

present black-and-white image-orthicon cameras. A special-effects generator* has been produced seemingly with the ITV market in mind. A 16mm television projector† has been made to meet all the requirements of ITV, including a cost of about one-fourth that of other projectors available. It is rugged and no more difficult to operate than an ordinary 16mm projector. Its flexibility includes remote-control operation and simple conversion into a room projector. This machine is an example of equipment designed for ITV use.

Summary

The challenge is clear. Equipment for ITV must be of high-quality, ruggedly constructed, capable of a variety of complex applications while being easy to operate, and of course, it must cost only a fraction of the counterpart commercial equipment.

*New Products, *Jour. SMPTE*, 74: 572, June 1965.

†New Products, *Jour. SMPTE*, 74: 887, Sept. 1965.

Automatic Cartridge 8mm Sound Film Loop Applications in Education: A Progress Report

By NAT C. MYERS, JR.

Automatic cartridge-loading 8mm sound film equipment specifically designed for application in education became available in early 1963. Applications of this equipment at the elementary, secondary and university level are reviewed, with reference to national distribution of professionally produced and government-sponsored films, as well as to local production and utilization of sound film loops. Important factors are the reaction of educators, the availability of the material, domestic and foreign applications and markets, the relation of film to other media used in education, and future developments in equipment.

THE PROGRESS REPORTED here has emerged from the pattern of many interacting and often conflicting influences, chiefly human resistance to innovation

Presented on May 5, 1966, at the Society's Technical Conference in Washington, D.C., by Nat C. Myers, Jr., Communications Products & Services, Fairchild Camera & Instrument Corp., Plainview, N.Y. 11803.

(An abridgment of the paper received on May 16, 1966.)

coupled with financial barriers which have been overcome by inspired efforts to solve today's problems in education and by U.S. Government financing.

At Madison, Wis. the public schools have for the past five years used the Heath deRochemont *Parlons Français* programed French course for children in the fourth through sixth grades. The course is given yearly via television to 1,800 pupils. Last year, to find out whether cartridge-load 8mm sound film presentation would help overcome problems of preparation and flexibility, an evaluation was sought from teachers with little or no prior language teaching experience. A notice posted at the central office brought 28 volunteers.

The Experiment

The experiment was started with a 1½ hour briefing session with the language coordinator. During the first two weeks the classroom teachers had homework consisting of previewing pupil films as well as practicing with teacher



