

70 mm PROMOTION

"Enhancing the Moviegoing Experience through Superior 70mm Presentation"



The International
70mm Publishers
The Netherlands

People hear the difference:

DIGITAL SOUND

People see the difference:

70MM PROJECTION

People make the difference:

65MM PHOTOGRAPHY

70mm and Digital Sound

by John Belton

Seventy millimeter exhibition has all but disappeared in the 1990's. It was destroyed, in large part, by the advent of various six-track digital sound systems, ranging from Dolby's digital sound system to Universal's six-track Digital Theater Sound [DTS] system and Sony's eight-track Dynamic Digital Sound [SDDS].

Digital sound for motion pictures was introduced in 1990 with the release of *Dick Tracy*, then with *Edward Scissorhands*, *The Doors* [1991] and *The Terminator* [1991], all of which were released in a [now defunct] process known as Cinema Digital Sound. In 1992, *Batman Returns* premiered Dolby Digital Sound, while DTS was introduced with the release of *Jurassic Park* in 1993.

The development of digital sound for theatrical exhibition is the result, in part, of economic considerations. Producers and distributors view 35mm digital as means of achieving 70mm quality at 35mm prices. One of the chief virtues of 70mm for first-run theaters was its six-track stereo magnetic Dolby sound. The format's image size was less important to them -- largely because screen size has decreased since the era of Todd-AO [the mid-1950s] and 35mm film print stock has improved in terms of resolution over that period. Digital tracks permit exhibitors to match the quality of six-track magnetic using a 35mm format. Just as important is the relative cost of 70mm vs 35mm prints. It costs \$ 66,000. to blow a 35mm negative up to 65mm. A 70mm check print of that blow-up costs another \$ 24,000. This comes to a total of \$ 90,000 for the opticals alone.

Magnetic striping then needs to be applied to these 70mm prints [at a cost of \$ 1000 per print] and tracks need to be recorded on these stripes [for an additional \$ 1200 per print]. In other words, after the initial blow-up and check print, individual projection prints of 70mm films cost about \$ 12,200 each. {1}

Compare this to the cost for a 35mm digital release print in which the sound track or time code for a separate CD track [for DTS] is optical and on the original picture negative, eliminating the costly process of mag striping and recording required for individual 70mm prints.

As a result, 70mm has virtually disappeared as a release medium. There were, of course, 70mm prints for *Far and Away* and *Little Buddha*, films shot in 65mm. And the restored print of *The Wild Bunch*, was released in 70mm. But since the early 1990s, there have been few blow-ups to 70mm and the box-office power of 70mm and Dolby sound has been displaced by the various digital sound systems designed for 35mm exhibition.

However, 70mm is not quite dead. There are still a great number of theaters equipped to show 70mm. As of 1993, there were 25,737 domestic screens in the USA [MPAA stats]. A few more than 1,600 of these -- including non-theatrical sites such as screening rooms and post-production facilities -- were equipped for 70mm in the US and Canada [digital screens have already passed the 7800 mark in the US]. {2}

More importantly, these theaters have recently returned to 70mm exhibition.

In 1996, the re-release of the restored version of a VistaVision film, Alfred Hitchcock's *Vertigo*, in 70mm and in DTS sound, saw the return of 70mm as a leaner, cheaper exhibition medium. Prints of the film could be produced inexpensively, without the added cost of

magnetic striping and recording. The film opened in early October, at the Ziegfeld Theater in New-York, with considerable fanfare. Over the next month, the film moved to other cities, playing a total of eight theaters and earning more money per theater than any other current release. By November 11, the 70mm re-release of *Vertigo* had earned more than \$ 1 million in rentals and was grossing, on average, more than \$ 30,000 per theater. {3}

Though the hardware for playing 70mm DTS prints in theaters is limited, there are currently twelve 70mm prints of the film available. To protect against problems in the 70mm DTS system, theaters screening *Vertigo* are equipped with back-up DTS readers and players, guaranteeing that there will be no problems with the sound!

The print of *Vertigo* that ran in New York had a remarkable visual quality [except for the final bell tower sequence which was printed too darkly, other prints shown in Chicago and Los Angeles, apparently did not have this problem]. All the prints, however, featured a sound effects track that had been re-recorded for six-track stereo. The re-recording process involved refoleying the original track, replacing Hitchcock's original effects track with a new track. Unfortunately this new track violates the aesthetics of the original, playing back sound effects more loudly than they should be played back and even adding sound effects where there were none in the original version.

But the financial success of *Vertigo* may be a good sign for the future of 70mm. Other film restoration projects are likely to take advantage of the 70mm/DTS format. The release of Kenneth Branagh's *HAMLET* in 70mm [and in six-track magnetic sound] will hopefully draw attention to the advantages of 70mm as a production and exhibition format. *Vertigo* in 70mm DTS is coming to the Berlin film festival from 13-24 February 1997 and at that event Kim Novak will be awarded a Golden Bear for her whole career.

