EVR: The new dimension of television

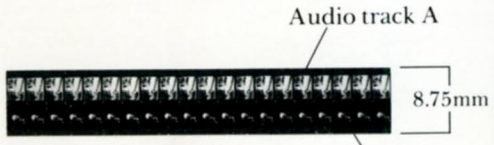
The story of EVR™—the CBS Electronic Video Recording system: how miniaturized film and the EVR player convert a standard television set into a "phonograph for the eyes."

In the same way that a long-playing record stores sound conveniently, inexpensively and with high fidelity on a record for selective play on standard phonographs, EVR stores pictures with sound for playback of consistently high resolution through a standard television set.

Any motion picture, videotape or live television presentation can be recorded for distribution on EVR.

Basically, there are three elements to an EVR system:

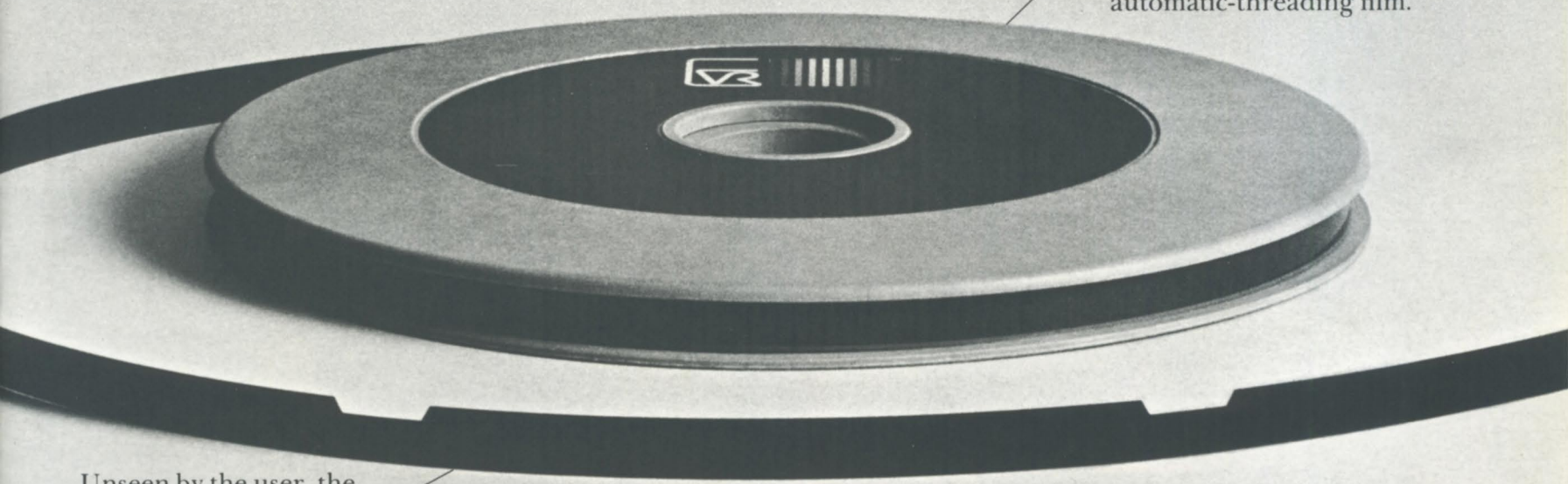
1. The thin EVR film is dual-tracked, and carries its sound in parallel lines on a magnetic track, along with two rows of visual frames. Although the film is miniaturized, the image reproduces with sharper definition and clarity than a conventional television picture. The film has no sprocket holes, thus eliminating the chances of tearing. As further protection against damage or deterioration, a tiny cushion of air separates the layers of pictures



The 40 frames in this two-inch strip of film contain six times as much information as a comparable strip of 16mm film.

when stored in the special cartridge.
2. The circular EVR cartridge, which holds the film, is only seven inches in diameter and has a maximum capacity of 750 feet of film, 8.75 mm (under ⅜ inch) wide. This is equivalent to 180,000 picture frames or 50 minutes of programming.
3. The EVR player is compact, versatile and simple to operate. A lead from the player is easily attached by handclips to the external antenna terminals of the television set. Then the EVR cartridge is placed on the player, the television set turned on to a channel that is not broadcasting, and the player starter button pushed. The film automatically threads itself past an electronic sensor that converts the film image to electrical impulses, and then transmits these impulses—along with the sound—into the television set. The player features buttons for speedy forward and rewind, a fingertip adjustment for slow scanning of individual sequences, and the capacity

