

DIGITAL & 65mm

TODAY'S TECHNOLOGY FOR TOMORROW'S CINEMA



History and Development of 70mm

International 70mm Publishers, The Netherlands





Introduction

In October 1955 Rodgers and Hammerstein's musical ***Oklahoma!*** premiered in the USA as the first movie in the spectacular **Todd-AO 70mm** process with 6-channel magnetic stereo sound! Since that year more than 60 motion pictures were filmed with original 65mm cameras and projected with 70mm film, thus creating 5mm extra space for the six magnetic sound tracks.

Among these movies were famous titles like:

Around the World in 80 Days, Porgy and Bess, Ben-Hur, Exodus, West Side Story, Lawrence of Arabia, Cleopatra, My Fair Lady, The Fall of the Roman Empire, The Sound of Music, 2001 - A Space Odyssey, Chitty Chitty Bang Bang, Ryan's Daughter, Hello Dolly, etc.

Since 1964 filming on 65mm diminished mostly because of a new 'blow-up' process developed by Panavision to make 70mm prints from 35mm negatives. In the nineties however, a few efforts were made for a rebirth of 65mm filming: In 1992 Director Ron Howard and his Director of Photography Mikael Salomon decided to film ***Far and Away*** with System 65 from Panavision, while producer Mark Magidson and director Ron Fricke were filming their non-verbal documentary film ***Baraka*** in Todd-AO 70mm in 24 countries all around the world. For nearly two years they used the new Cinespace 70 (Todd-AO) cameras because they offered the most acceptable rent for such a long period. In 1994 Bernardo Bertolucci had taken the decision on the recommendation of his DOP Vittorio Storaro to shoot the Asian parts of ***Little Buddha*** with Arriflex 65mm cameras in the Kingdom of Bhutan. The other part of the film was photographed in 35mm Techniscope, while prints were made in 70mm. Maybe this inspired Kenneth Branagh and his DOP Alex Thomson to shoot their 4-hour version of ***Hamlet*** with Panavision System 65 cameras. This was the last original 70mm film made with 65mm cameras!

Meanwhile cinema attendances are in danger again and the trend to build large multiplexes with large screens has come to a stop. In 1998 – a 25 screen complex with 9000 seats – has opened its doors in Madrid. The largest auditorium

of this Kinepolis complex has 1000 seats and a screen of 24 x 10 metres (948 x 395 inches)! And all those large screens will be served for the time being with 'old fashioned' 35mm prints but mostly with 2K or 4K digital images. But the other way to get a bright and sharp image on those large screens is the use of unsurpassed 'original' new 70mm prints or digital images originated from new 65mm negatives!

In 1989 the restoration of the famous David Lean film ***LAWRENCE OF ARABIA*** with new excellent 70mm prints wrote film history! In 1991 ***Spartacus*** was restored in Super Technirama 70. And in 1994 a 70mm restoration of ***My Fair Lady*** at its 30th Anniversary, proved the quality of this great musical. Nothing happened until 2002, when there was an unexpected revival in Hollywood towards classic 70mm film presentation. For the first time since years, new 70mm prints of ***Sound of Music, Patton, Hello Dolly*** and ***South Pacific*** were screened in Los Angeles and other large cities throughout the USA. These prints had no magnetic sound tracks on the film, because of the abandoning of magnetic striping, but sound on a separate CD-Rom, all in sync with the action by a DTS time code on the film. In 2006 we saw new 70mm prints of ***Lord Jim*** and the four hour version of ***Cleopatra***, followed in 2008 by ***Star!***, ***Khartoum*** and ***West Side Story*** and ***Flying Clipper*** in 2009. What's next? Which dare-devil director will shoot his new film with 65mm cameras for 70mm prints and 4K digital projection?

Even the original 3-film-strip process ***Cinerama***, from the fifties, was back for the first time in the Cinerama Dome in Los Angeles and in the restored Cinerama Theatre in Seattle with new prints of ***This is Cinerama*** and ***How the West Was Won!*** Since 1993, Pictureville Cinema in Bradford, UK, is the only venue in Europe equipped for showing original 3-strip Cinerama movies.

But it is important that famous classic 70mm films are kept in good condition in archives and that all famous 70mm epics will be restored to their original glory for our children and grandchildren.

International 70mm Publishers, The Netherlands





International 70mm Publishers present:

DIGITAL & 65mm

Today's Technology for Tomorrow's Cinema

History and Development of 70mm

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A classic 70mm film poster goes as a supplement with this publication

Most of the illustrations and the pictures of posters are from the 70mm Publishers own Archive. Only a few pictures are provided by others, which is indicated in the picture itself. Regarding the 70mm

film poster: most illustrations are from our own archive, except 3 pictures: Ben-Hur, Patton and Fall of the Roman Empire. They were gratefully provided by the Cinema Museum in London.