As Mark Twain might have said, the reports of the death of 70mm have been somewhat exaggerated. It is alive and well, though not quite as powerful as it once was.

Notes:

{1} Paul Rayton, letter to Johan Wolthuis of the International 70mm Association, The Netherlands, dated September 20, 1995.

{2} Widescreen Review lists over 7800 digital theaters in the US and over 13,000 worldwide in its latest issue [volume 5, no. 4, issue 21]: 84.

{3} Variety, November 11, 1996.

THE CLASSIC THRILLER FULLY RESTORED AND PRESENTED FOR THE FIRST TIME IN 70MM AND DTS STEREO.

**JAMES STEWART
KIM NOVAK**
IN ALFRED HITCHCOCK'S
MASTERPIECE



VERTIGO

EXCLUSIVE ENGAGEMENT STARTS WEDNESDAY OCTOBER 16TH
IN 70MM/6 TRACK DTS DIGITAL STEREO
General Cinema AVCO CINEMA (310) 475-0711
11:45 - 2:15 - 4:45 - 7:15 - 10:00
LATE SHOW ON FRIDAY AND SATURDAY NIGHT

Coming in 70mm ?

Is there a future for 70mm theatrical prints?

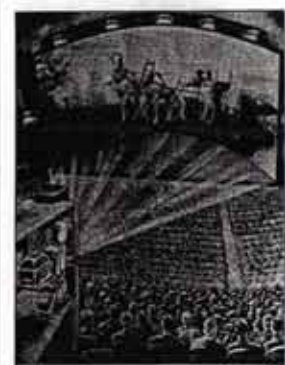
by Grant Lobban

Today, there are few technical developments in the field of communications and entertainment which do not have the magic word "digital" in their description. In the cinema, movie-goers are being treated to digitally-created special effects and the computer aided "better than new" restorations of old classics. Audiences can now hear the results of the digits, with growing numbers of theatres installing digital sound systems. Unfortunately, the coming of digital sound appears to have had one casualty, the use of theatrical 70mm prints with their magnetic soundtracks, once considered the cinema's prestige picture and sound format.

The current 70mm format was introduced as the Todd-AO process and first seen in America with the successful showing of *Oklahoma* in 1955. Todd-AO was a collaboration between the producer Michael Todd and the American Optical Company. It was designed to be a simplified version of Cinerama. The aim was to give the same audience participation effect of the large deeply curved screen and stereo sound, but using only a single double-width film instead of the four synchronised strips of 35mm film needed for Cinerama's complicated triple projector system. (Three films were shown side-by-side to form the picture and another carrying the 7-track stereo sound.) Although Todd-AO never quite managed to rival the effect of Cinerama, it proved to be a far more practical process for making conventional feature films. 70mm film received a further boost when the second Todd-AO feature, Michael Todd's own *Around the World in 80 Days* (1956), was an even greater hit at the box-office.

These early 70mm films ran at 30 f.p.s. and their superb screen images were due as much to the wider 65mm film used in the camera. 65mm negative has identical dimensions as the final 70mm print, except the prints have an extra 2.5mm on each side outside the perforations to help accommodate the magnetic stripes. These carry the 6-track stereo sound, with five speakers behind the screen and a surround channel. Theatrical 70mm prints have always been exclusively magnetic, without an optical sound version being available.

THE NEW MOTION PICTURE ERA!



Todd-AO was originally conceived as a single projector answer to Cinerama, with a similar wide-angle image shown on a deeply-curved screen with multi-channel stereo sound.

70mm came to Britain in 1958, when Todd-AO was installed at the Dominion in London and the Gaumont cinema in Manchester for the showing of the third Todd-AO film *South Pacific*. By now, the



From the short, *The Miracle of Todd-AO*, which was shown on the same programme as *Oklahoma* and used to show off the process and explain to the audience how it all worked.

65mm/70mm format had become accepted as an industry standard, helped by the availability of convenient dual-gauge 35mm/70mm projectors. The running speed had to be reduced to the standard 24 fps, to make reduction printing to 35mm easier and so eliminate the need to film different versions. There was also less emphasis on the Cinerama-style deeply-curved screens, which had caused distortion. On the photography side, other rival 65mm/70mm systems began to appear. Panavision's Super Panavision 70 process was identical to Todd-AO. For a while (until 1966), they also offered an anamorphic version.

Known first as MGM Camera-65 and then Ultra Panavision 70, it was designed to give a wider aspect ratio of 2.77:1, instead of 70mm's normal 2.2:1 picture shape, produced using conventional spherical lenses. The Russians soon came up with their version of Todd-AO called Sovscope 70 and there was a European 65mm/70mm system known as SuperPanorama 70.