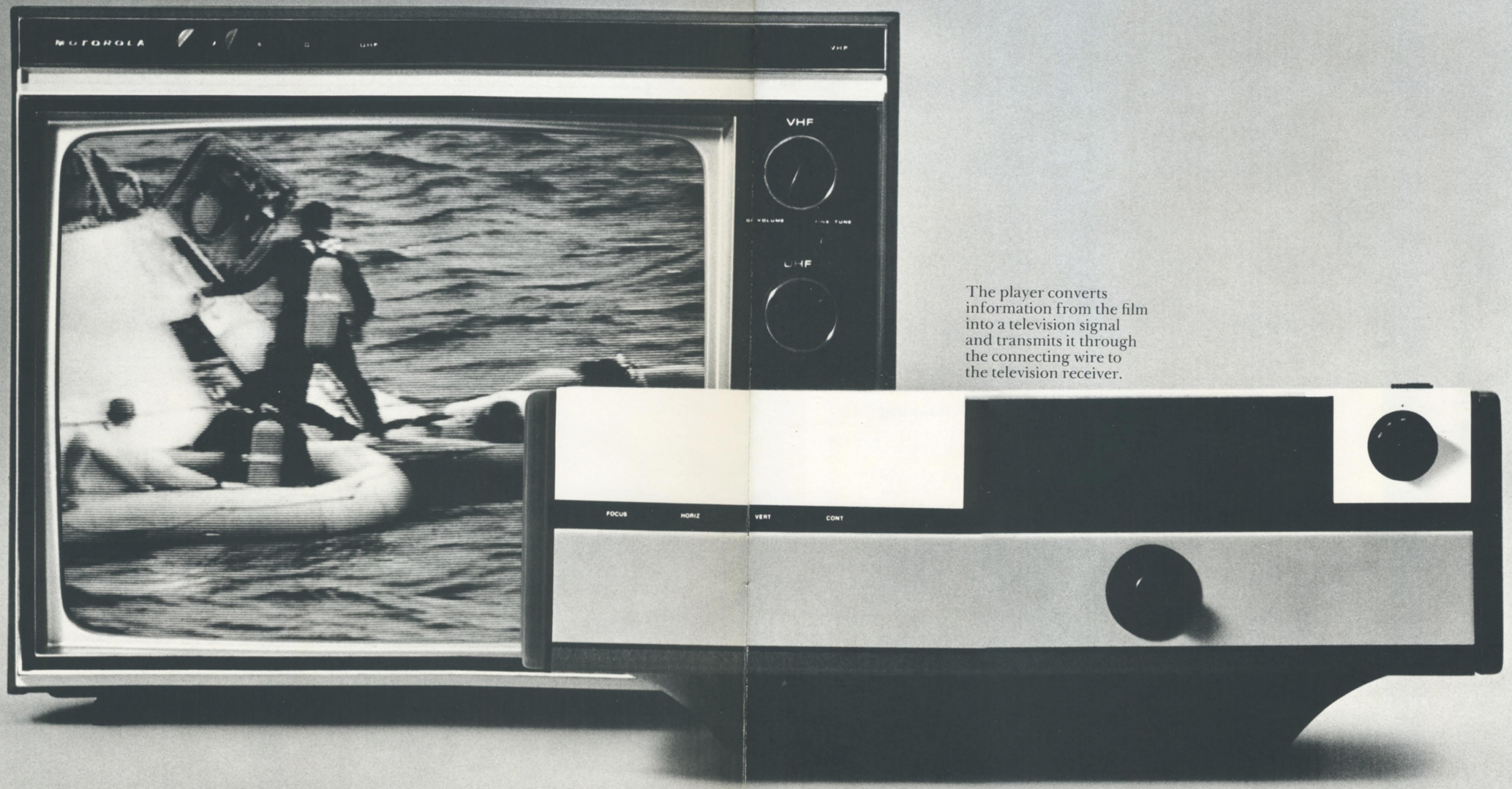
Nearly an hour of information is contained in a cartridge no bigger than a salad plate. The film can be stopped and any one of its 180,000 frames studied at length.



The film is sealed in its lightweight plastic cartridge (opened here for illustration purposes only) by the strip of protective plastic covering; the user never sees the automatic-threading film.

Unseen by the user, the notches in this plastic covering leader trigger the player's automatic threading mechanism.