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Preserving 65mm Classics

by Andrew Oran

It's been our good fortune at FotoKem, a photochemical and digital post production facility based in Burbank, CA, to have participated in the preservation and mastering of quite a few 65mm classics over the past 6 years, since establishing our full range of 65mm services in the spring of 2004. Our singular experience in this regard has made us uniquely aware of the issues and protocols associated with preserving 65mm classics.

65mm preservation work, as with that of any film format, begins with a little bit of detective work and a paper trail. Assuming your source element is the 65mm cut, original negative, accompanying paperwork – often taped to the film cans housing the negative – can reveal a great deal about the condition of the film even before inspection. When was the roll last printed or cleaned? How often has it been printed? Are the timing lights consistent from scene to scene? Is there a record of editorial changes?

The investigation continues with an inspection of the element. Here the main objectives are two-fold: (1) establish the physical condition of the element, while taking any remedial steps necessary to insure its ability to be safely transported during the printing and/or scanning processes; and (2) examine all clues that might corroborate the creation date for each component of the source element. The inspection is conducted in a temperature and humidity controlled environment. Measurements are taken with precision calipers and pitch gauges to confirm the transportability of the negative in pin registered camera movements, common to film scanners. Perforation damage is repaired, and splices are checked, with any over-accumulation of tape back-up or glue carefully trimmed. Date codes – which unfortunately are not completely reliable in 65mm prior to 1965 – are cross-referenced to 'flag' any second-generation duplicate negative elements, so that earlier generation elements (such as separation masters) can be tracked down as alternative sources, if available.

Following the physical inspection, the preservation pipeline moves onto photographic issues and processes. With a little luck, the source element will have arrived with color information in the form of color/grading cards or punch tapes. These are entered into our 'Photo-net' system, connecting all film handling work stations facility-wide, and a manual check is performed of the film element vs. the color record, to see if scene to scene cues match, one to the other. Once 'cueing', as the process is known, is completed, the source element moves to a color analyzer, so that a visual check of the provided color information can be performed.

The 65mm color analyzer affords us the opportunity to either check supplied color information or begin the re-timing of a 65mm classic from scratch if no color information is available. The most common result is a hybrid: original 65mm printing lights that are modified with an over-all correction to account for differences in lab processes over time, or from one facility to the next.

Following color cueing and confirmation, the source element is then cleaned in preparation for contact printing on a 65mm contact printer. Each film lab's in-house engineering staff – the real unsung heroes of 65mm preservation work – are tasked with modifying these printers to mitigate issues like flicker, instability, bubbles, breathing and color disparity across the frame. Their ingenuity and precision make possible new 70mm prints and 65mm intermediate elements that are accurate, archive worthy representations of their sources.

A new 70mm print is then processed and projected on the big screen, before final adjustments are made to color (manually, through the application of color filters on a calibrated lightbox) and integrated into the color printing 'blueprint' of a new 65mm intermediate element.

The printing component of the 65mm preservation pipeline serves to create a preservation copy (a 65mm Intermediate Positive, or IP) of the film in question,

and to create a source element for digital mastering. In some cases, the 65mm IP will become the source element for digital mastering, while in other instances the IP will serve only as a back-up (or protection) element prior to embarking on a full digitization of the show's original negative. At FotoKem we QC 65mm IP's on a 50" plasma monitor within our 65mm HD telecine suite to insure their photographic integrity. Digitizing 65mm classics at FotoKem occurs on one of our two matched IMAGICA XE 65mm scanners, nicknamed 'Big Foot' and 'Yeti' due to their sizable footprint. Armed with 11K sensors, they are the world's only film scanners able to sample 65mm negative at 8K resolution 'perf to perf', and have been used in this capacity on many 65mm classics, including '*South Pacific*', '*It's a Mad, Mad, Mad, Mad World*' and others. While the sampling of the negative element occurs at 8K (wide) resolution, digital mastering – which moves us from preservation into the realm of restoration – occurs at either 4K, 2K or HD resolution, depending on the deliverable requirements and budgetary realities of each project.

4K digital mastering from an 8K scan is an ideal situation when preserving or restoring a 65mm classic. FotoKem is engaged at the time of this writing on such as restoration for 20th Century Fox on the 65mm classic, '*The Sound of Music*'. The results are as breathtaking as you might imagine; and the digital tools at our disposal are affording us the opportunity to improve long-standing issues such as flicker and gate hairs. We are guided in this work, as in all of our 65mm preservation work, by an over-riding maxim: honor the original, and do no harm.

