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Encyclopedia of Science, Technology and Society  
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### WIDESCREEN

The scale of motion picture projection depends upon the inter-relationship of several factors: the size and aspect ratio of the screen; the gauge of the film; the type of lenses used for filming and projection; and the number of synchronized projectors used. These choices are in turn determined by engineering, marketing and aesthetic considerations.

Aspect ratio is the width of the screen divided by the height. The classic standard aspect ratio was expressed as 1.33:1. Today most movies are screened as 1.85:1 or 2.35:1 (widescreen). Films shot in these ratios are cropped for television, which retains the classic ratio of 1.33:1. This cropping is accomplished either by removing a third of the image at the sides of the frame, or by

"panning and scanning." In this process a technician determines which portion of a given frame should be included. "Letterboxing" creates a band of black above and below the televised film image. This allows the composition as originally photographed to be screened in video.

The larger the film negative, the more resolution. Large film gauges allow greater resolution over a given size of projected image. In the 1890's film sizes varied from 12mm to as many as 80mm, before accepting Edison's 35mm standard. Today films continue to be screened in a variety of gauges including Super 8mm, 16mm and Super 16mm, 35mm, 70mm and IMAX.

Cinema and the fairground share a common history in the search for technologically based spectacles and attractions. Cine'orama came to the Paris Exposition in 1900. Ten projectors suspend from a tethered hot-air balloon projected hand-colored city scenes 30 feet high on a 330 foot circular wall. The impetus towards "widescreen" projection dates from the infancy of cinema. Raoul Grimoin-Sanson patented his multi-projector technique in 1897 just two short years after the first commercial exhibition of motion

pictures. (See Early Motion Pictures.) Not to be out done, the Lumieres erected a giant translucent screen--70' wide by 53' high at the Paris

Exposition. Films were screened to 25,000 people at a time --- half facing one side of the screen, and half the other.

Overwhelming the audience with the scale of the motion picture event drove motion picture technology to reach gargantuan proportions. In 1919 Lorenzo Del Riccio set up a 165' by 135' screen in Columbus Ohio for a summer conference of the Methodist Church.

Perhaps the most important of the early experiments with widescreen was Abel Gance's 1927 Napoleon. Using 3 cameras and 3 projectors designed by Andre' Debrie, Gance created a triptych 50' by 12'. Some shots---a marching army for example---stretched the entire width of the screen. At other times three distinct pictures were composed, multiplying the aesthetic possibilities geometrically.

By 1929 Hollywood was posed to proceed with a number of widescreen formats. But exhibitors who had recently upgraded to sound, were unable to capitalize additional equipment as the Depression took hold.

Widescreen technologies were put on hold until after WWII. The advent of "free" television was a threat to the film industry's near monopoly on mass visual entertainment. Dozens of widescreen processes were touted to the public between 1952 and 1954. On September 30, 1952 Cinerama premiered at New York's Broadway theater. Cinemascope followed in 1953 and Todd -AO in 1955. At the time it was unclear whether they were destined to be passing novelties like 3 D with colored glasse or as revolutionary as the introduction of sound.

Cinerama was a 3 camera, 3 projector system displayed on a curved screen with a ratio of 2.62:1. In 1955 This Is Cinerama played to nearly 2 1/2 million people in New York, grossing 4.7 million dollars. (Final grosses exceeded \$32 million.) Not merely a visual spectacle the film was seen by its producer Lowell Thomas as a critical weapon in the struggle against communism. The first 5

Cinerama films were American travel films. The American landscape in *This Is Cinerama* concludes with a paen to the American way of life entitled, "America the Beautiful." The NY Times reported (7/6/1955) that President Eisenhower sang along with the film, presented America as it had never been seen before.

CinemaScope was a product of the Twentieth Century Fox Studio in 1953. This process relied on an anamorphic lens and a re design of the 35mm format to create a widescreen format projected at 2.66:1 aspect ratio. Much less costly to shoot and exhibit CinemaScope --  
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"the poor man's Cinerama" was widely used throughout the industry. In *Like Flint*, the last CinemaScope film was released in 1967.

Todd-AO premiered with *Oklahoma* in 1955. This 65mm camera-70mm projector format offered greater resolution and the sense of spectacle that the public had associated with Cinerama. Michael Todd targeted the high end of the market, and unlike CinemaScope which was installed in tens of thousands of theaters, Todd-AO never played in more than a few hundred.

Typically today 70mm presentations like *Star Wars* and *Apocalypse Now* originate on 35mm and are enlarged to 70mm for projection. Innovation in projection technology is once again found in nontheatrical venues. Museums, fairs and theme parks are sights for IMAX presentations. IMAX---image maximization--- uses film frames 10 times larger than the conventional 35mm frame. By the end of 1994 there were 119 permanent IMAX theaters with 35 additional theaters planned. These theaters draw on a base of more 100 productions. In addition to the original IMAX format there is a 48 frames-per-second IMAX HD format and two IMAX 3-D formats. (See 3-D.)

Widescreen technologies promised heightened viewer involvement---immersing spectators and overwhelming them with visual stimulation. The novelty of each technical innovation has for the most part proven to be short lived. "Bigger is better" has not proved to be a predictor of quality. The most enduring motion

pictures have relied on a classical Hollywood formulation ---the perennially potent combination of "story and stars."

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A particularly relevant source is John Belton, *Widescreen*.  
(Cambridge:  
Harvard University Press, 1992.)