An ordinary television set translates the signal from the player (right) into sound and image—information and entertainment—on the screen.



The player converts information from the film into a television signal and transmits it through the connecting wire to the television receiver.

About the size of an overstuffed briefcase, the player is designed for portability and simplicity of operation.

By depressing the Still button, the viewer can study individual still frames as long as desired.

The Channel Selector control permits the user to switch at will from one film channel to the other.

These controls are much like those on a standard television set, and include a focus control such as on a camera or slide projector.

Used in conjunction with the Still control, this selector allows the viewer to turn the film forward or backward to any frame desired for still viewing.

Compact and self-threading, the player is as simple as a phonograph to operate. Button controls are outside of the cartridge chamber.

From left to right, the buttons are for Rewind, Stop, Play, Fast Rewerse, Fast Forward and Still (freeze-frame)..

for freezing any frame on the screen without damaging the film or dimming, flickering or blurring the image.

Since transmission to the set is direct and there are no buildings or other interference to contend with, there is no ghost image or other picture or sound distortion. Nor is there any projector noise to distract the viewer, or interfere with concentration, conversation, comment or supplementary instruction. Also, the system can be operated in normal light.

Although much of the EVR technology was developed by Dr. Peter C. Goldmark, president and director of research of CBS Laboratories, the Company will not manufacture the player itself. CBS is licensing its production among leading manufacturers. At first, players will appear as attachment units, styled and built by manufacturers of television sets. Once manufacturers get into full production, customers will be offered a variety of models with complete

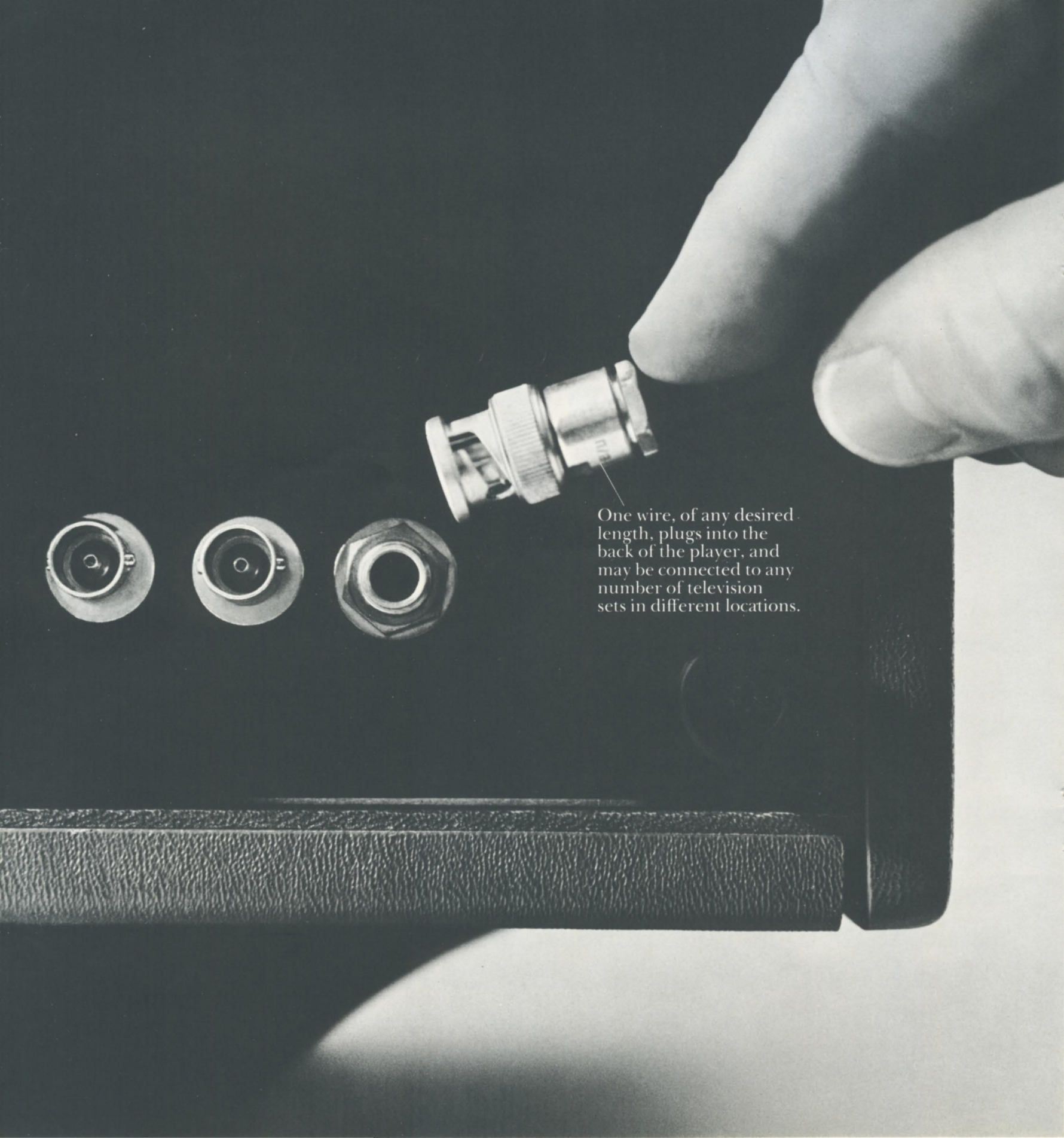
cartridge interchangeability. The film, however, will be recorded, printed and inserted in cartridges at CBS plants.