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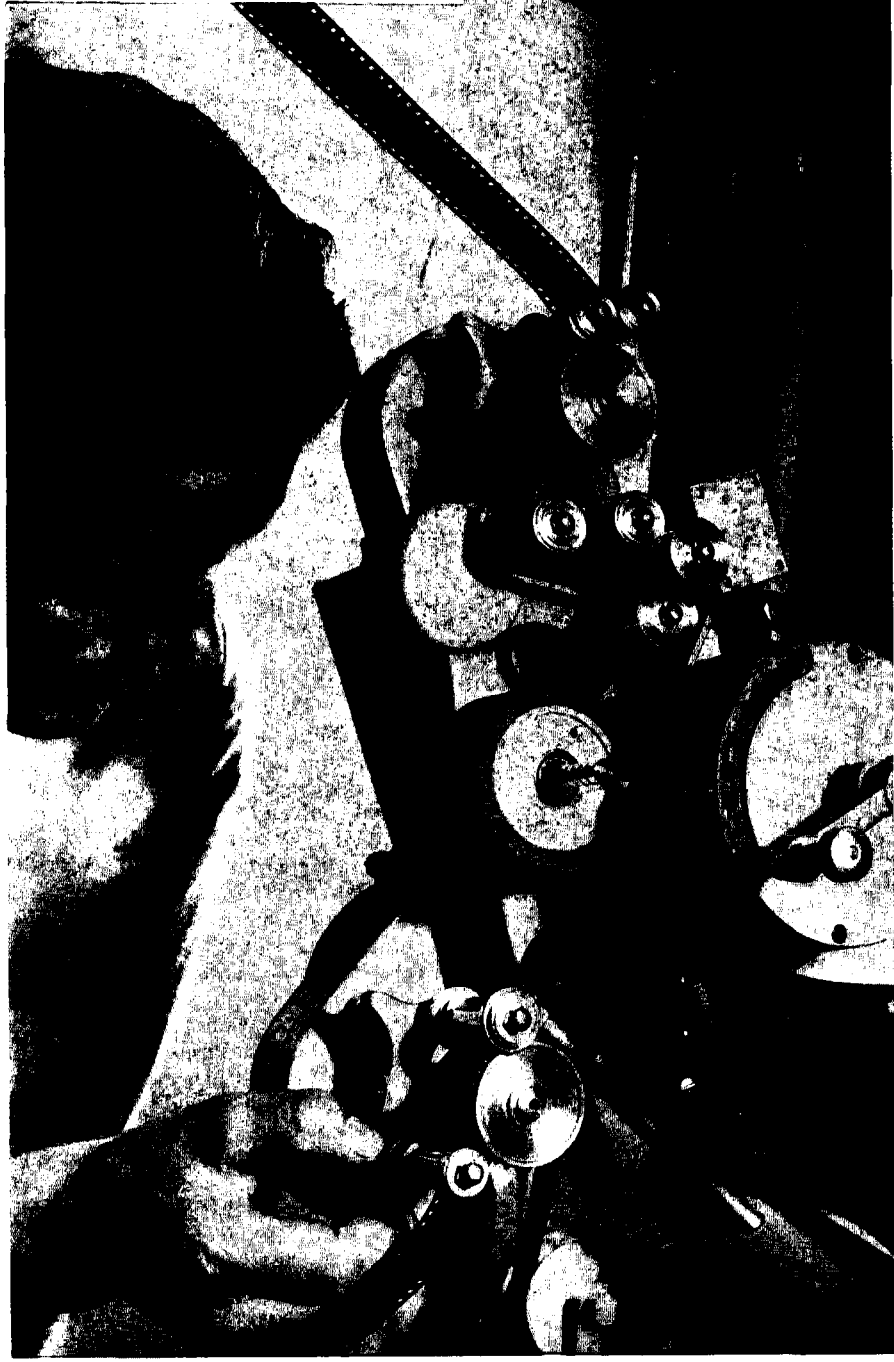
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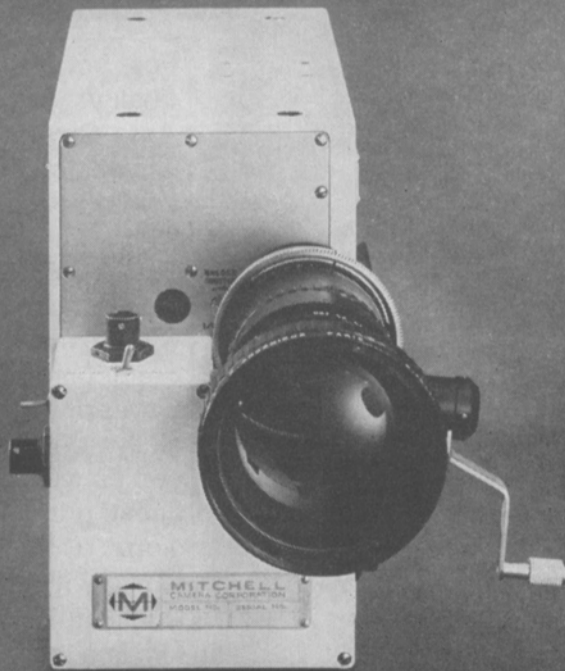
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films and records. During school hours they taught one twenty-minute class-period per day for three weeks. Only the first nine films in the first year of the series were used.

At the conclusion of the experiment the Department of Curriculum Development used a four-page individual questionnaire to obtain teacher reaction. Responses revealed that teachers felt no loss of face from learning along with their pupils; that there were no ill effects on subjects from which time had been "stolen" for the French program; and that the opportunity to preview, present and review films was regarded as an extremely valuable advance.

The teachers were given the opportunity to continue the experiment for the full 27 weeks of the first year program and they all elected to do so.

As a part of the experiment, each teacher had access to the cartridge-loading 8mm sound film projector with films in MoviePak format and also access to a 16mm projector and 16mm versions of the same films. Given this free choice of film format, the 16mm films received little use.

As a result of the experiment, Dr. Robert D. Gilberts, Superintendent of Madison Public Schools, applied for a substantial federal grant to support a citywide 8mm sound film program in language teaching for fourth, fifth and sixth grades. The project would serve as a model for other school districts.

