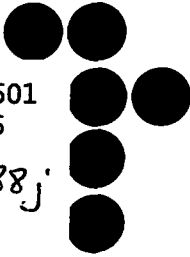


DEWEY

HE7601
.S46

1988j



COMMUNICATIONS
FORUM

CINEMASCOPE, WIDESCREEN AND BEYOND

October 14, 1988

Seminar Notes

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
COMMUNICATIONS FORUM

CINEMASCOPE, WIDESCREEN AND BEYOND

October 14, 1988

Seminar Notes

John Belton
Rutgers University

Douglas Trumbull
Showscan Film Corporation and Berkshire Motion Picture

Bill Paul, Moderator
MIT

Gail Kosloff
Student Rapporteur
MIT

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

This session of the Communications Forum provided the audience with a very rich history of film technology from the birth of the motion picture industry in 1888 to the present day. Both speakers hypothesized about the underlying factors which may have shaped certain technical standards, particularly widescreen formats. Both speakers also addressed the emergence of HDTV (High Definition Television) and concluded that it will inevitably have an impact on the motion picture industry whether this industry chooses to acknowledge HDTV today or waits until HDTV is already being delivered to people's homes. Above all, this session highlighted the current profitability of the movie business, the resilience of film standards and the ability of the industry to thus far meet the challenges of emerging technologies.

The first speaker, John Belton, Chairman of the SMPTE archival committee who teaches at Rutgers University, provided the audience with an in-depth look at the evolution of the 35mm film standard in the motion picture industry. He noted that it is amazing how solid and enduring this standard has been in the motion picture industry, as compared to what has happened in the home video industry. The latter has seen its standard go from 2-inch to 1-inch, to 3/4-inch in just three decades, while the motion picture industry has supported the 35mm standard for almost 100 years.

Professor Belton attributed the development of the 35mm standard to Edison who had developed it for the Kinetoscope. Belton observed that "many of the real developments in technology take place to circumvent patents." In some cases people used wider film, for example, to bypass patents related to 35mm film.

Belton used several visual examples to illustrate the different looks of films experimenting with wide film formats. For example, he showed one slide from the film "Napoleon" by Gance which was the product of three cameras and three screens using 35mm film. The end result he described as a "triptych." According to Professor Belton, the director was trying to emphasize the complexity of the hero, as well as relate the triptych to the distinct tri-color design of the French flag. Belton commented that this experimenting with the 35mm media in the 1920s was, in his opinion, not a result of economic or technical factors, but predominantly for aesthetic reasons.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

He showed us how film images became "squarer" as sound tracks were added to motion pictures. As sound was added to film the aspect ratios were reduced from 133:1 to 122:1 in order to accommodate the sound track. The technical problems that this raised led to the 1929/1930 movement to use wider film to improve picture and sound quality. Belton noted that experiments with wider film, e.g., films such as The Big Trail (starring John Wayne) using 70mm film and MGM's experiments with 63mm film, "did not prove feasible since most movie houses could only deal with 35mm films." It was also the time of the depression, which led to the shelving of wide-screen formats.

Professor Belton noted that the "real" revolution in the motion picture industry happened when the industry observed a decline in movie-goers in the late forties/early fifties. He explained that "Cinerama" was actually created outside the traditional motion picture industry, but adopted 35mm film to create a new exhibition standard. Technically, Cinerama used three 35mm negatives and a larger than normal area was exposed. This resulted in a peripheral view greater than human vision. It also used a faster projection speed: 26 frames per second instead of 24 which was the standard.

Belton acknowledged Cinerama as a "specialized form of exhibition," but also alluded to shortcomings of the media. It is quite expensive to have the special equipment and building that this format required. For example, Cinerama requires several projectionists to handle the film; it is a challenge to synchronize the sound and the panels. Also, the projection booth must be at the same level as the screen necessitating the removal of seats in conventional theatres. Cinerama is especially good for Travelogue films, but can not handle the close-up shots required by real dramatic films.

Professor Belton showed us a view of a roller coaster ride to convey the essence of the "Cinerama experience." Cinerama gives the audience a broad view of a scene and produces an "engulfment" or "participation" effect. He noted that the media was so effective that viewers often took Dramamine to prevent nausea. Belton felt that in turning to Cinerama the motion picture industry had really taken a step back to traditional films that encouraged you to participate with shots of low flying planes, etc.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

Belton noted that Cinerama was not only about tourism, but "plugged into it." He noted as people viewed roller coaster rides in this manner, the demand for real roller coaster rides, even in winter, actually increased. He compared the Cinerama experience to a "Disneyland experience" since this new media was being marketed very differently from traditional films. Cinerama mimicked limited theatre in that tickets were sold in advance for reserved seats. Cinerama was only available in a limited number of cities which had specially designed theatres--New York, Detroit, Chicago, Los Angeles. It was thus marketed as a special attraction to special sightseers, e.g., women's clubs and conventions, to these limited cities.