By the beginning of the 1960s, 70mm projection had been installed in most West End theatres, together with others in major cities around the country. For many, this was 70mm's heyday, the era of big budget historical epics and large-scale musicals including: *West Side Story*, *Cleopatra*, *The Sound of Music*, *Lawrence of Arabia* and *The Fall of the Roman Empire*. In fact, the actual number of 70mm copies was always relatively small, with only about half a



Panavision's variation on Todd-AO, which added an anamorphic lens to increase the width of the picture by 25%. (*Ben-Hur*, 1959).



The Odeon, Marble Arch. One of the few remaining theatres, from the 1960s, which was designed to make the most of 70mm projection. The original "Dimension-150" screen was over 90 feet wide and occupied the entire curtained area.

dozen prints made for each production. The magnetically striped prints were very expensive, with the sound having to be individually recorded and checked in real time. They were still cost-effective, being shown on what was known as a "road-

show" basis, with 70mm films running for many months at a few first-run theatres, before being reduced to 35mm for general release. For example, the Philips company, who made the first 70mm projector (DP70), advertised its kindness to the film by claiming that the same 70mm copy of *South Pacific* was run at the Dominion theatre in London for over four years.

A 70mm presentation was always considered a special event. Most cinemas at that time had a large single auditorium and projected their 70mm films on an appreciably larger screen than those normally used for 35mm. The big picture, with its superb definition, together with the magnetic stereo sound, all helped to increase the audience's involvement with the action on the screen. Some theatres even had a bigger and deeply-curved screen kept in reserve and used for productions presented in proprietary 70mm projection process, such as Dimension-150, Vistarama and Singlelens Cinerama. From 1963, Cinerama began to phase out its cumbersome three projector set-up in favour of a single-film 70mm system.

Blowing up to 70mm

To keep up the supply of 70mm product, prints began to be made by enlarging films originally shot in 35mm. The first of these



Negative image squeezed -60% (K1.3) Solomon and Sheba (1959).

were printed from Technicolor's Technirama negatives. These had larger than normal images on horizontally running 35mm film. The quality of the 70mm prints was almost as good as those made from 65mm negatives and are often placed in the same "proper 70mm" category. Known as Super Technirama 70, the films included: *Solomon and Sheba* (1959); Disney's animated feature *Sleeping Beauty* (1959) and *El Cid* (1961). Then in 1963, came "blow-ups" from Panavision's anamorphic (CinemaScope-type) nega-

the world of **widescreen** in Bradford

National Museum of Photography Film & Television, Pictureville, Bradford, BD1 1NQ, England
With the largest range of widescreen film exhibition facilities in the world
call +44 1274 773399 ext.298 for further information
BRADFORD FILM FESTIVAL

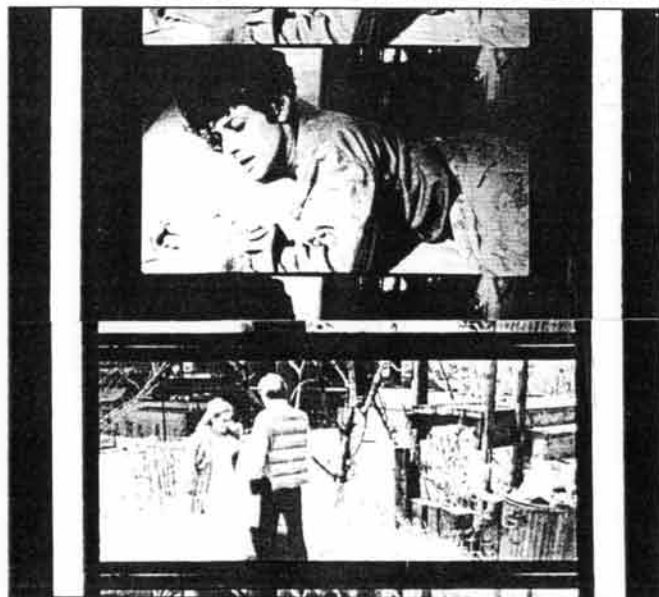
tives. The first of these included: *Bye Bye Birdie*, *The Cardinal* and *Becket*. The change of aspect ratio from 2.35:1 to 70mm's 2.2:1 meant that a little of the original picture was lost at the sides, but these early 70mm blow-ups were often very good, with the relatively small number of prints being optically printed from the original camera negatives. The box-office success of many of these blow-ups, including *Dr Zhivago*, *Oliver* and *The Wild Bunch*, led to a decline in the use of 65mm negative, with many producers now thinking that the higher cost involved was no longer justified. There were also creative limitations imposed by the larger 65mm cameras, requiring more intense light to maintain sufficient depth-of-field when using the longer focal-length lenses associated with the larger format. The last 65mm productions from this period were *Ryan's Daughter* and *The Last Valley*, both released in 1970. Many laboratories, including Technicolor, while continuing to offer a full 70mm printing service, eventually closed down their 65mm camera negative processing facilities. Only MGM in America continued processing 65mm negatives, these now being restricted to special effects work and the growing number of special venue formats, such as Imax and Showscan. Incidentally, the original Todd-AO company managed to stay in the widescreen business by supplying a range of anamorphic lenses for 35mm photography. Some of the films which used them, were also released in 70mm, e.g. *Logan's Run*, *Flash Gordon* and *Dune*. Although the credits include "Filmed in Todd-AO" they were actually only blow-ups.