65mm classics handled by FotoKem include: *Dr. Dolittle*, *West Side Story*, *It's a Mad, Mad, Mad, Mad World*, *South Pacific*, *Khartoum*, *Can Can*, *The Sound of Music*, *Baraka*, *Oklahoma!*, *The Bible*, *Cleopatra* and *Star!*

(pictures FotoKem, see page 19)

French film star Isabelle Hupert noticed during a visit to China that people in the streets knew her films better than the people in her homeland! She was surprised and understood that this was caused by the successful street business in copied DVD's. She called the Chinese film pirates modern Robin Hoods! There are many places in the world with a great black market for DVD's. The Peruvian capital of Lima in South America is known as one of the largest black markets for copied DVD's, at the Polvos Azules, a paradise for movie lovers?



Philips Home Cinema (aspect ratio 21:9)

BIG-TIME GRAND-TIME ENTERTAINMENT IN
CINEMASCOPE

Marilyn MONROE • Betty GRABLE • Lauren BACALL
How To Marry A Millionaire

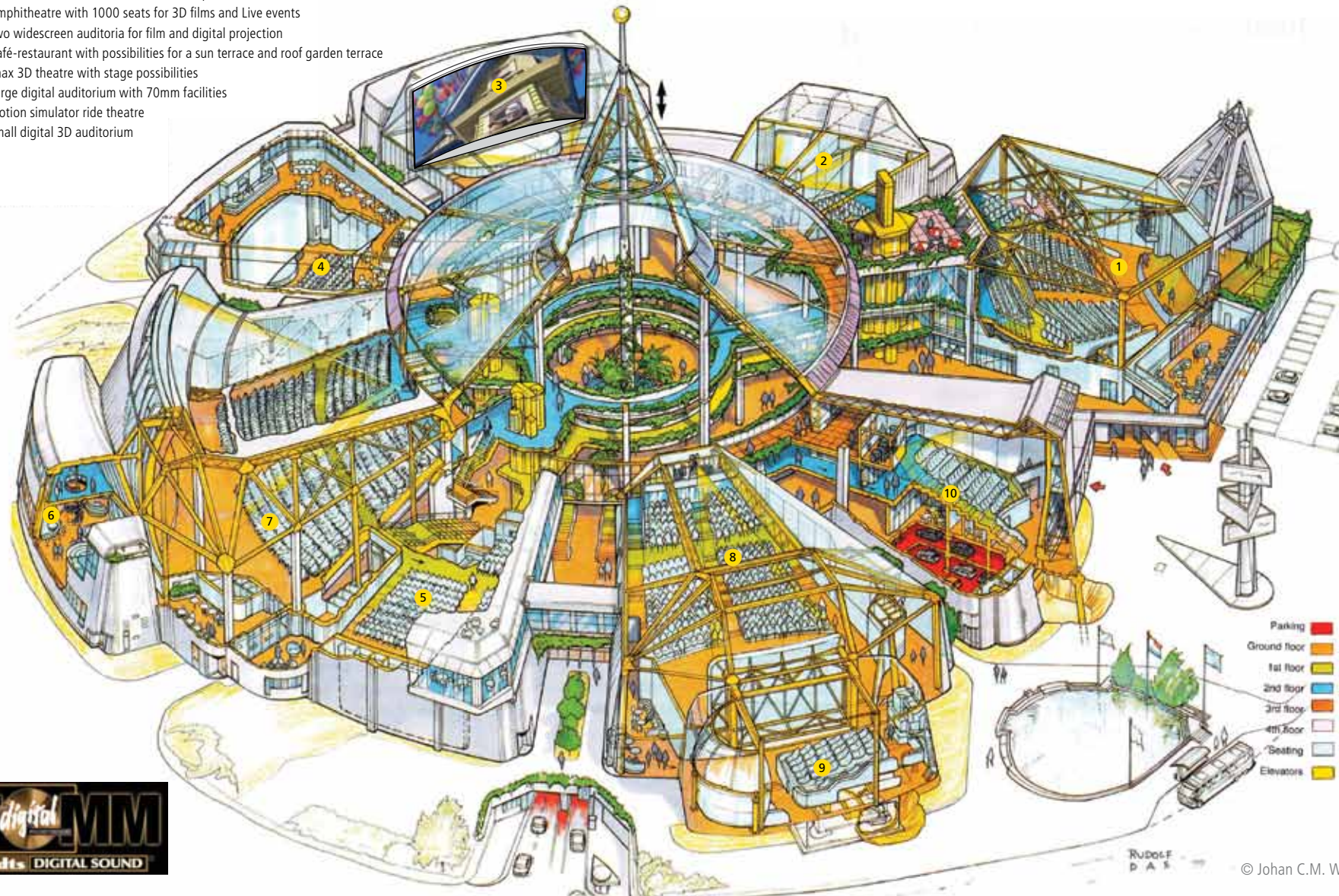
Starring **DAVID WAYNE • BERT CALHOUN • CAMERON MITCHELL** with **BOB DEER • BOB CLARK** and **William POWELL**
Produced by **WILLIAM POWELL** Screenplay by **JOHN MASTRO** Story by **JOHN MASTRO**

