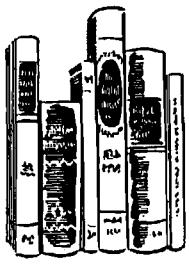

books reviewed

Public Television—A Program for Action

The Report of the Carnegie Commission on Educational Television; Chairman, James R. Killian, Jr., published (1967) by Bantam Books, Inc., 271 Madison Ave., New York , N.Y. 10016. 254 pp., 4¼ by 7 in., paper bound. Price $1.00.

This report, prepared by the Carnegie Commission on Educational Television, has focused the attention of the general public on the possibilities of noncommercial uses of television. It may lead to entirely new arrangements for the distribution of educational and cultural programs to the home viewer. Since such programs are, in general, not economic for commercial sponsorship, a large part of the report is devoted to recommendations for the financial support of such a venture, which the Commission calls Public Television. This would take the form of a Corporation for Public Television, which would be supported by both public and private funds. One proposed source of funds is an excise tax of up to 5% on television sets. Whatever the method of financing may be, such proposals should be of great interest to the minority of educated people who feel that commercial television has ignored them in its competition for the advertiser's dollar.

The recommendation that the "Corporation support at least two national production centers, and that it be free to contract with independent producers to prepare Public Television programs" is a logical outgrowth of the general proposals. However, the proposed support of local production brings up the question as to whether such local programs would be of sufficiently high quality to warrant transmission to large areas.

Recommendations for the support of "instructional television," (television used in schools), are less enthusiastic. The commission notes that instructional television has not yet played a vital part in formal education, and that "the deficiencies in instructional television go far beyond matters of staff and equipment." It also points out the importance of "low-cost storage devices . . . to return to the classroom the flexibility that the present use of open-circuit broadcasting denies it." It would seem that film should be considered as a "low-cost storage device."

In most of this well-studied and carefully worked out report, there seems to this reviewer to be a basic assumption which is not necessarily valid. This is that a wide-spread television network should be provided so that viewers, whether at home or in schools, may all see a particular cultural or educational program simultaneously. Except for an occasional discussion of public affairs, this provision for simultaneous viewing seems entirely unnecessary, and unnecessarily expensive. Since most programs of value should be available for rebroadcast, they would already be on film or tape. Perhaps the alternative method of distribution by film to local broadcast stations will be given more consideration in future studies.—*Clyde R. Keith*, Consultant, 240 East Palisade Ave., Englewood, N. J. 07631

Die Erfindung des Tonfilms (The Invention of the Sound Film)

By Hans Vogt. Privately published (1954) by Aloys Gogeissl, Passau (Niederbayern), Germany. 100 pp. 58 illus. 17 literature references.

One of the earliest successful demonstrations of a sound-on-film motion picture took place at the Alhambra theater on Berlin's Kurfuerstendam on the evening of September 17, 1922. The film, called *Village Life*, was the result of a cooperative effort begun in 1919 by a trio of dedicated German inventors who called themselves the Tricrgon — Dr. Hans Vogt, Dr. Joseph Massolle and Dr. Joseph Engl.

Of the three inventors, Vogt and Massolle are still alive. In fact, on the occasion of the Fifth Annual Meeting of the International Film Club at Bad Ems, West Germany,

November 5, 1953, Dr. Vogt gave an account of his part in the invention and was prevailed upon to write a book documenting the entire achievement. This thin (100 pages) but fact-laden volume, *The Invention of the Sound Film*, was published in 1954. Its content (in German) is a fascinating account of how the almost insuperable problems involved in the Triergon's project were solved, and, at the end, why their successful work earned them neither fame, fortune, nor international recognition.

It was Dr. Vogt's imagination that spurred the mutual endeavors of the Triergon. He had dreamed of technically and artistically beautiful motion pictures with simultaneous sound, based on three criteria:

(1) The sound and picture would be printed on one and the same film.

(2) The sound would be photographed and "printed" by photographic processes.

(3) The original sound impression would have to be preserved without any distortion being introduced by the essential procedures: recording, amplification, transmitting, fixing and playback.

With the financial support of the C. Lorenz Co. of Berlin-Templehof, Dr. Vogt and his associates in the Triergon tackled their project, devising all the equipment they needed by themselves. Their first basic invention was what came to be known as the gas microphone designed to replace the noisy carbon microphone utilized in telephones at the time. An electric current had to be generated from the ionized surface of a glowing body by bringing an electric anode close to it. It would be necessary to introduce sound waves into the gap between the glowing body and the anode to produce fluctuating air pressure. This would enable the electricity flowing from the electric molecules to the glowing body to change rhythmically with the sound without inertia.

Since such microphones could only furnish fluctuations in potential to a maximum of 0.01 V, they had to be amplified. The firm of Siemens & Halske was entrusted with the task of engineering the amplifying valves when the Triergon could not reach a satisfactory result by their own efforts.

The next link in their chain of inventions was the engineering of the inertialess glow lamp which would transform alternating current flowing from the amplifying valve in rhythm with the sound to effect changes in light intensity corresponding to voltage changes and thus to blacken the passing film in the identical rhythm.

Another handmade device needed to realize their goal was the photocell which was new merely in its application to the reproduction of sound on light-sensitive film, but in no way a new idea. The photocell, unlike the selenium cell, guaranteed an unvarying translation of varying light intensity into corresponding current strength.