The big blow-up! Part of a 16mm frame to 70mm (*Concert for Bangladesh* 1972).

tical method of providing cinema audiences with stereo sound was with magnetically striped prints. The 35mm 4-track mag format had been around since the launch of CinemaScope in 1953, but the prints were never universally accepted by the industry. Their very narrow stripes and smaller perforations made them far less robust than the 70mm format with its wider stripes. Although the coming of stereo optical tracks effectively killed off 35mm magnetic prints, dolby supported 70mm by applying their noise reduction system to the magnetic tracks. With 70mm screens becoming smaller, dolby also offered a re-channelled version, with three screen channels and the surround. The frequency band of the two spare tracks was divided, with the upper frequencies (above 500Hz) giving a directional effect to the surround channel and this arrangement also saved money by making it easier to use the same 4-track sound mixes used to make the 35mm optical stereo prints. Despite the dramatic rise in the quality of 35mm optical sound, which

70mm prints with non-standard image areas. Top: 1.85:1 with the sides masked. Bottom: The height reduced to maintain the 2.35:1 aspect ratio of a 35mm anamorphic original.



was further improved by Dolby's Spectral Recording, 70mm still had the edge. SR encoding was also applied to the 70mm magnetic system, helping to give it that extra punch, particularly in theatres equipped and aligned to conform to the Lucas Film THX playback specifications.

The late 1970s and 1980s was actually to become the real boom time for 70mm, with the number of 70mm theatres actually growing, particularly in America, rising from only a few in key cities to almost 1500 during the 1980s. Also, the road-show style of presentation had now given way to a simultaneous nationwide release pattern, making the most of all the initial opening publicity and hype. With the success of films like *Star Wars*, *Close Encounters of the Third Kind* and *Apocalypse Now*, larger print runs were needed. There was a dramatic rise in the number of 70mm prints in circulation, with over three-hundred 70mm copies made of films like *Indiana Jones and the Temple of Doom* and *E.T.* To provide this number of 70mm prints, an enlarged 65mm inter-negative had to be made from the 35mm camera original and the prints mass-produced using high speed 65/70mm continuous contact printers. They still had to be individually striped and recorded, but the price of a 70mm release print, once as high as fourteen times, was brought down to about triple that of an equivalent 35mm

optical copy.

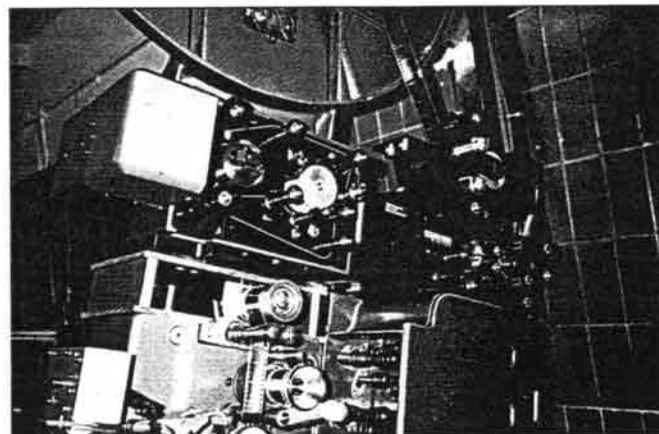
70mm prints were now being made from all shapes and sizes of 35mm negatives and even from 16mm (*Concert for Bangladesh* 1972). To fill 70mm's 2.2:1 frame, many had to have their images severely cropped. Some special 70mm presentations of older pre-widescreen classics, such as *Gone with the Wind*, were meticulously re-framed, using a vertical scanning technique, but other non-anamorphic negatives, even those composed for widescreen 1.85:1 films, were suffering pictorially. To prevent this, the printer magnification was reduced to maintain the film's original aspect ratio. This led to images which didn't completely fill the 70mm frame, either leaving blank areas down the sides for 1.85:1 films, or sometimes having wider frame lines to keep the 2.35:1 aspect ratio of the 35mm anamorphic format. Later 70mm re-issues of old classics, like *Fantasia*, had a smaller 4 by 3 picture placed in the centre of the frame. Some non-anamorphic features are shot in the Super-35 system, which extends the image out across the area normally left blank for the soundtrack. These have been successfully blown up to full-frame 70mm, including: *Top Gun*, *Howard's End* and *The Abyss*.