TECHNICOLOR

In the sixties and seventies television became cheaper

Cinema of the Future

- 1 Stage theatre for live performances, award presentations, musicals, etc.
- 2 Two small screens for classic 35mm film presentations
- 3 Amphitheatre with 1000 seats for 3D films and Live events
- 4/5 Two widescreen auditoria for film and digital projection
- 6 Café-restaurant with possibilities for a sun terrace and roof garden terrace
- 7 Imax 3D theatre with stage possibilities
- 8 Large digital auditorium with 70mm facilities
- 9 Motion simulator ride theatre
- 10 Small digital 3D auditorium



How to Upgrade Your Cinema Presentation

In the early fifties the motion picture industry became aware they had to do something in the struggle against the coming dominance of the television. In 1952 **This is Cinerama** opened in New York and this 3-panel movie system became an enormous success! In 1953 **CinemaScope** was introduced, a process with anamorphic lenses that uses the normal 35mm film. And a lot of other *Scopes* followed. However, one of the financial backers of the Cinerama process, Michael Todd, understood that this 3-panel system was not suitable for general releases because of its complicated technique in the theatres concerned. He went searching for another process.

In October 1955 Todd proudly presented his Todd-AO 70mm process together with the World premiere of Rodgers and Hammerstein's **Oklahoma!** It was another boost for the emerging 70mm Roadshow presentations that would continue for nearly twenty years.

And what are cinemas doing today to attract people going to the cinema and away from their home cinema screen. Thomas Hauerslev (www.in70mm.com) wrote in the end of his report from the Berlinale 2009: "It is somehow ironic to visit a shop like Media Markt: really huge flat screens and high definition images everywhere you look. The consumer market is spending millions on marketing, telling us how good the home cinema experience is 'just like a cinema'. The same thing cannot be said about cinemas. I think cinemas can – and should – learn a lot from the consumer market and re-invent the cinema going experience."

70mm is one way of doing that. Cinemas rarely advertise how good an experience it can be to go to the movies. They take it for granted. No wonder the home consumer movie market is doing so well!"

Twenty years ago a beautiful cinema in The Netherlands (850 seats) had on its program a couple of 70mm screenings of the restored director's cut **Lawrence of Arabia** in the full splendour of 70mm with 6 channel stereophonic sound! During the intermission the cinema management had organised a great

self service 'Oase' buffet in the large lobbies of the theatre. Everybody enjoyed the meal and most of the 3 performances were full houses. The visitors were of all ages, young and old and altogether it was a great happening in a very pleasant house. Next to this film & buffet performances they also had a couple of normal 70mm screenings of the same film without dinner.

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In October 2008 we visited the yearly 70mm festival in the German city Karlsruhe. The management of this theatre had also organised some interesting activities: at nine o'clock in the morning there was a breakfast for the festival visitors in the lobby and at the end of

the afternoon they presented a simple Italian meal. All this to please their guests and this was highly appreciated as you can imagine. Some time ago, here in Holland we attended the Dutch premiere of **The Kite Runner** in a new beautiful 8 screen cinema complex called CineMec with a large lobby. Before the screening started there was an interesting verbal introduction in the front of the auditorium about Afghanistan and in the lobby was a small exhibition of art from this country. After the film show the management had organised snacks and drinks which were included in the price of the tickets, that were only a few Euros higher than normally. Meanwhile people could watch the art exhibition in the lobby. In the Dutch city of Nijmegen there is a four screen cinema, with on the ground floor, a large Grand Café. It is always full of people, you can sit there before or after your visit to a screening! All of these theatres don't sell popcorn, they sell tea and coffee with apple pie or soft drinks and there is plenty of space to take a seat.

Organising a buffet with a film performance is not easy, but when you have a lobby you should not only sell drinks, but also simple snacks such as apple pie or something similar. But please, no popcorn! In live theatres you will hardly find popcorn, because it degrades your image!

During the holiday season the European TV channels with BBC on top are trying the utmost to attract viewers to watch their tv programs. And what is most attractive to the audience: Old classic films like **The Sound of Music**, **West Side Story**, **My Fair Lady**, **Lawrence of Arabia**, etc. Mostly musicals and often 70mm classics! On the radio there is always one popular channel that is pleasing its listeners year in, year out with the 'Top 1000 most favourite songs of all time'! In the winter days people do listen to these classic songs with great fondness. What are cinemas doing in winter time to attract people out of their homes to their theatre? Are they offering some classic

Waking the Sleeping Giant

65mm Origination and 70mm Presentation in Contemporary Motion Picture Exhibition

Abstract

In today's era of digital cinema it may seem anachronistic to focus on mature film technologies as a basis for innovation in the related fields of film production and exhibition. However, simplistic assumptions about the preferences of audiences and the extent of acceptance and dominance of new technologies belie the possibility of continuing demand for traditional technologies due to their unique properties. This Paper questions the dominant belief that digital acquisition and presentation of movie content will entirely supersede motion picture-based film production and exhibition. In particular, it posits a different and innovative approach to large-screen presentation in the cinema, and summarises several related technical proposals.