The CBS Electronic Video Recording Division will develop an EVR market among the television, publishing and motion picture industries; videotape libraries; educational institutions; and suppliers of informational, training and recreational materials. With these outlets as a start, EVR should eventually revolutionize the storage and exchange of information in education at all levels, in industry, the arts and the home.

The Classroom. The Electronic Video Recording system will give new scope to television's immense potential in education. As the Carnegie Commission on Educational Television noted, a more versatile playback technology in educational television is the one thing needed to return to the classroom the flexibility that the present-day uses of broadcasting deny it. With such a

technology, according to the Commission, "the teacher can select the program, play it at the moment of his own choosing, replay it at will in whole or in part, interrupt it for comments." By providing this technology, EVR can help educational television make the "massive contribution to formal education" that the Carnegie Commission feels is not only possible, but imperative.

Today, teachers must schedule classwork around broadcast hours, and they have no control over what appears on the screen—or when. With EVR, the teacher can integrate educational films more effectively into the smooth flow of his classwork. He can preview and choose. He can stop the program for comment or for general discussion. He can schedule lessons at his own discretion, and show his films either to individual students or to large groups by linking a single EVR player into as many television sets as he needs. He can play them in several classrooms at once. Because the



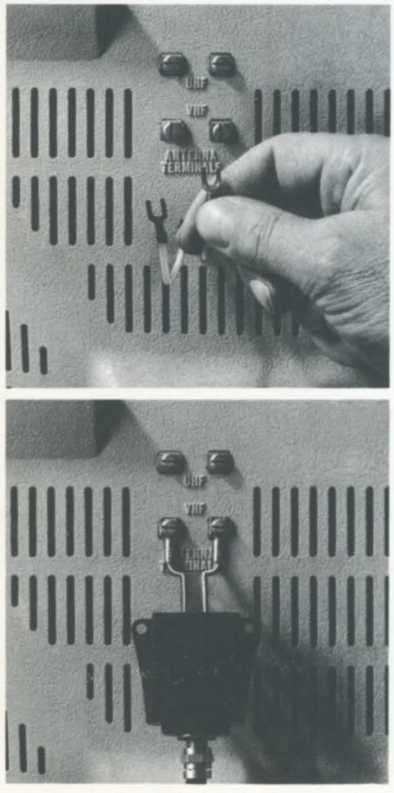
One wire, of any desired length, plugs into the back of the player, and may be connected to any number of television sets in different locations.

equipment is so easy to operate, the teacher's youngest pupils can benefit from EVR, with or without supervision. Since the room need not be dark, viewers can also take notes. With this overall convenience and versatility, EVR will thus supplement, and not interrupt, the teaching process.

Because EVR cartridges are considerably more economical than conventional film, schools will no longer need to depend on central or outside audio-visual libraries—frequently at distant points. They can build up their own libraries.

Home Use. The process of education does not end when one finishes school. It is only just beginning. The swift pace of change in science, technology, the arts and industry forces millions of Americans to study at home; many, in fact, actually enroll in formal correspondence courses to sharpen and extend their skills.