The principal benefit of 70mm blow-ups, is to use the superior sound system and although the advertising has been careful to state that the films were simply being "presented in 70mm", some more knowledgeable patrons didn't always believe they were actually watching a 70mm film. In the interest of customer relations, one unbeliever at the Odeon Leicester Square, who had come a long way to see *Dick Tracy* in 70mm and didn't consider it looked wide enough, was given the privilege of being taken up to the projection room to see the 70mm print actually running through the projector.

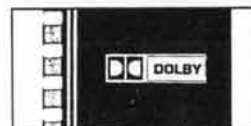
Until recently, the film companies have found it rewarding to release their most important films on 70mm, with the number of productions blow-up now approaching three-hundred. This has encouraged the exhibitors to continue operating their 70mm installations, despite the higher cost of spares and maintenance. Also, the showing a 70mm print often involves extra preparation work, including making new aperture plates and adjusting the screen's masking for films with non-standard image areas. After almost 40 years, there is still no common recording and playback characteristic for 70mm prints, so the theatre's amplifiers have to be tweaked each time in order to realise the full potential of the 70mm sound system.

Digital Sound and 70mm

At first, the coming of digital sound to the cinema seemed to offer no threat to 70mm. The first system on offer in 1991,



No more room on top! Top left: SDDS. Top right: DTS. Middle right: SR-D. Bottom right: The original 70mm/35mm magnetic "penthouse" head. (Courtesy Nigel Wolland, Odeon Leicester Square).



SR-D



DTS



SDDS

was the Cinema Digital Sound system (CDS), using a digital optical track developed by the Optical Radiation Corporation. It provided six channels and could be used on both 35mm and 70mm prints using a dual-gauged soundhead. Part of its appeal for 70mm was the elimination of the costly magnetic stripes. Unfortunately, the digital track also replaced the normal analogue track on 35mm prints and this proved to be the system's downfall. The industry was to insist that the existing analogue track must be retained in its normal position to avoid having to distribute different kinds of prints (dual inventory), with the risk that theatres may receive a print that they couldn't run. The original track is also needed in case the digital system fails. When an analogue track develops a fault, it is often still usable and the show can go on, albeit with a loss of quality. Digital tracks tend to remain perfect until a point where the built-in error correction system runs out and the sound fails catastrophically, either becoming unintelligible or disappearing altogether. Despite being backed by Kodak, CDS only had a short life. It was showcased at Thurrock with a 70mm copy of *Terminator 2*, but to prove the point about compatibility, some of the 70mm prints were later seen with the digital track striped over for normal showings.

Dolby's digital system, which followed, proved to be a success and fulfilled the

industry's requirements by placing its digital-coded optical track between the perforations, leaving the normal SR analogue track untouched. Unfortunately, this time around, 70mm was left out in the cold, with Dolby promoting their SR-D process as bringing 70mm six-channel sound to 35mm. In fact, Dolby would still be willing to develop a 70mm version if there is ever a demand for it. However, without a history of an optical track on 70mm, it would involve a major engineering programme. Not only would a multi-purpose projector soundhead be needed, but also new sound cameras and printers for producing the sound negatives and



CDS digital optical track on a 70mm print without the analogue magnetic stripes.

HOLLYWOOD CLASSICS

and

INTERNATIONAL 70MM PUBLISHERS

are proud to offer you an extensive list of film classics in original 70mm including:



For further information and availability please contact:

HOLLYWOOD CLASSICS
8 Cleveland Gardens
London W2 6HA
England
Tel (171) 262 4646
Fax (171) 262 3242

INTERNATIONAL 70MM PUBLISHERS
36 Katwoudehof
6843 BX Arnhem
The Netherlands
Tel/Fax ++ 31 263 815 950

HOLLYWOOD CLASSICS
Suite 5
2450 Mission Street
San Marino, CA 91108
USA
Tel (818) 403 8480
Fax (818) 403 8473

"THE WORLD'S GREATEST LIBRARY OF THEATRICAL RIGHTS"