The history of technological progress in the entertainment industry is not rigidly linear but moderated to some extent by personal preference. A well-known example is the market for vinyl records. Despite the overwhelming dominance of the compact disc format, and latterly, internet downloads, the market for 7-inch vinyl records accounted for two-thirds of UK singles in 2007, with sales up five-fold in the 5 years preceding. (*Back in the groove; young music fans ditch downloads and spark vinyl revival by Katie Allen, in The Guardian, 16 July 2007*). What accounts for this survival of an analogue format that should be obsolete? Vinyl fans cite the warmer, more nuanced sound quality over CDs and MP3 files and appreciate the tangible nature of the medium. (*Vinyl Gets Its Groove Back, written by Kristina Dell in TIME, 10 January 2008*)

Similarly, analogue motion picture film has unique properties that appeal to the viewer in ways which are difficult for digital technology to emulate. For example, in the BKSTS Bernard Happé Memorial Lecture of 2004, *The Film Look: Can it Really be Defined?*, Peter Swinson FBKS portrayed, with regard to film projec-

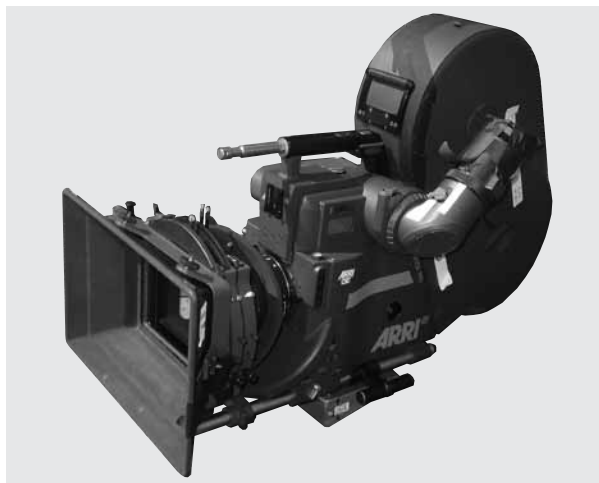


tion, the relaxing effects of slight motion and interruption of the image on the subconscious of the viewer, allowing them to more readily 'believe' what was being presented on screen. He also described key attributes of the random grain structure in the film image that lead to film's wide latitude, dynamic range and ability to represent very fine tonal gradations. The important phenomenon of Stochastic Resonance – the presence of random noise in an image allowing the brain to resolve more subtle detail and more sharpness – was further explained. (*Image Technology, January, February and April 2005*).

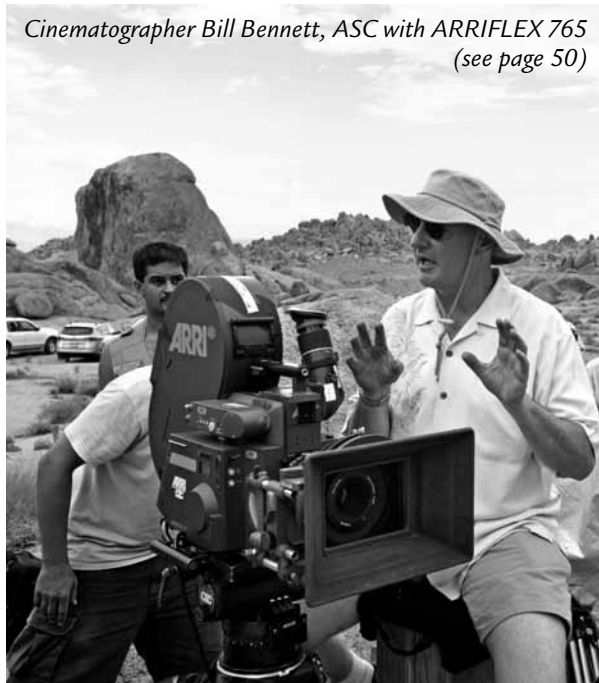
These fundamental and positive attributes of motion

picture film, and its unique exhibition process (mechanical transport with interruptive shutter), mean that it is incorrect to claim direct equivalence by digital video emulation, no matter how sophisticated such processes might be. The projected 'film look', different to that of digital video, also enhances the difference between home entertainment and theatrical exhibition. If there is still a place for film in today's cinema environment, then what shape could it take? A common mistake made by sceptical observers is to assume that advocates of film acquisition and projection wish to 'roll back progress' and to return to a hypothetical 'all-film' world. This fails to acknowledge the complexity and diversity of the tools available