Belton alluded to the fact that Cinerama did make a lot of money and appeared to be limited, more than anything else, by the limited number of theatres that could handle the films. He noted that it became a real problem, after Cinerama, to market old, "square-format" films. This movement to recycle old films led to the cropping of images. He quoted Time as having said this movement in the 50s with films, like "Shane," "looked like an inventory sale." He went on to describe the evolution of lens technology and its relation to producing anamorphic shapes using 35mm film. The slides of Leonardo de Vinci's sketch of a face and Holbein's painting entitled "The Ambassadors" provided the audience a glimpse of this technique which results in an off-angle perspective that encodes images. He traced the development of the anamorphic lens from Henre Chretien to Bausch & Lomb, and to Gottschalk, who ultimately developed the Panavision lens. He noted that Fox experimented with using 35mm film and these wider angle lenses, in an attempt to produce the "engulfing effect" of Cinerama.

Belton noted that one especially significant system developed in response to Cinerama was Todd-AO (American Optical) developed by Michael Todd. This system involved the use of 65mm film and ran at 30 frames per second (until the system was bought by Fox in 1958 and the speed changed back to 24 frames per second). The images produced could fill a screen about the size of a Cinerama picture. This system offered 6-track sound and produced a sharp image, but still had many of the shortcomings of Cinerama, e.g., could only play in a limited number of theatres. In reality, only a handful of films were made using the Todd-AO system, including "Oklahoma," "Cleopatra," and "The Sound of Music," but they were financially successful.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

In conclusion, Belton really gives a pep talk to the industry to encourage theatres and exhibitors "to provide special movie experiences to today's audiences to counterbalance the rise of videos."

The second speaker, Douglas Trumbull, characterizes himself as a "maverick" in the Hollywood movie business having worked over the years in the area of special effects and as a film director with the film "2,001: A Space Odyssey" to his credit. Although Trumbull voiced agreement with Professor Belton's recounting of film history, he provided the audience with a business and regulatory perspective of the evolution of Cinerama and widecreen formats.

Trumbull noted that prior to 1948 the Hollywood studios owned the movie theatres and competed with each other on a technical basis, as well as with what actors they could play. As a result of the Consent Decree studios had to produce movies for all theatres, no longer just their own. He acknowledged that today television has become a larger market for studios than movie theatres.

Trumbull reiterated the shortcomings of Cinerama. Specifically, the wide angle view with Cinerama was, in his opinion, "great for travelogs, but couldn't address how to make dramatic, theatrical films." He believes these problems were solved with Todd-AO and D-150 which allowed a transition into dramatic films eventhough there were still problems with panning and scanning.

Again, as a result of the Consent Decree, Trumbull noted the motion picture was becoming more mobile. There was a shift away from stages and use of home staffs, to the use of moving lighting and road companies. Trumbull also noted that Bob Gottschalk, who ran Panavision in the mid-60s was instrumental in providing all the labs in Hollywood with the lens to do the 35mm to 70mm conversion. Trumbull believes this is the reason that not a single 70mm film has been shot since this time. Belton would agree that this has been a cheap trade-off.

Trumbull attributes the "systematic destruction of film quality to business pressures." The advent of the "multiplex" theatre was a direct result of movie studios pressure on the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

theatres to have more screens. What has resulted is a decrease in operating costs for the theatre (e.g., one projectionist instead of several per theatre, a centralized concession stand, etc.). Since the theatres are doing well and making good profits for the studios there is really no incentive to improve on the 35mm technology. According to Trumbull, since the movie-going audience is really declining, the movie studios have turned their attention to the home video industry.

Trumbull voiced his amazement on how slow the U.S. motion picture industry has been to react to the looming challenge of HDTV. He alluded to the Japanese who are spending millions of dollars on R&D on HDTV technology. He noted that in many respects the movie industry has been slow to adopt technical changes, e.g., the industry still operates with projectors that do not have automatic focus devices although the technology is available. In general, he believes that too many people in the movie business, e.g., like Eastman Kodak who is now doing well making film prints, think things are fine and are not at all worried about the impact of new technologies like HDTV. He believes that this is not a smart position for the industry to take given that HDTV will be a real product in this country in the next 1 1/2 to 2 years.

Eventhough he believes that it will be some time before people agree on HDTV standards, "the reality is that the quality of the television (picture) will go up while several factors in the motion picture business are driving the quality of movies down." He noted that high speed development processes and the high rate of film duplicating today have led to a loss of film quality.

Trumbull has been working on a new format called "Showscan," which uses 70mm film and is projected at 60 frames per second (fps), since 1974 and has been amazed at the studios' lack of interest. He believes that people will pay to get higher quality, eventhough he admits that the audiences may be smaller in size. He noted that the 60 fps standard was selected after much testing and the assumption that HDTV would accept such a standard.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

His expectations for Showscan are that there will be about 150 theatres throughout the country designed to show the movies (in comparison to 20,000 conventional movie screens in the U.S.). He is optimistic about the format given the fact that people seem to want "experiences bigger than life" when they go to the movies. He noted that the recent top grossing movies usually fit into the special effects category, e.g., "Star Wars," James Bond movies, and "2,001." These are the kinds of movies he believes do not translate well to television.

Both speakers acknowledged that convincing the film industry to address the HDTV challenge will be a battle, but we should not give up delivering better quality images to audiences. Belton noted that stock market projections predict "post-theatrical markets," in which video rentals, will be 2 1/2 times the size of theatrical revenues, e.g., in-theatre movies, in the next seven years. Both speakers also acknowledged that it is going to be difficult to convince the motion picture industry to change its emphasis given the big revenues it is now making from sales of tapes to video stores.