VIDEO CASSETTE IMAGE PUBLISHING

by GENE YOUNGBLOOD

. . . As early as 1968 several firms in the United States demonstrated prototype low-cost home VTR systems for less than $1000. It is expected that by 1973 one will be able to purchase a color TV camera, color VTR unit and color display monitor for approximately $1000. By comparison, similar equipment today costs from $11,000 (Sony) to $50,000 (Ampex). The most one can expect to get for $1000 today is Sylvania's color tape display monitor, less camera and VTR. Craig's color VTR, less camera and display console, costs $1600.

At present, videotaped or filmed information can be electron-beam recorded onto low cost photosensitive material which, in the example of Columbia's EVR system, results in one-hour cartridges of 180,000 black-and-white frames or half-hour cartridges of 90,000 color frames. They can be displayed individually or sequentially in random-access or automatic modes on any television set with higher resolution than videotape systems or broadcast TV. The EVR process reduces broadcast videotape costs by a factor of fifty, home videotape costs by ten, and is approximately one-fifteenth as expensive as conventional filmmaking.

It is to be stressed that the EVR system is not electronic photography, per se, but rather is elecronic video or cinematic modes. However, several major research projects presently are under way to develop true electronic photography (the major obstacle is that a vacuum is necessary inside the camera). This will be the most important development in image-making since the invention of the photographic plate.

The Motorola Corporation, who'll manufacture and market EVR players, estimates they'll be making about 100,000 units per year by 1972 (Equitable Life Insurance already has ordered 1200 players). Meanwhile, the first serious competitor to the EVR system will be Sony's cassette for home VTRs, to be marketed by 1972. The Sony system, developed under a joint research project with Philips and Grundig, features 90-minute cartridges of color videotape with stereo sound. Pre-recorded tapes will cost about $28, non-recorded cassettes about $20. The color display console will cost approximately $500. Sony's cassettes will contain footage counters so that rental firms will be able to charge by the number of plays. For an additional $100 the system will record in color and black-and-white from any home TV set. The same capabilities are offered in a cartridge player to be marketed by North American Philips Norelco, also for about $500, with a portable TV camera at extra cost.

By 1973 RCA will introduce its "SelectaVision" VTR player that will play pre-recorded programs through any TV set, for about $400. The system will feature stereo sound. RCA soon will invest $10 million to buy rights to films, books, etc. They'll start off with a selection of 100 pre-recorded videotape cartridges priced at less than $10 per half hour. The process involves a color TV image recorded on film and then converted by laser into optical interference patterns. These holographic patterns are recorded on plastic tape which is scratch-proof, dust-proof, virtually industructible in normal home use. A safe low-power laser beam in the SelectVision unit converts the impressions back into a color TV picture.

Matsushita soon will introduce two competing videotape systems for the home: cassette and reel-to-reel players. The AVCO organization will release a cartridge home VTR system by 1972. They reportedly use quarter-inch audio tape instead of standard costly videotape. Meanwhile RCA is developing three-minute 8mm and 16mm rolls, will be high-density and will require no threading. The latest development in the burgeoning EVR process is a video "magazine" called *Computer Telejournal* to be published next year on EVR cartridges, a joint effort by Telegeneral Corp., Delta Books, and CBS.

Meanwhile, a new industry of feature film cartridge projection systems has developed to compete with the videotape market. By 1971 Kodak, Bell & Howell, Fairchild, Technicolor and others will introduce new movie cartridges for home projection. For example, Vidicord Holdings, Ltd., of England will market a home movie projector that operates through any TV set in Super 8mm format for $600. Their black-and-white version will be priced at $400.

A compact textbook-size movie cartridge projector has been developed by Zeiss-Ikon in West Germany for Panacolor Corp. in New York. The system uses 300 feet of 70mm film divided into 12 separate image tracks to produce two hours of color, sound movies. The tabletop projector provides stop-motion, slow-motion and, unlike EVR, reverse motion. The film runs continuously like a tape recorder without pull-down claws by using a rotating cylindrical prism lens which permits capstan drive.

Excerpted from **THE VIDEOSPHERE** by Gene Youngblood, *copyrighted material*, to be published July, 1970, in *Show* magazine.