Other Programs

Much of the film for the elementary level has consisted of support and enrichment material rather than curriculum-oriented film packages. New material is required. Two federally funded production programs in the area of Elementary Modern Mathematics have been undertaken at the University of Minnesota and at Webster College in St. Louis.

At the University of Minnesota during the current school year, the Minnemast Project finished productions which are undergoing test and evaluation at six geographically and socio-economically separated schools throughout the country.

The Webster College program, known as the Madison Project, has produced teaching and teacher training films starting with the second grade level and including such titles as *Graphing a Parabola* and *Guessing Functions*. Cartridge-load sound projectors are used for both group and self-instruction. These films have passed the evaluation stage and are now in distribution.

The convenience of cartridge-load sound film has led to a very meaningful experiment with a learning laboratory for hard-of-hearing children at the University of Nebraska, under the direction of Dr. Robert E. Stepp. The ef-

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fectiveness of cartridge-load sound film in this difficult application dealing with preschool aurally retarded children has led to federal funding for 150 additional sound films beyond the 25 films which were a part of the original project. National distribution has been scheduled.

The simplicity of cartridge-load sound film also led to testing its use in the federal program known as Project Head Start. In this application entertainment and travel materials are used to broaden the outlook of culturally deprived pre-school children.

There is also the CHEM Study series, a textbook-correlated program of 26 20-min color films chiefly for secondary schools. These are distributed in 16mm and in cartridge-load 8mm sound film format. Their use in high schools and with college freshmen has encouraged production of new teacher training and physics materials. (See: David W. Ridgway, "CHEM Study Films to improve high-school Chemistry teaching," *Jour. SMPTE*, 74: 866, Sept. 1965; and H. MacCallum, "Motion pictures in science education," *Jour. SMPTE*, 75: 831-832, Sept. 1966.)

Mark IV Projection System

A growing interest in experimentation and in local production in secondary schools led to the development and introduction by Fairchild of a recording version of the Mark IV projection system. A soundtrack may be added to a locally produced film that has been edited, post-stripped at the laboratory, and loaded into a MoviePak cartridge. In addition, existing soundtracks of professionally produced or prior locally produced films may be changed or edited to enhance effectiveness.


A meaningful application in both local production and professionally produced films is under way at the Antioch School associated with Antioch College in Yellow Springs, Ohio. The College is evaluating the effectiveness of cartridge-load 8mm sound film in individual instruction with particular reference to a first-year program which is now operating on a total self-instructional basis.

Job Corps Vocational education requirements have created titles in MoviePak such as *Proper Lighting of the Oxy-Acetylene Torch*, *Replacing the Trim on a Refrigerator Door* and *Alignment of a Superheterodyne Intermediate Frequency Receiver*. Other titles have been created at the University of Michigan.

The university level has, in fact, been the most active educational experimenter and user of 8mm cartridge sound film in general education. (Medical education is the most active educational user.) Over 200 university projects and applications of 8mm cartridge sound film range geographically throughout the nation and cover scores of subjects.

Single-Concept Film Clip Project

For many years, the dedicated teacher has excerpted portions of existing instructional films for various purposes, showing small segments to illustrate specific points. The difficulty encountered in using 16mm educational films and projectors for this purpose, coupled with the introduction of the Technicolor silent and the Fairchild sound cartridge projectors led to the development of the Single Concept Film Clip Project at Michigan State University. In 1964, the federal Office of Education funded the project for the development of practical systems for the selection, storage, maintenance, retrieval, distribution and projection of film clips, both sound and silent, from existing 16mm instructional films. Films were surveyed and selected in the areas of foreign language, science and social studies. Preliminary conclusions indicate that the project has demonstrated the feasibility of excerpting discreet segments from existing films for use as single concept 8mm cartridge films. Results suggest that sound is required in 50% of all such applications.



