Technical Note:

Containment Screen for Drive-in Theaters

By PETRO VLAHOS

SOME DETAILS ABOUT this project may be of interest at this stage of the development.

Legislative acts in 26 states and pending legislation in other states are making it illegal for any motion-picture image to be visible outside the property boundaries of a drive-in theater. While in some cases the law was inspired by objectional material on the screen, the picture is also considered a traffic hazard in that it diverts a driver's attention as he passes the theater. (Local police records show less accidents — not more.)

Since a 70-foot (21-m) high fence is not practical, the National Association of Theatre Owners (NATO) approached the Research Center for assistance in finding a technical solution. I set up a study group including myself, Wilton R. Holm, Consultants Alan Gundelfinger and John Andreas, and experts Zack Beiser and Robert Selig of Pacific Theatres. We examined all of the alternatives: fences, deep bowls in the earth, domes, selective viewing devices, strategically placed glare lights, multiple small screens, and screens whose reflection pattern was controlled.

The most practical solution appeared to be a special screen whose reflection pattern fit the theater geometry. This screen would consist of about 12,000,000 $\frac{1}{4}$-in (6.35 mm) mirror-like lenticules. Each lenticule, being a curved mirror, would reflect only into the ramp area by virtue of the degree of its horizontal and vertical curvature and its orientation with respect to the projector.

A patent search was made. It was concluded that adequate art lay in the expired screen patents. Fabrication of the screen is planned in sheets of mirrors where each sheet is approximately 18 × 24 in (45.7 × 61 cm). The sheets are to be electroformed of pure nickel and surface coated by an electrodeposition of rhodium or chromium.

The electroform technique is an excellent method of producing exact replicas of the die. The coating provides long exterior life.

At the recent Miami convention of NATO, a group of drive-in theater owners pledged approximately $100,000 to support the development and installation of a full 5,000-ft² (465-m²) prototype. Since there are no feasibility problems, the development will be directed toward obtaining a minimum cost fabrication and installation method.

The installation is planned at a theater near the Los Angeles International Airport, so as to be convenient for inspection by theater owners across the country.

The restriction of the reflection pattern provides a net screen brightness gain of about 300%. Directionality is also effective in excluding ambient light. This exclusion property affords an earlier starting time of about 10 minutes across the southern U.S. and perhaps up to an hour at the northern latitudes whose twilight diminishes more slowly.

Discussions have been held with electroforming companies, and plans are being formulated for construction of the master die. It is anticipated that the first installation will be completed in 8 to 10 months.

Received 20 December 1972 from Petro Vlahos, Chief Scientist, The Motion Picture & Television Research Center, 8480 Beverly Blvd., Hollywood, CA 90048.

Letters to the Editor

Comments on the paper "Technology's Role in Motion Pictures and Television" by Wilton R. Holm, July 1972 Journal

Dear Sir:

John S. Carroll wrote on technical annoyances to film audiences. I can understand how difficult trying to please everyone can be because, in contrast to Mr. Carroll, I prefer the widest screen ratios and would like to hear all films with stereo sound. I saw a documentary film once in which most of the color footage was quite low contrast, while a few scenes appeared to me to have normal contrast. I asked the director about the contrast changes and learned he wanted his next films to be entirely in the "Soft Color" style.

I have been watching the Bob Newhart show on TV this season and the screen quality last night was a great improvement. The clear, detailed image was what the fine cast and clever scripts deserved but did not receive until now. My guess is that the production switched from 16mm to 35mm, or the new E.K. color negative might have been utilized in 16mm.

The regular TV audience survey might be used in the case of the Newhart show to gauge picture quality. The survey figures for last night can be compared with the earlier telecasts, to minimize the effect of competing programs; the Newhart show could be compared to the Mary Tyler Moore Show, which precedes it. I think the other two networks always have hour or longer programs when those two shows are on, and would carry an appeal from week to week but not during that hour. If the Newhart show continues with the better picture, the audience figures for the rest of the season, including reruns, might be the finest numerical evaluation of screen quality.