The Magician of the large Screen

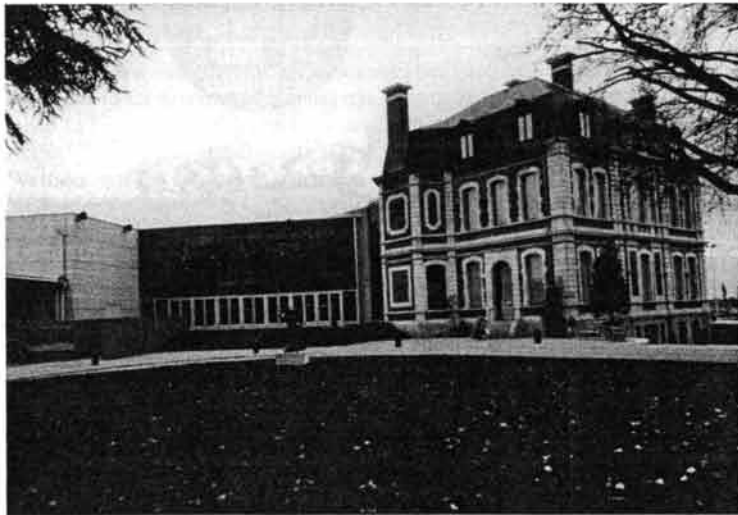
Mr. Albert Bert, now chairman executive (ceo) of the Belgium Kinopolis Group, saw long ago the importance of better cinema presentation with large screens, 70mm film and comfortable seating.

It all started in 1968, when Albert Bert took over his father's cinema in Harelbeke, Belgium. After two years already he rebuilt it as a twin cinema with 70mm facilities. He still remembers it as it was today: "The first 70mm film we have screened was "Hello Dolly" with Barbara Streisand and in the other auditorium the Walt Disney comedy "Herbie", the speaking Volkswagen in 35mm! The 70mm presentation of "Hello Dolly" was a big success and that made Bert consider expanding his activities and during one of the many family sessions they decided to build cinema complexes in other Belgium cities. That resulted at last with the opening of their showcase "Decascoop" in the city of Ghent, with 12 screens and 3600 seats. They offered all the inventions of that time, 70mm film, THX sound and Showscan 70mm.

September 29, 1988 was the next historic date for Albert Bert and his family: the opening of a 24 screen complex in Brussels, with nine 70mm auditoriums and one Imax theatre! With Kinopolis the Bert family wanted to bring the moviegoing experience on a higher level by using larger screens from wall-to-wall, digital stereophonic sound, 70mm film and Imax. With Kinopolis, a new kind of cinema was born: a megaplex with more than 20 screens and 7500 seats.

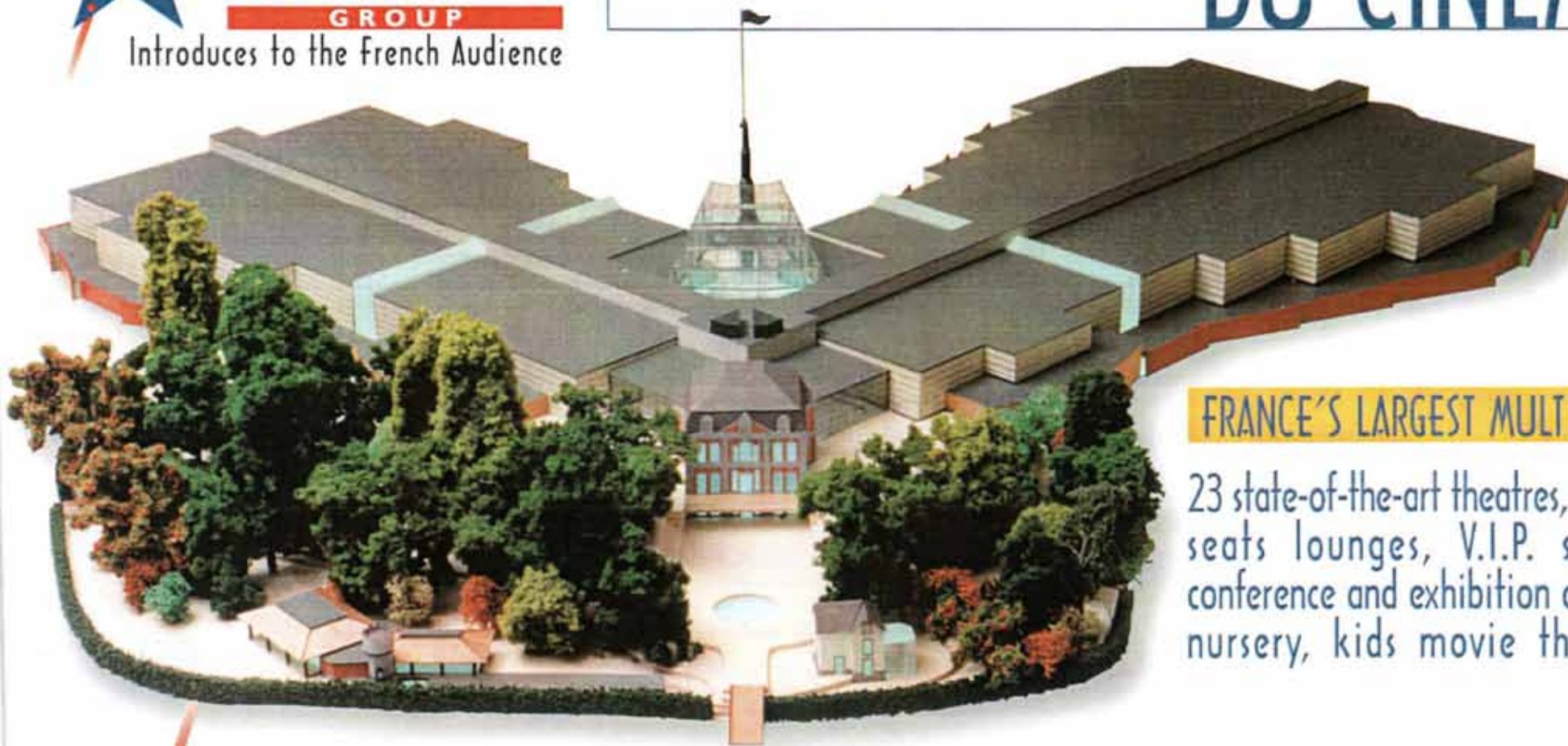
In 1990 they decided to found a separate company called Decatron, to deliver the technical know-how like projection facilities and THX licences. Decatron is also involved in the organisation of "Cinema Expo International" in Amsterdam, a fair that combines cinema technique with special film performances and other festivities and attracts people from all over the world.