Whether young or old, a high school

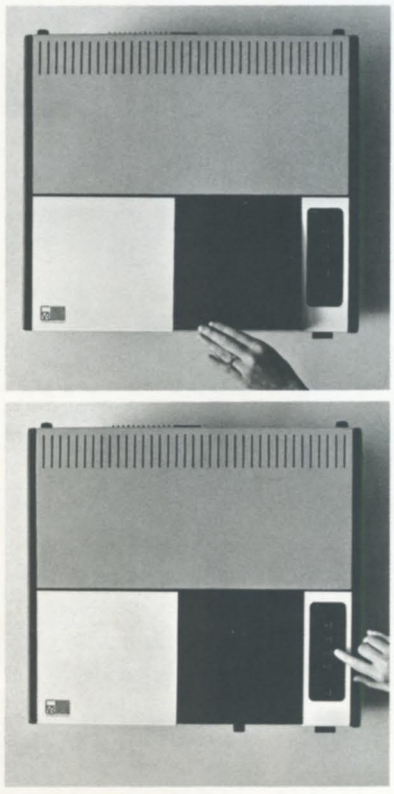


Connecting the player to the television set is simplicity itself. The antenna is disconnected (upper photo), and the player lead is then attached to the antenna terminals (lower photo).

The connections having
been made, the player
is ready to operate.
All that's left is to drop
in the cartridge...

or college graduate, an individual must study to keep up, to adapt, to increase his competence. Since 95 percent of America's 60 million homes have television sets, EVR is the logical key to home study. Wherever in the world they may be, the most inspired educators and other leading authorities in their fields will now be able to appear on film and give the student the next best thing to face-to-face lectures. And he will be able to study at his own learning pace—in the calm and privacy of his own home.

When not being used for home study, EVR will also provide hours of exciting and stimulating recreation. Before that Saturday morning round of golf, the EVR owner can insert a cartridge into the player and get a quick lesson from Jack Nicklaus. Or he can settle down for an evening of seeing and hearing Hamlet or some other film selection from his library of Shakespeare. Or perhaps he will be



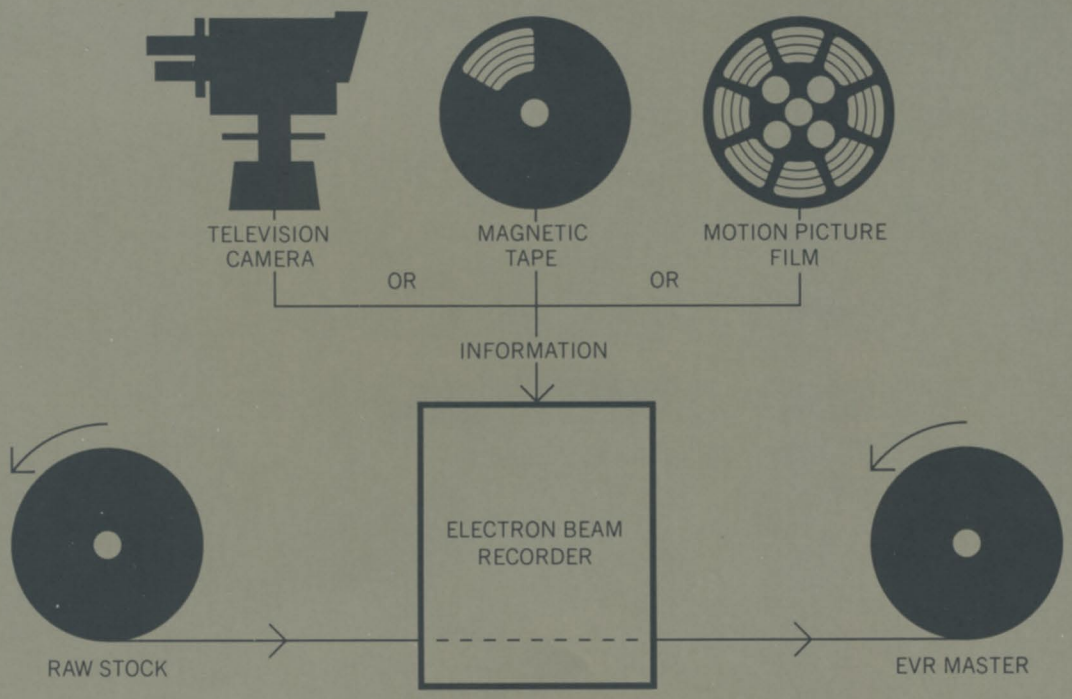
. . . put down the lid, push the Play button, and let the performance begin.

in the mood for the Horowitz concert at Carnegie Hall.