26 November 1972

CHARLES L. ANDERSON
911 Kay St.
Sacramento, CA 95814

Dear Sir:

In Wilton Holm's response to John Carroll's response to Mr. Holm's article, "Technology's Role In Motion Pictures and Television" (July 1972 Journal) it is clear that Mr. Holm does not understand what Mr. Carroll is saying about equipment and the cost of production.

It is true that, on a production with a budget of a million dollars, the difference in rental costs between an Arriflex and a BNC Mitchell "pale into insignificance." But what is significant is that the entire style of production is different be-

cause of which of these cameras is used. A BNC demands a larger crew, and its very importance affects the attitude of the crew toward their work. Conversely, the mobile feeling of an Arriflex leads to a smaller, more mobile, less pretentious production.

I am simplifying, of course, but the point is important. Audiences respond to films that have something to do with their lives. An evening at the movies cannot be compared to an evening with your four-channel quadraphonic sound system. While the latter may bring delight in part because of its obviously brilliant engineering, movie audiences could care less about film gauges, sound systems, grain structures. And the evidence seems to be that more and more often the "Arriflex" films reach audiences better, and for a more profitable cost/viewer factor than films employing the latest engineering "breakthrough."

What I believe should be the goal of all technicians, scientists and engineers affiliated with the motion-picture industry is the improvement and development of tools and materials to help filmmakers make valid films for real audiences. Any contribution toward this goal is a beautiful gift.

8 November 1972 STEPHEN SCHMIDT, Assistant Professor
Meadows School of the Arts
Department of Broadcast-Film Art
Southern Methodist University
Dallas, TX 75222

Dear Sir:

I note Professor Steven Schmidt's deduction that "in Wilton Holm's response to John Carroll's response to Mr. Holm's article," it is clear that Mr. Holm does not understand what Mr. Carroll is saying about equipment and the cost of production. Contrary to Professor Schmidt's deduction, I understand Mr. Carroll very well. And I respect his point of view. But that does not obligate me to agree with it.

Permit me also to disagree with Professor Schmidt when he says "the entire style of production is different because of which of these cameras is used." [Arriflex or BNC Mitchell] Actually one or the other camera is frequently chosen because of the type of production which has already been determined. The Arriflex does not lead to a smaller, more mobile, less pretentious production. For such a production the Arriflex is chosen because of its light weight, small size, portability, etc. Yet the small, less pretentious production does not rule out the use of the Mitchell camera. It is worth noting that Fouad Said includes the Mitchells on his Cinemobiles.

A Mitchell BNC does not, per se, demand a larger crew. There are other considerations, which have more effect upon crew size. And the so-called "very importance" of the BNC does not affect the attitude of a crew toward its work, at least not a professional crew. In fact, many professional cameramen are critical of the BNC because it is large and heavy, but they recognize that it is a quieter running camera than the Arriflex. This is no criticism of either camera — the fact that one is lighter and smaller, the other more silent. And an engineering breakthrough that would provide the best features of each might well obsolete both.

I will not go into the philosophy of why and how people respond to movies. I did that in my original article. Let me repeat one point, however. Movie audiences do not know and do not care what kind of camera is used to photograph a scene. Neither do they care about a profitable cost/viewer factor. They want to be provided with an experience.

It *is* the goal of all motion-picture scientists and engineers to help filmmakers make valid films for real audiences. How valid is determined by the filmmaker, not the scientist or the engineer. The same cameras that shot hit pictures such as *The Sound of Music*, *The Graduate*, *Airport*, *Love Story*, *The Godfather* and others also shot many pictures which were "flops."

I know of no evidence to support a statement such as "Arriflex films reach audiences better." A generalization such as this is invalid in the light of fact, neglecting, as it does, more important considerations such as the dramatic content of a film. And such pictures as those listed above prove my point.