EVR (Electronic Video Recorder) prints sound and image electronically on a master film (black and white and color) from which limitless copies can be printed. The prints are packaged in a circular cartridge seven inches in diameter with a maximum 50 minutes of running time for black and white cassettes and 25 minutes for color. The cartridge must be rewound after the first track is played and then reinserted in the player for the second 25 minute run. The cartridge can be played only on the EVR player, a briefcase-sized unit with wires that clamp onto the antenna terminals of standard TV sets. **The system has no recording capability**, *though any videotape, film or live television presentation can be transferred to the EVR system. The color capable EVR system was exhibited in March 1970 for marketing September 1, 1970.*

The first shipment will go to the marketplace September, 1970. The players intended for industrial and educational use will sell for $795.00 but a scaled-down home model is planned at a lower price. Cartridges of one half-hour of pre-recorded programming (black and white) will be $14.40. The selling price for color has not been announced but a rental fee of $5-6 for a feature film in an EVR Cartridge was suggested by one CBS spokesman.

The Sony videocassette system will be marketed in Japan late 1970, and in the United States early 1971. (Sony-Color Videocassette System bulletin)

This would include royalties to the producer.

The Sony system will sell as low as $350 in the States. Empty or non-recorded, 100 minute **reuseable** *videocassettes will sell for $20.* (Sony–Color Videocassette System bulletin)

Through litigations RCA has lost the name "SelectaVision" and will be replacing it with another.

At the Electronics Show in New York City, June 28, 1970, AVCO will demonstrate its new Cartri-Vision. *This is a ½" cartridge-cassette which is not compatible with any other manufacturers', and which will sell for $450. For $790 you get a complete system with color receiver and camera. By July, 1971, 38,000 units will be manufactured for AVCO by Admiral. AVCO supposedly is currently interested in programming to put on their system. Also, Shibaden is developing a video cassette player-recorder that will not be compatible with the Sony System. Details will be announced in the fall of 1970. Norton Simon, Inc. has also announced its intention to market a video recorder-playback. Significantly, the company is the corporate parent of Talent Associates and would, presumably, have an in-house source of program material to put into pre-recorded cassettes. In news from Germany, the combined publishing interests of Axel Springer, and the publishing firm of Bertlesmann GmbH aim, according to* The London Daily Telegraph, *to gain control of cassette television which they regard as the mass communications medium of the future. The* Variety *article of March 4, 1970, explains the West German interest in cartridge television as linked to domestic television's established dominance . . . the producers now see the advent of the cassette as their way around this monopoly (i.e. state owned TV situation, and they clearly aim to make it pay off). America's Time, Inc. has bought into a German combine, now called Windrose-Dumont-Time, Inc. to enter this same market.*

The above footnotes are excerpted from *Film and TV Cartridges: A Preliminary State of the Art Report*, by Richard Kahlenberg, American Film Institute Planning Coordinator, and Chloe Aaron, consultant. The article appears in its complete form in the **Journal of the Society for Cinema Studies**, published April 24, 1970. It is *copyrighted* by the American Film Institute, 1970.

STANDARDIZATION

Regarding reel-to-reel ½ inch videocorders Shibaden has issued a bulletin (vol. 1, no. 5; available from Shibaden Corp. of America, 58-25 Brooklyn-Queens Expressway, Woodside, N.Y. 11377) reporting that though standardization specifications are being deliberated through efforts of the Electronic Industries Association of Japan (EIAJ), complete compatibility (interchangeability) of tapes from one manufacturers' VTR to another is not foreseen. While there is an overall acceptance of a full field standard, two different head cylinder sizes are being employed–a large diameter cylinder (146mm in diameter) and a small diameter cylinder (115.8mm in diameter). Sony, Matsushita (Panasonic), Electric, and Toshiba all use cylinders which are almost equal in diameter to the small diameter cylinder being considered as the standard, whereas (see col. 1 of table) Shibaden and Victor (Craig) all use cylinders which are closer to the large diameter cylinder being considered as the standard, though not exactly equal (see col. 2 of table).

Standardized Specification (Agreement) for Home VTRs

Item \ Type		I	II
Recorded signals		The Japanese TV standard system is applied	The Japanese TV standard system is applied
Recording system	Video	Full field 2 head helical scanning frequency modulation	Full field 2 head helical scanning frequency modulation
	Audio	Single track, fixed head	Single track, fixed head
Tape width (mm)		12.7	12.7
Tape running speed (mm/sec)		190.5	240.0
Maximum recording time (min.)		60 or more (7" reel)	60 or more (8" reel)
Video frequency band (MHz/−20 dB)		2.5	3.0
Video S/N (dB)		40 or more	40 or more
Cylinder diameter (mm)		115.82	146.00
Video pitch (μm)		173	173
Video track angle (when tape is stopped)		3°11′	2°31′
Control track width (mm)		0.8	0.8
Audio track width (mm)		1.0	1.0

(Numerical values indicate standard values)