Modern 65mm Cameras and Equipment



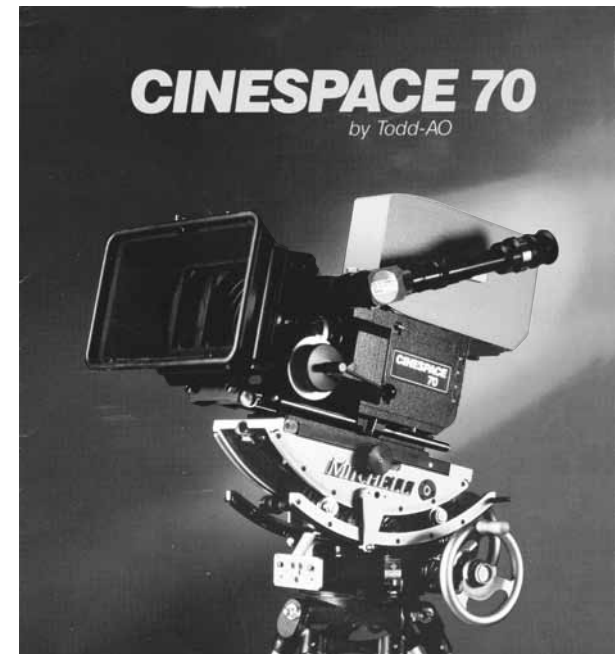
*Cinematographer Bill Bennett, ASC with ARRI FLEX 765
(see page 50)*



DOP Johan Wolthuis



FotoKem: 65mm inspection station (see page 2)



FotoKem: 4K digital mastering (see page 2)

Marketing: The Premiere Experience Concept and the Return of the Roadshow

A critical requirement for 70mm identified by the 65/70mm Workshop was a relevant, contemporary, effective and well thought-out marketing strategy. In the modern era marketing has evolved into a sophisticated, semi-scientific, activity based around behavioural psychology and highly-developed data-gathering techniques. Product branding is now a stand-alone discipline and central to effective marketing.

In the context of high-quality cinema presentation using 65mm for production and 70mm for exhibition, the challenge was seen as how to update the marketing techniques of the past for contemporary cinema audiences. Considerable creative effort is required in terms of “positioning” the 65/70mm format in today’s cinema exhibition environment as a modern, high-quality experience.

Key concept elements of a modern 65/70mm marketing strategy were identified as: Quality, Tradition, Spectacle, Theatricality, Contemporary relevance and Exclusivity.

One strategy is to focus on the indirect attributes of the format, rather than on its immediate technical characteristics (since in today’s world ‘70mm’ does not have the same widespread ‘brand recognition’ that it had in the past). To this end, the brand concept of **The Premiere Experience** was devised.

The word ‘Premiere’ (US: ‘Premier’) connects with the key concept elements described above. It evokes images of the 100-year history of the film industry, an exclusive “red carpet” atmosphere, a high quality theatrical experience and something of quality and lasting value. A Premiere Experience can be inserted into today’s exhibition environment via a physical upgrade to the largest screen or screens in a typical cinema complex, by way of a sub-concept known as the **Premiere Screen** concept. This also diversifies the cinema experience, in much the same way that modern retail

department stores contain discrete sub-units (the ‘store within a store’ concept). (*Some cinema chains may already use the term ‘Premiere Screen’, its use here is purely coincidental and unrelated.*)

Premiere Screens could also be installed at dedicated single-screen cinemas or cinemas with small numbers of screens (for example 3-screen and 4-screen cinemas). Indeed it can be argued that Cinema as an artform and a craft has suffered considerably through the influence of the retail industry and that a de-coupling is desirable via a return to stand-alone cinemas with larger screens and vastly better design. Some effort should be made to bring back some of the imagination of the past and make such cinemas consistent in quality but unique in design and management, accommodating the different customers demands whilst bringing back the sense of excitement that ‘going to the pictures’ had in the past. This of course is dependent on a new economic model being developed that would remove the current ‘need’ for multiple screens, run at very low profit margins.

An upgrade to the largest screen in a cinema complex - which usually can include a ‘dormant’ 35/70mm projector if the complex was constructed (or split) in the 1990s - could be carried out as a ‘Premiere Screen’ project. The re-vamp of the projection and sound system could be paid for by a small premium on ticket prices. Décor, seating and ambience could also be upgraded, and consideration could be given to significant additional upgrades of the sound system via a loudspeaker baffle wall and greatly enhanced acoustics, which would further support the technical presentation. The interested Exhibitor could go further by installing a compound curved screen to the immersive design discussed above, and Premiere Screens could be certified to guarantee quality of experience. The ‘Premiere Screen’ concept would typically involve just one screen (or for large complexes, two), thus minimising outlay and maximising returns.