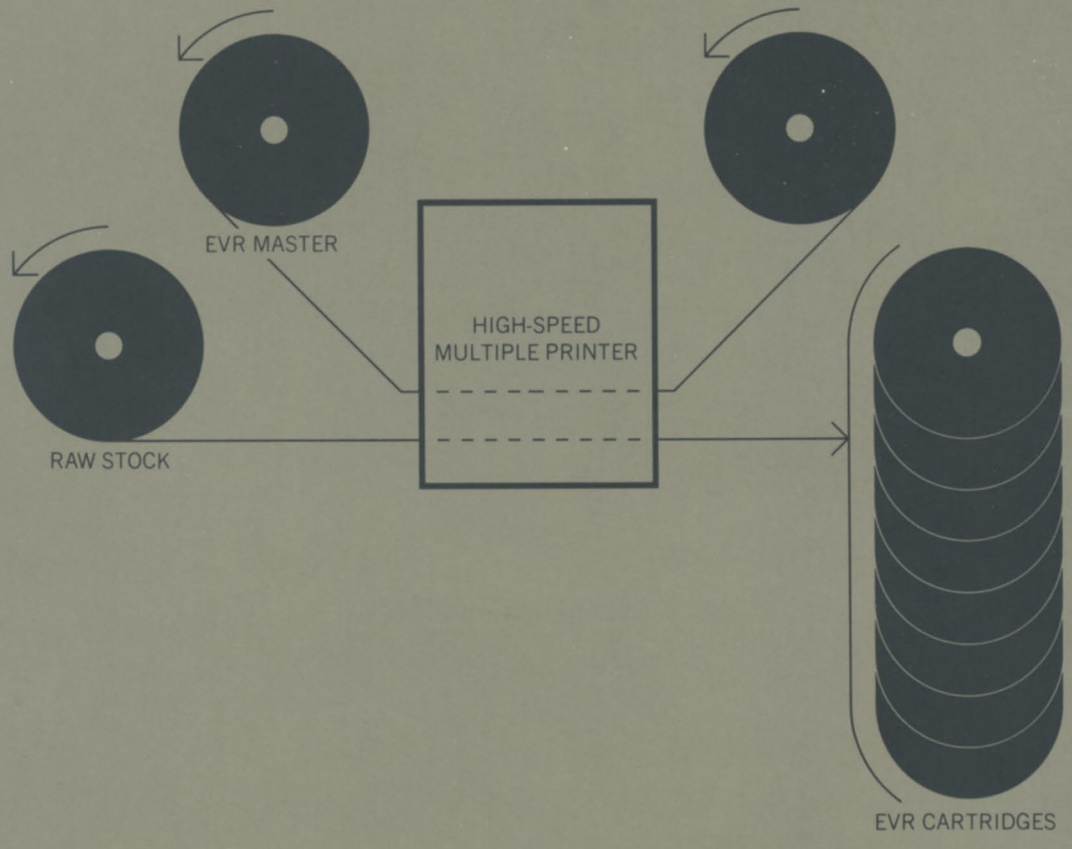
Industry, Government, the Professions. On the job, EVR will become a major management and training tool. With its low dollar-per-minute cost for creating, disseminating and displaying training programs, EVR will sharply reduce the teaching load on overworked instructors. Whether they are studying to be salesmen, dental technicians, lathe operators, engineers, computer programmers, soldiers, executives or astronauts, trainees will learn more and learn it faster with EVR. In particular, EVR holds great promise for training of every kind in the military establishment. The government will be able to teach the disadvantaged more efficiently and effectively. Hospitals will be able to exchange staff films on medical hygiene or new patient-care techniques; at his leisure, the busy surgeon can watch close-ups of new operations in his field. Scientists and engineers will see and

hear about the latest developments in their areas of specialization—not just read about them.