Since the light sources that were needed to record and reproduce sound had to meet special criteria, a special optical system had to be developed to concentrate the rays. The system which was finally developed in cooperation with Professor Koehler, manager of the microscope department of Carl Zeiss, guaranteed good accuracy. The system is still used today in sound-film recording and reproduction equipment. (Later development of the "noiseless effect" simply resulted in an even clearer sound effect.) The Triergon's system turned out luminous lines, 0.005-mm wide on the negative recording film, or in other words, directed sufficiently fine luminous lines through the sound signals of the positive film.

A major contribution to obtaining undistorted sound signals was Engl's proposal for considerably overexposing the negative film so that the curves on the positive film would cancel each other out, and a close-to-linear gradation would result in the part of the positive film that was impervious to light.

The final step toward achieving absolute simultaneity of picture and sound events was the printing of the separate but simultaneously recorded negatives on the same positive film strip. In this connection, a special copying machine was also developed by the Triergon.

The next technical achievement was the engineering of the condensor loudspeaker based on electrostatic principles.

While various silent movie recorders and projectors were already on the market at that time, equipment to photograph and project sound had yet to be invented. The first such device was the "gallows." An improvement of simultaneity and fluency of picture and sound was achieved with the "church" (blimp). Since this "box" which contained ordinary cinematographic picture recording equipment on one side and which stored the sound film recording equipment on the other side, was

completely isolated, no outside noises could penetrate it during the recording time. The "church," the first equipment for combined photographic and phonographic film recording, was replaced before too long by a more refined model — the first noiselessly working studio camera.

The latter part of Dr. Vogt's book harshly recalls the economic realities of the time of the Triergon's efforts. The post-World War I depression created immense financial difficulties which threatened both the work of the Triergon as well as the livelihoods of their families. How much help could there be in the financial support of a few industrialists in a period of currency inflation?

Not only did *Village Life* turn out to be a popular success, but it was followed by other sound-film productions based on the Triergon's inventions. A number of unfortunate developments, such as the reluctance of the German film-producing industry to turn its back on the financially successful silent film boom of the time, kept the inventors from realizing the financial rewards of their efforts. In 1925, the Triergon disbanded and Dr. Vogt established himself in the radio industry in Germany. Dr. Engl eventually came to the United States where he died in 1943. Dr. Massolle is now living in Berlin in virtual retirement

In 1928, when the sound film industry in the United States really got underway, William Fox wisely acquired all the sound-on-film patents of the Triergon for his firm, where they appear in the technical footnote literature.

In addition to the illustrations, a 5- by 7-in. sheet of photographic "sheet film" is attached to the inside front cover of the book. On the left side of the film is a strip of the first sound film made by Dr. Vogt and his associates in 1921 (of Friedel Hintze singing). On the right side there is a strip made in 1925 of Reichsminster Stresemann talking — the last sound film made by the group. The center soundtrack is on 35mm film.

Since the book was first published in 1954, it has gone through six private printings.—*Ulrike Geginat*, Camera Industries of West Germany, 17 E. 45 St., New York, N.Y. 10017

BOSTON, March 15—"Optical Sound Recording With a Silicon Carbide Electroluminescent Diode," was the subject of a talk given by Dr. Allen Miller, Asst. Director of Research, Norton Exploratory Research, Cambridge, Mass., to the **Boston Section** at the Arrowhead Inn in Bedford. In spite of a ten-inch snowfall, 20 members and guests braved the weather to hear Dr. Miller's paper.

Dr. Miller discussed the use of a newly-developed silicon carbide diode for optical sound recording on ordinary films such as Plus X reversal and Kodacolor II A. During the recording process the diode is held in proximity to the film and requires no intervening optics.

A demonstration film was shown on which Dr. Miller and his associates had recorded various sounds such as music, speech and children playing in a swimming pool.

A lively question-and-answer session followed Dr. Miller's very enjoyable presentation. All present felt the struggle through one of the season's worst snowstorms was worth the effort.—Glenn Lahman, *Secretary-Treasurer*, WBZ-TV, Boston, Mass.

CHICAGO, Feb. 21—Dr. Hans C. Wohlrab, Director of Professional Product Planning, Professional Equipment Dept., Bell & Howell Co., Chicago, was the guest speaker at the **Chicago Section** meeting held at the Knickerbocker Hotel. Thirty persons attended.

The title of Wohlrab's paper was "The NTSC System: Basic Principle for Color TV." He discussed the basics of color television, stressing the importance of the NTSC system and how the system works. The talk emphasized how various panels of the National Television Systems Committee formed and eventually developed a system that met the basic requirements of all groups.

Dr. Wohlrab's excellent presentation techniques, plus his experience and enthusiasm for this subject, were evident in his presentation.—William A. Koch, *Secretary-Treasurer*, Eastman Kodak Co., Chicago.

CHICAGO, March 14—"Recent Trends in Instrumentation and High-Speed Photography," was the topic of a talk given by William G. Hyzer, SMPTE Vice President for Instrumentation and High-Speed Photography Affairs, 205 Wall St., Janesville, Wis., before 41 persons attending the **Chicago Section** meeting. The meeting was held at the University of Chicago.

We were pleased to have one of our SMPTE officers present this technical paper at one of our meetings.—William A. Koch, *Secretary-Treasurer*, Eastman Kodak Co., Chicago.

DETROIT, April 28—Clifford Wagoner, engineer with the Impact Analysis Group, Chrysler Corp., and his associates gave a splendid presentation covering quantitative film analysis as related to automotive safety research at the **Detroit Section** meeting at the Chrysler Corp. Training Center, Centerline, Mich. Forty-two persons attended the meeting.

Using specially-prepared color slides, he provided a lucid explanation of the problem of analysis, and illustrated the equipment and tools used. The presentation included