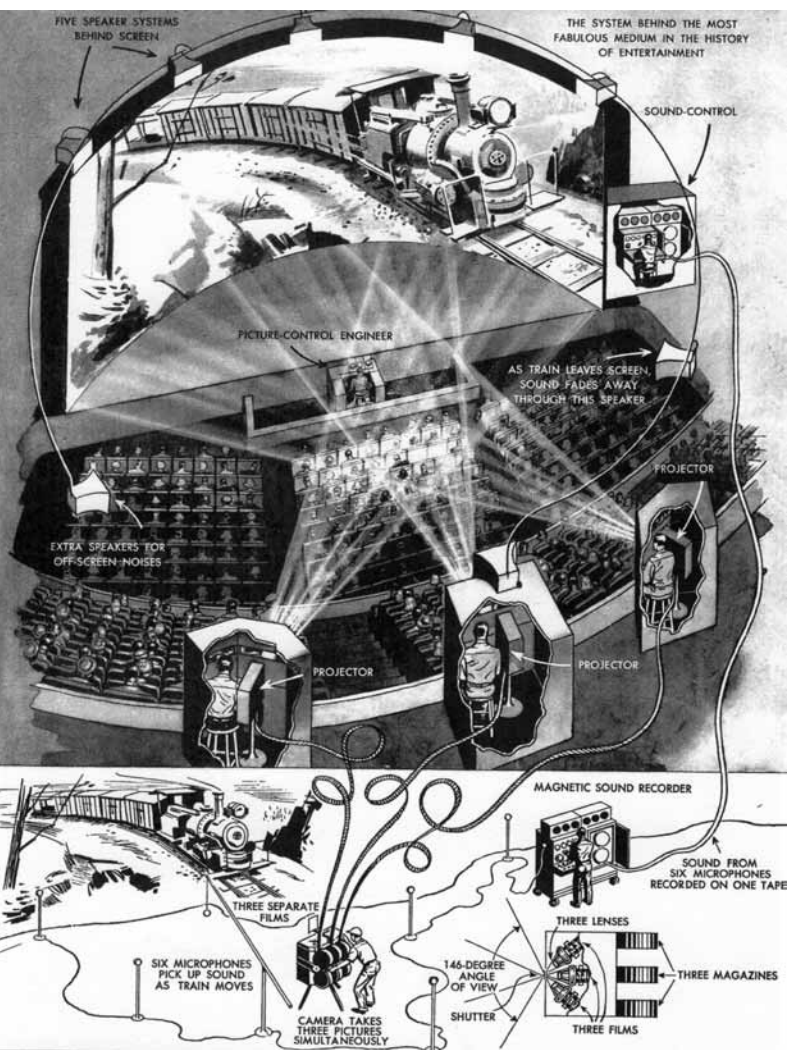


special promotions during weekdays with allocated



Edwards 21 screen complex, Irvine, CA

And then: 1952 'This is Cinerama' Arrived



Cinerama made its debut on September 30, 1952 at the Broadway Theatre in New York. It was the start of a range of wide screen revolutions like **CinemaScope** and **Todd-AO**. For the first time in moviegoing experience the cinema audience was really taking part in the action because of the deeply curved screen, which was six times the size of a normal screen and covered an arc of 146 degrees width and 55 degrees height. (The human vision covers a field of 160 degrees width and 60 in height). While seating in their cinema chairs visitors travelled all over the world visiting places they had never experienced before! **Cinerama** completely surprised the audience by the large images on the huge curved screen while they were surrounded by stereophonic sound from all directions.

The inventor of Cinerama, **Fred Waller**, a former special effects man who was looking to create more reality in motion picture presentation. After years of experimenting he finally developed a screen that nearly covers the human vision. For shooting a film for that extremely wide screen he combined three 35mm cameras on a large sturdy metal frame next to each other. Each camera was shooting one-third of the total image. The cameras were modified 35mm cameras, as every film frame should have six perforations instead of the normal four. And the film speed was changed from 24 normally to 26 frames per second for the Cinerama cameras. Fred Waller found out that a normal screen would give reflections on the opposite side of the screen so he developed a screen that consisted of a thousand of narrow strips (called louvers), vertically suspended from the screen frame. Each strip had to be positioned very carefully in line with one of the corresponding three projectors to avoid reflections from the other side. **Cinerama** uses three projection booths to project the three 35mm film strips next to each other on the curved screen. So every theatre had an operating crew of five men, three projectionists, one for every booth, one chief sound engineer and a fifth engineer to control the lights and the curtains. Only

the Cinerama chief engineer was allowed to start and stop the show. The Cinerama screen size varied from 75 x 26 feet in 'normal' theatres to 90 x 30 feet in a large theatre. Sadly Fred Waller died in 1954 at the height of the Cinerama success. The original Oyster Bay Studio near New York, a former indoor tennis court, where Waller started with his Cinerama experiments, was later used for sound recordings with the **Cinerama Symphonic Orchestra** for various Cinerama productions.