7 December 1972 WILTON R. HOLM,
Executive Director
Research Center of the Association of
Motion Picture & Television
Producers Inc.
8480 Beverly Blvd., Hollywood, CA 90048

Dear Sir:

The letters from John S. Carroll and from Stephen Schmidt comment on a paper by Wilton Holm concerning the role of technology in motion pictures. I should like to add some views of my own, because neither letter gets quite to the point. Mr. Carroll is concerned with "overengineering" and its deleterious effect upon net quality and costs. Mr. Schmidt is concerned about the adverse effect such overengineering has on the attitudes of the crew and the resulting shift of emphasis toward pretentious films rather than "valid films for real audiences."

We must recognize that this industry is based upon engineering and technology. Without optics, film chemistry, mechanics and electronics, there would be no motion-picture industry. The primary role of technology has been to provide the tools. Its continued role is the improvement of those tools, both as to the quality of the results, ease of use, and cost. An obvious objective is the reduction of production costs. No one today would give up the highly engineered Nagra to go back to the sound-recording truck of yesterday.

The entire motion-picture technology represents only a vehicle or carrier. It must have something to carry, namely, some entertainment. The sharpest test target and the clearest-sounding test tones will not satisfy an audience.

It is not the engineer who decides whether we will have 3-D or stereophonic sound, or big fuzzy pictures. Nor does he decide on which cameras, lenses or sound recorders will be used. Ultimately, these decisions are determined by economic forces of public acceptance of price, quality and product offering. Preceding that ultimate decision, it is the men or man who risks his money who decides these issues. If a majority of these producers are consistently wrong, we will indeed go out of business. But the producer also decides an even more critical issue. He decides what constitutes valid films or relevant films or entertaining films. He may emphasize a technological novelty such as the big fuzzy screen, or multidimensional sound or 3-D. Or, he may emphasize subject novelty which currently is violence, sex and gutter language. Novelties, by definition, are short lived; but unfortunately the method or subject hangs on after the novelty is gone.

Some producers believe that entertainment is associated with the content of the story and the nature of the emotions evoked in the viewer. The fact that some of these producers didn't have a large budget may very well have required the use of sun reflectors instead of brutes, or of an Arriflex instead of a BNC. The low budget is not a cause or a guarantee of good pictures. Nor is there any necessary relationship between engineering (or overengineering) and such factors as entertainment values, boxoffice prices, or more valid and meaningful films. The cause/effect relationship lies elsewhere. First and foremost it begins with the concept of human values in the producers mind, then the labor contracts that determine crew size and wages, a distribution network that takes over after production is finished, and an exhibitor network that faces increased taxes and higher prices for labor and supplies.

The young folk, "who jump out of two Volkswagon buses and shoot a picture in two months," must still go through the post-production phase of editing, dubbing and scoring. They must still deal with distribution, who produces the prints, advertising, and physical handling of prints. These young folk

have about the same probability of making a nonentertaining, nonrelevant film as does Hollywood's "overengineered" establishment. They may risk less money, but it hurts just as much or more if they lose it.

The SMPTE may not be the proper forum for this kind of discussion because we are not the decision makers in this area. Perhaps we should enter this area, because we deal with the laws of nature which demand rigid adherence to rationality. To the rational, nothing lies outside the realm of reason. I believe that very early in life many of the more rational minds gravitated to science and engineering where they found an ordered, objective world. If so, who is left to manage all the other aspects of life, including motion-picture production? Frankly, I believe that our objective methods, which are so successful in solving technological problems, may be applied to solving any problem, including a determination of what constitutes entertainment, and what is relevant to man's emotional needs. Would this not be a challenging new field for the practitioners of technology to examine? I believe it is, and the Research Center has already entered it.

15 December 1972

PETRO VLAHOS, Chief Scientist
The Motion Picture & Television Research Center
8480 Beverly Blvd., Hollywood, CA 90048

Biographical Notes

Sidney P. Solow lecturing to his class at USC

Sidney P. Solow, President of Consolidated Film Industries and Professor of Cinema at the University of Southern California since 1947, has been made an honorary member of Delta Kappa Alpha in recognition of "meritorious and humanitarian" services to the motion-picture industry during many years. Delta Kappa Alpha, a professional cinema fraternity founded at the University of Southern California in 1936, presents honorary membership awards annually to individuals who have made outstanding contributions to the industry and especially to those who have shown their willingness to share their knowledge and experience with young people.