In 1993 a new megaplex was opened in the harbour city of Antwerp, called the Metropolis with 24 screens and a capacity of 8300 seats. In September 1996 their last project was opened in the Northern of France: a 23 screen complex near the French city of Lille which was built around a small castle which was completely restored and involved in the entrance of the complex. Giant wall-to-wall screens assure perfect vision in combination with the stadium style seating, the smallest screen measures 12 x 5 m, the largest 25m x 12m ! The complex has also a free parking for 3000 cars and a few thousand more on the parking lot of the nearby shopping center. It is also easy to reach by underground rail connection from the center of Lille. With the opening of this complex from the Belgium Kinopolis Group a new era for the cinema has started in France.





TOUTE LA MAGIE DU CINEMA



FRANCE'S LARGEST MULTIPLEX

23 state-of-the-art theatres, 7400 seats lounges, V.I.P. seats, conference and exhibition center, nursery, kids movie theatre



Kinepolis ▶ Le Château du Cinema ▶
Z.A du Grand But ▶ 59160 Lomme ▶ France
Tel.: 00 33 3 20 17 04 00 ▶ Fax: 00 33 3 20 17 04 06

WILLIAM SHAKESPEARE

✦ HAMLET ✦

A FILM BY KENNETH BRANAGH

FILMED IN
PANAVISION
SUPER 70

DIRECTOR: KENNETH BRANAGH
DIRECTOR OF PHOTOGRAPHY: ALEX THOMSON BSC

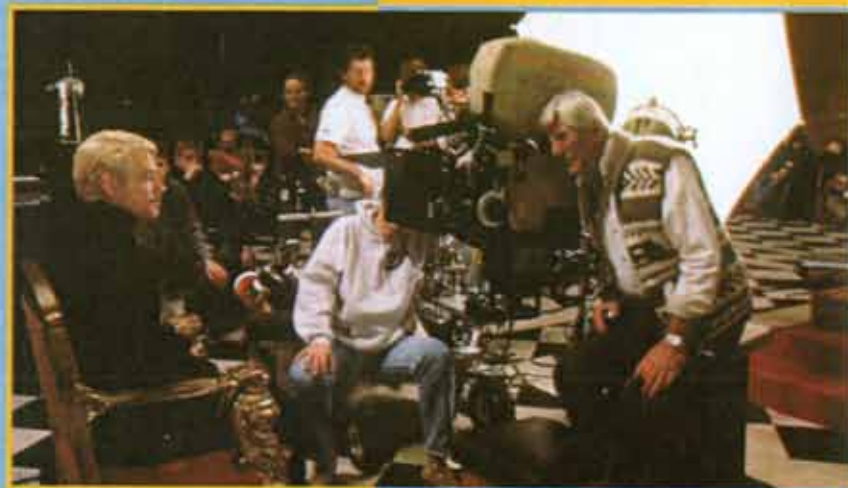


PHOTO BY ROLF EDROW

**"THE MIRACLE
OF
TODD-AO"**

A Process that presents all that the eye can see and projects you into the world of thrills, spills and wonder through the TODD-AO wide angle lens.



JOIN in the super-charged excitement of a roller coaster ride.



FLY high through the sweeping scenes of the Grand Teton Mountains.



With skin on your feet you sweep through breathtaking slopes in Sun Valley, Idaho.



CHILL, your senses as you follow the thrill-packed roller coaster motorcycle chase over San Francisco's hills in

**"THE MIRACLE
OF
TODD-AO"**

*THE GREATEST MOTION
PICTURE EVER MADE!*

NOW in its 9th Month

RODGERS and HAMMERSTEIN'S
OKLAHOMA!