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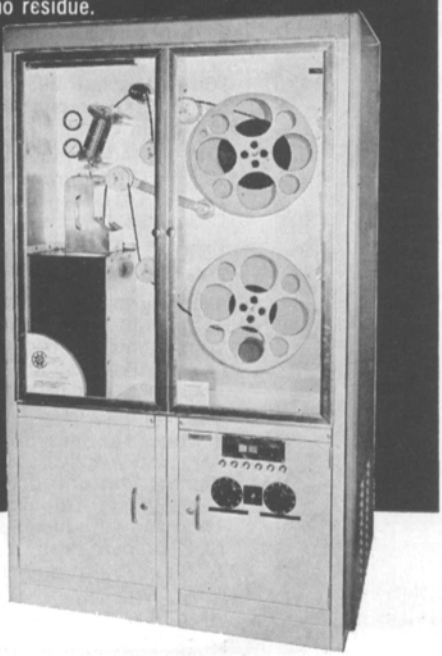
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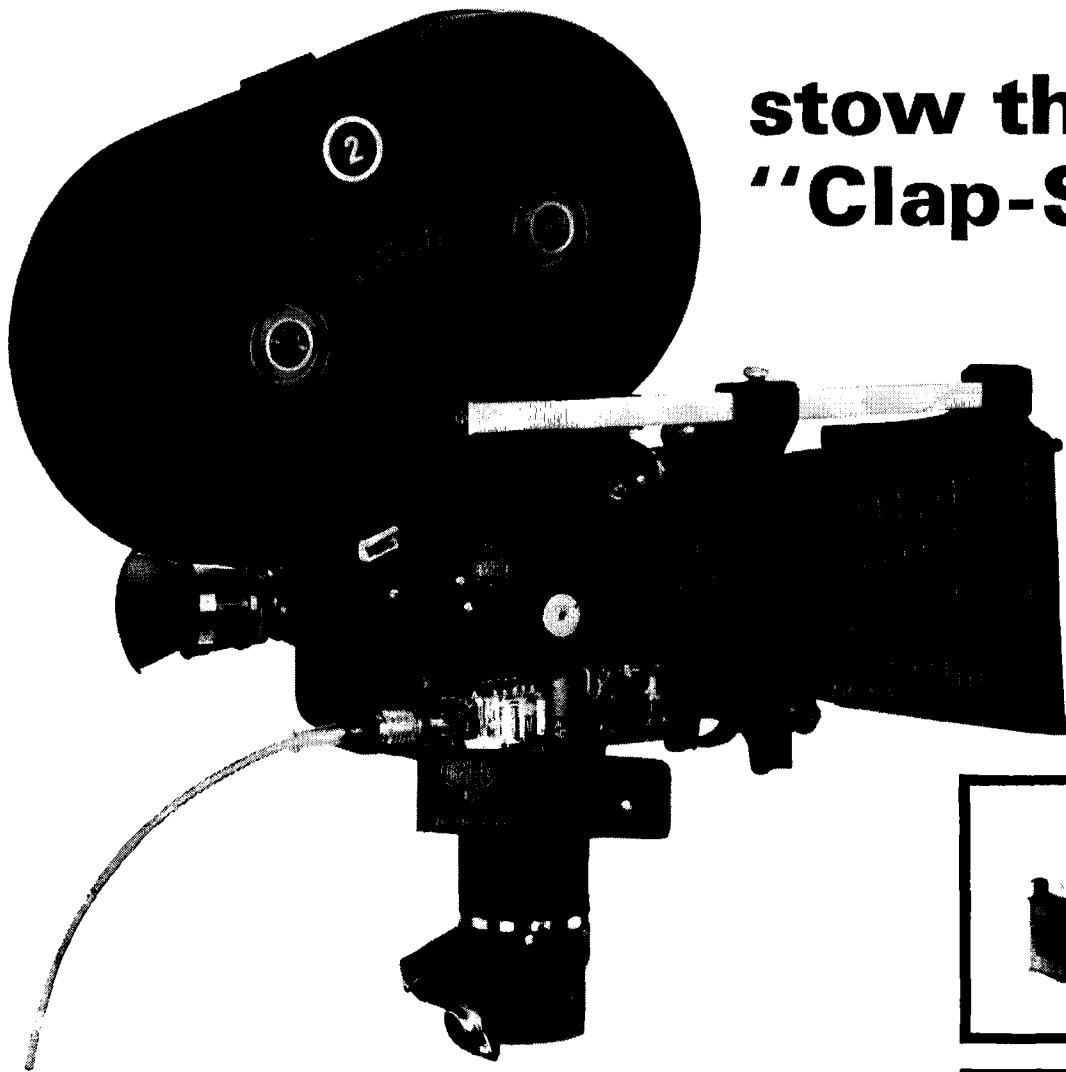
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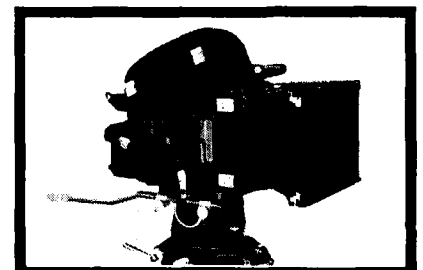
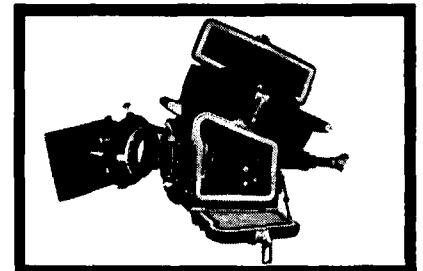
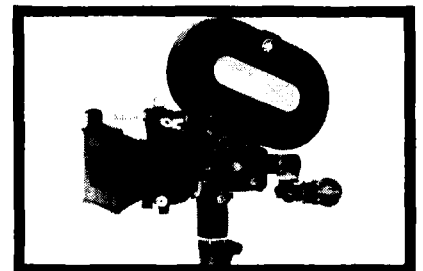
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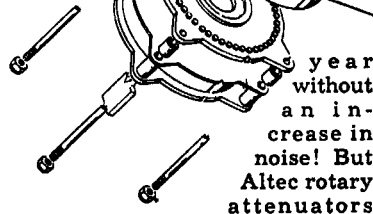
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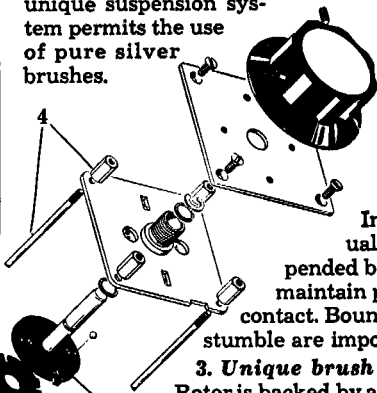
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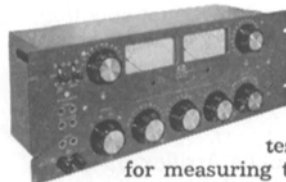
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Standardization

