be determined and minimized for all of the various head materials and head designs in use today. To eliminate these problem areas, we have to investigate both our product and the conditions under which it is used.

"Our chromium dioxide helical scan (closed-circuit video) tape is being evaluated by selected customers right now, and we fully expect to market it very soon." When final evaluations are in and the tape is released

for sale it will only have one other competitor, and that's DuPont's Crolyn. The DuPont tape has been available for several years, but recording equipment capable of taking full advantage of chromium dioxide's properties has only recently begun to be available.

Now, a number of companies have announced plans for equipment which can use the new magnetic material to advantage, and a company in Holland, Philips, has already built a helical scan machine which uses chromium dioxide. Philips is one of the four companies, including Memorex, DuPont has licensed to work with chromium dioxide. The others are Sony and Ampex.

Another company building a recorder for chromium dioxide tape is Nivico in Japan. There's also a company in Mountain View (Video Logic Corp.) that builds a portable TV system which uses chromium dioxide tape. Called INSTAR, the system offers up



Bernie Donahue (left) and Al Lohoff check some chromium dioxide tape on the pilot line which is used for coating tapes in IMG Research and Development.

Don Bench reaches in to make an adjustment on a machine which has stirred up considerable interest in the industry—our video tape duplicator. With him is Bill Hendershot, manager of Project Victor.

The lower photo shows Bob Wahrer, supervisor of the Product Test lab, and Al Lohoff.

to an hour of slow motion, stop action recording with broadcast quality pictures. INSTAR is being sold mainly as an aid in athletics, where an event can be video taped and shown back immediately, on the field of play.

Dr. MacBeth notes that there are additional "indications of considerable equipment development activities in Japan and elsewhere, and we are trying to encourage machine manufacturers to prepare for this developing market."

He doesn't limit chromium dioxide's use to helical scan recorders, either. "In the long term it will probably find applications in broadcast video (Ampex has a machine which reportedly is capable of driving chromium dioxide tapes), digital applications, instrumentation tapes, and cassettes." He believes chromium dioxide will eventually be widely used in areas which complement, but don't entirely replace, iron oxide tapes. "For some time to come there will be room for iron oxide and chromium dioxide."

The second part of this story concerns the mass duplication process and its relationship to the development of chromium dioxide. Project Victor, the code name used for this Research and Development effort, began more than a year ago under the direction of Eric Daniel, to look for a rapid way to make duplicates of video tapes. Presently, the only readily available way to make a duplicate video tape is by playing a tape and re-recording it on another machine. A one hour show takes an hour to copy, so any improvement would be a boon to video tape users. This explains why last month's news release received "a tremendous response from all sorts of users and manufacturers of video recorders." According to project manager, Bill Hendershot, "We have received more requests for demonstrations than we have time for." Bill joined Memorex in February, and Don Bench, an associate engineer, has been working on Project Victor for nearly a year. One of the project's previous managers was Jerry Youngstrom, now at CMX Systems. As mentioned earlier, our machine uses a thermal (or heat) process to make color video tape duplicates.

To make a duplicate, an iron oxide tape is used as the original. The program on it is transferred to a chromium dioxide tape. The

(Continued on next page)



