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

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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-