Additional strong recommendations were made in the Report with reference to standardization, the desirability of providing both silent and sound speed operation, and the flexibility of provision for cartridges of different film capacity to cover both film clips and longer film lengths.

It seems obvious at this point that cartridge-load 8mm sound film is not in direct competition with other educational media but that it is, in itself, a valuable tool for group and self-instruction capable of providing the flexibility and accessibility which are prime requisites for the efficient use of film in the educational environment.

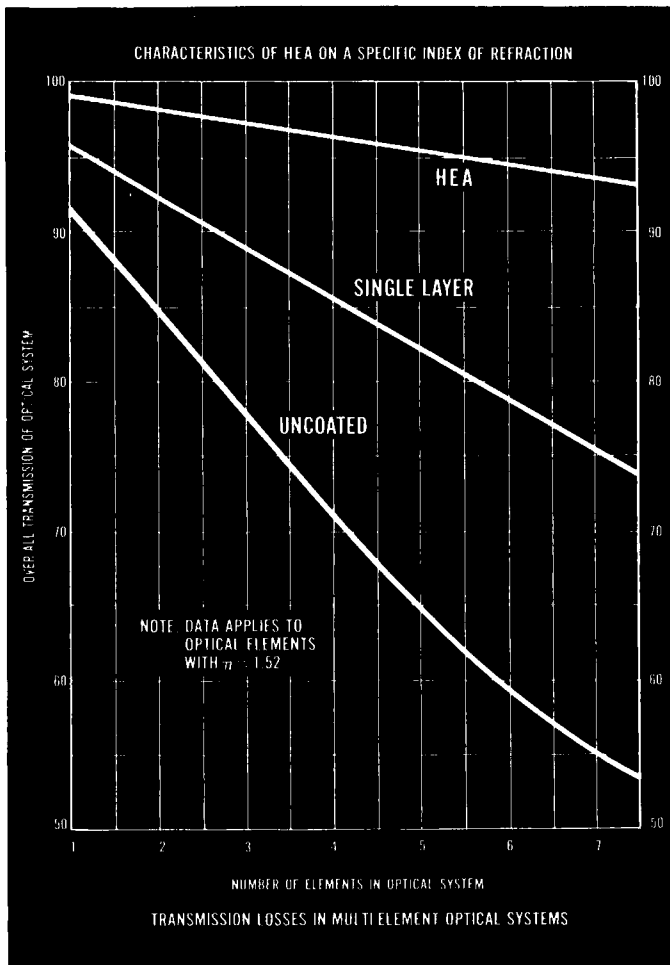
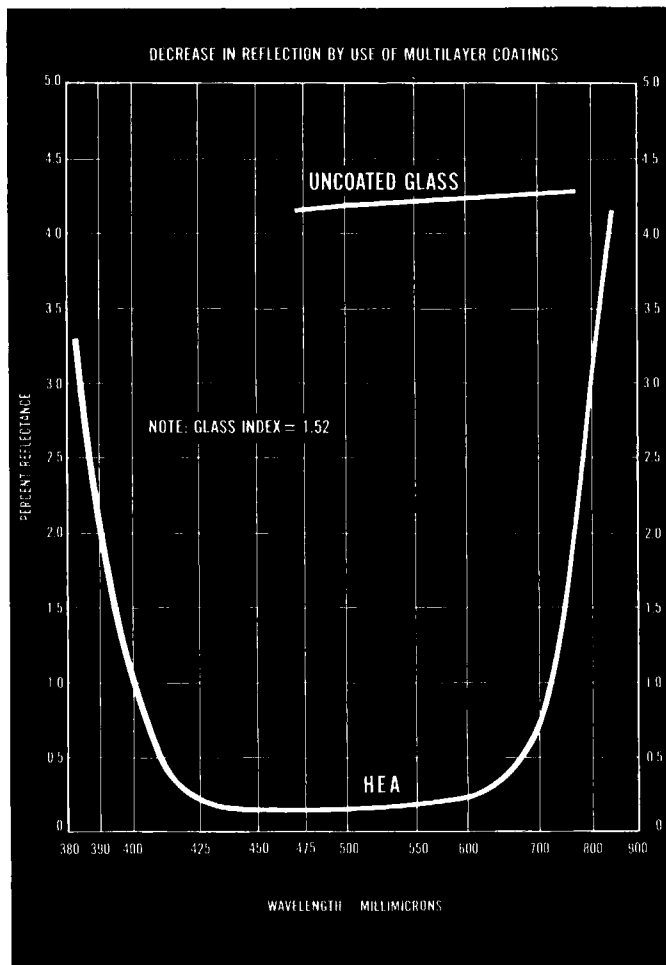
8mm cartridge sound film and projection equipment have been used primarily within individual curriculum areas in conjunction with specific educational film series. We believe that the educator can and must select his equipment and films with reference to each individual application. If he waits for complete resolution of questions of format and/or cartridge or equipment standardization he may find that he will never make a decision.

At present, the only available cartridge-loading sound film projection equipment utilizes standard 8mm film with magnetic sound. There are more than a score of laboratories equipped to provide printing, processing and sound transfer services for standard 8mm. Because of these factors and because standard 8mm magnetic will provide greater running time with the same film footage, we believe that programs scheduled to become active during the next several years will continue to utilize standard 8mm magnetic sound film.

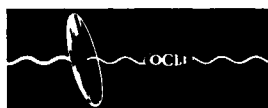
We expect that researchers will develop a system for producing magnetic sound release prints at a low cost and that these systems will use prestripped standard or prestripped super 8 film and provide high-speed printing, magnetic sound transfer, and slitting in one operation. We expect that both optical and contact printing capability will be provided. Finally, we believe that with the imminent availability of prestripped print stock at minimal additional cost, as already announced by Eastman, the future format of 8mm sound in both amateur and non-theatrical fields has been clearly indicated. (See: C. Loren Graham, Willis L. Stockdale and Allan L. Williams, "A systematic approach to the mass production of commercial super 8 prints," in earlier pages of this issue of the *Journal*.)

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