The First Motion Picture Produced in
The **TODD-AO** Process

Using 70 MM Film, Special Cameras, Large
Curved Screen and the Finest 6-Channel
Hi-Fi Orthosonic Sound

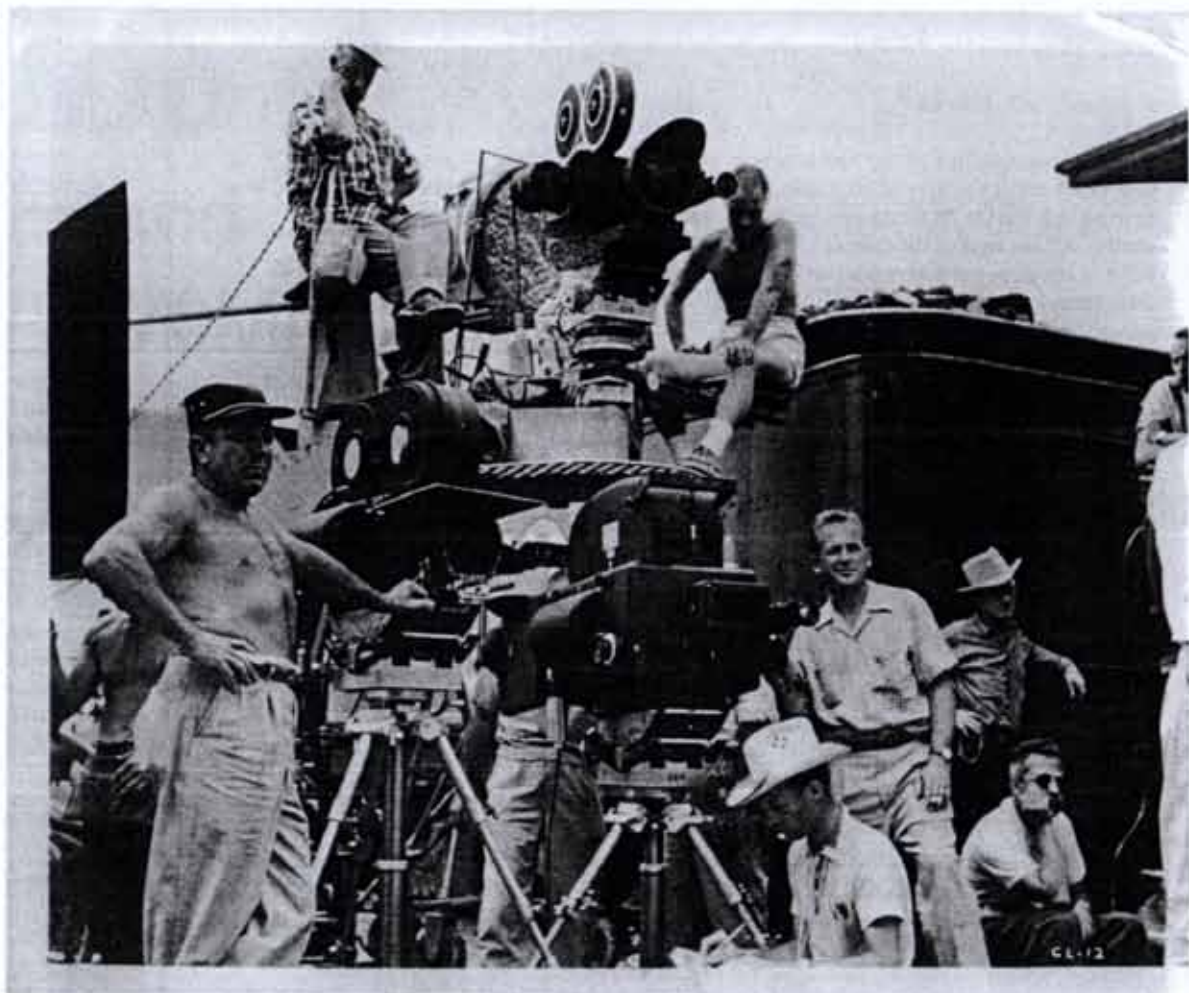
Winner of 2 Academy Awards!

Eastman
Color



T H E A T R E

An early advertisement from 1956.



Robert Surtees, head Cinematographer for Rodgers and Hammerstein's "Oklahoma!", sits high in the air with the Todd-AO 70mm camera with the very large "bug-eye" lens. Down in front the two other cameras: left another Todd-AO camera and right the special 35mm CinemaScope camera that was used as Michael Todd was not sure, if enough cinemas would be equipped with 70mm projectors at the time of releasing of the motion picture and so he decided to film the whole movie simultaneously in CinemaScope.