During the quarter of a century that Mr. Solow has been on the USC faculty, his influence on his students and, indirectly, on the advancement of the industry has been immeasurable. He is an outstanding and an unusual educator. His methods are advanced but are extremely successful. For example, he never gives a test. He explains that 25 years ago he realized that when a course, such as a survey of motion-picture technology, contains so much information that it would be possible to give only a very superficial test it must be taught by a different method. He decided then, he said, that his objective would be to let the students write their own textbook from his lectures.

The work of the students consists of taking notes during the class and then, during the week, transcribing the notes into rather a complete form, aided by additional appropriate references that might be consulted. Almost all of his students are "A" students. During the first week or two, if a student shows that he is not really interested or does not have the ability or incentive to do well in the course, Prof. Solow speaks with him after class and suggests other fields where the student might feel more at home. Of course not all of his students are of equal ability but, since "this is a senior and graduate course, there is a certain level of talent that I can expect," he explained. He remembers with appreciation "an Egyptian student who wrote a notebook that could have been reproduced and sold as a textbook. He turned out later to be the outstanding cameraman in Egypt. . . ."

Mr. Solow was born in Jersey City, N.J., September 15, 1910. He graduated from high school at the age of 15 and entered New York University in 1926, majoring in chemistry. He was graduated in 1930 at the beginning of the Depression. He recalls 1927, when he was in the university, as a significant year because of the introduction of sound in motion pictures. "As a student of the scientific periodicals of that time," he said, "I became cognizant of sound recording techniques and the sound recording aspect of motion pictures and I remember giving a lecture to an undergraduate scientific society on how sound is recorded for motion pictures."

In 1930, when he was graduated from the university, there were almost no jobs to be had. He helped his mother, a widow, in their stationary store until 1932 when he applied for a job as chemist with Consolidated Film Industries at Fort Lee, N.J. He was hired at a salary of $15.00 a week ("the going rate for college graduates in 1932"). Within a year he had been promoted to chief chemist of the plant and in December, 1936, he was transferred to CFI's Hollywood laboratory. Less than a year after he arrived in Hollywood, he was made plant superintendent. In 1939 he was responsible for the installation of 16mm processing equipment and he began to take an active interest in the infant medium of television. He became General Manager of CFI in 1942.

During World War II, CFI was heavily involved with government contracts, but at the end of the war, Mr. Solow again turned his attention to television. In 1947, CFI processed the first TV film for a Hollywood-produced series and a year later the laboratory was geared to produce the first kinescopes on the West Coast.

In 1948, Mr. Solow made a million-dollar bet on TV — he recommended construction of a separate building for the processing of television film. Republic Pictures, CFI's parent company, backed him, and the new building opened its doors in 1953. The gamble paid off. There was a sudden increase in Hollywood TV production and CFI had ideal facilities to accommodate the resultant flood of 16mm film.

In 1954, Mr. Solow became Vice-President of Republic Pictures while remaining General Manager of CFI, In 1960, he was elected to the Board of Directors of Republic Pictures and in 1964 he became President of the CFI division.

Mr. Solow joined the Society in 1934. He was made a Fellow in 1943. His Society activities include service as Secretary-Treasurer of the Pacific Coast Section (1942–1947) and Chairman (1948–1949). In 1959, he served as Treasurer of the Society. He is co-author of two *Journal* papers (both with E. H. Reichard) — "A Modern Laboratory for 16mm Film" (April 1955) and "An Automatic 35mm A&B Composite Color Printer" (October 1964).

Other organizations of which he is a member include Association of Cinema Laboratories (of which he is a former president), the Academy of Motion Picture Arts and Sciences, the Academy of Television Arts and Sciences, the American Society of Cinematographers, and the American Cinema Editors (of which he is an honorary member). — *Herbert E. Farmer*