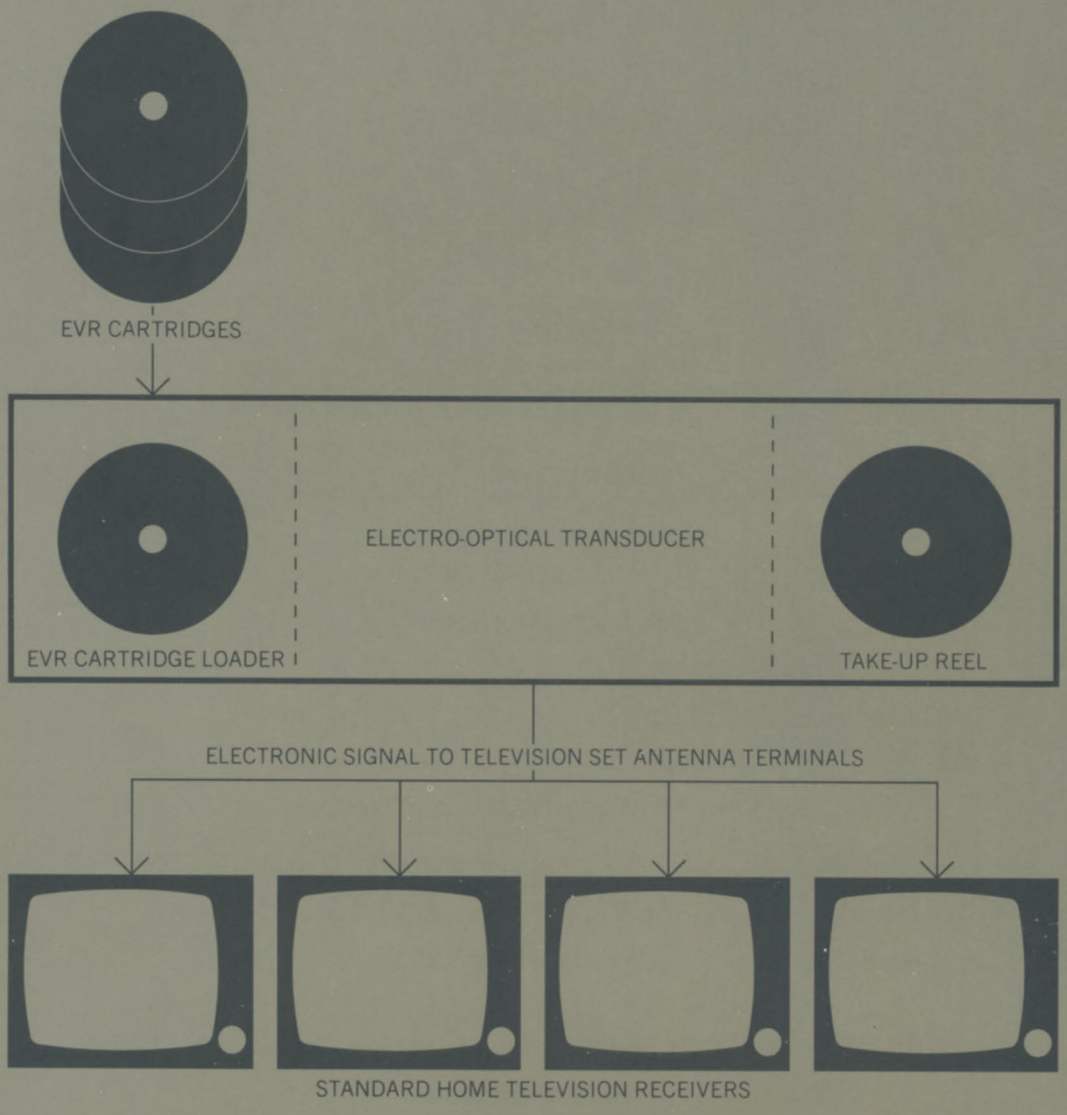
And the Future? Perhaps one day, there will be an entire encyclopedia in EVR cartridges, stored in a space no bigger than a single paperback book. There could be vivid motion pictures showing the circulation of the blood or the way a nuclear reactor works. There could be animated geography lessons illustrating how volcanos erupt, chasms open or canyons split off. There might be an essay on political science with the President himself addressing the viewer. Or there might be an essay with Bertrand Russell commenting that "the more purely intellectual aim of education should be the endeavor to make us see and imagine the world in an objective manner as far as possible as it really is...." As a significant tool of education and enlightenment, the Electronic Video Recording system should help us see—and experience—the world in just that way.



1. The EVR electron beam recorder takes program information from a television camera, magnetic tape, or motion picture film to generate an EVR master.



2. The EVR high-speed multiple printer generates multiple film cartridges from the EVR master. One 20 minute educational program can be printed in approximately 30 seconds.



3. The EVR electro-optical transducer in the EVR player scans the cartridge film and reproduces it on one or more standard home television receivers.

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