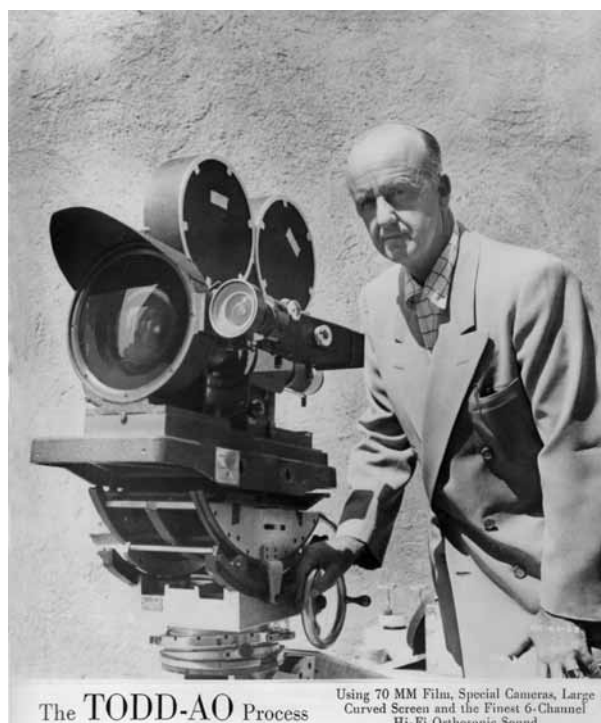
The first Cinerama film **This is Cinerama** started in 1952 in the USA on a glorious trip around the country with millions of visitors. In early advertisements about the celebration of it's first Broadway anniversary, only the word **Cinerama** was mentioned without the film title in the advertisements: 'There is only one Cinerama, the **Jazz Singer** introduced sound and Technicolor showed the images in color, but only '**Cinerama**' surrounds you with movement, color and sound so realistic - with such a dynamic impact - that you become part of every brilliant sequence!'

At the beginning of **This is Cinerama** and especially during the premiere the audience was put on the wrong foot when screening started with a prologue, by Lowell Thomas, on the history of the movies presented on a small standard screen with overdone mono sound. But after a few minutes he concluded his story with the historic words: "Ladies and Gentlemen: **This is Cinerama**," while the curtains opened to reveal the full size of the huge screen with large images they had never seen before.

The first Cinerama film was produced by Lowell Thomas and Michael Todd. His son Michael Todd Jr assisted his father in filming the European sequences with the only one existing Cinerama camera at that moment. On the 5th of June 1953, eight months after the premiere in New York, Cinerama moved from the Broadway Theatre to the larger Warner Theatre, where it ran for nearly two years.

Todd-AO, the Dream of Mike Todd

Producer **Michael Todd** had a dream... a motion picture system with one camera that could photograph action in a very wide angle... a camera that was flexible, capable of telling a story... on one strip of film... from a single projector... on a large screen that was wide and deeply curved... with a quality so perfect that the audience would be part of the action!



Shortly after the premiere of *This is Cinerama* Mike Todd sold his shares in Cinerama because the board of director's did not listen to him when he was complaining about the shortcomings of the system. At the moment that the decision was made by Cinerama to build theatres all over the US and Europe, Todd radically left the company because he was aware of the

many problems of Cinerama, in particular the join lines between the three projected images. He wanted the same effect as Cinerama but with just one camera and one projector. His dream began to come true. He was very lucky to find **Dr Brian O'Brien** who had just entered the **American Optical Company**, the largest optical company in the country as head of research. It took Dr O'Brien and a team of the University of Rochester nearly three years of research and experiments to develop the new lenses. Although American Optical had to design the complete new system, they subcontracted the camera work to the Mitchell Camera company. And the Philips Company in The Netherlands entered into an agreement with American Optical in October 1953 to design the projector for the Todd-AO process. Philips had a lot of experience since they were engaged in the design and production of 35mm projectors since 1934. They were instructed to design a compatible 35/70mm projector that could handle 70mm film as well as 35mm. They succeeded in developing the DP 70 projector in only 6 months and by the spring of 1954 three finished projectors were delivered at American Optical in Massachusetts. The **Philips Company** received an Oscar for their revolutionary design of this 'multi purpose' projector.

Dr O'Brien found out that for the projection of a movie on a large curved screen a 35mm film would not be sufficient and so he decided they would need a new larger camera negative. So he was provided with cameras from the earlier industry's attempt to introduce wide film in 1930. His 65mm format is exactly the one used to photograph the 65mm version of *The Bat Whispers*. This 65mm picture frame is three and a half times the area of the standard 35mm film frame. A six channel soundtrack was developed and the release prints were 70mm: 5mm extra to create space for the 6 magnetic sound tracks along the edge of the film. O'Brien and his assistants of the American Optical company developed four new Todd-AO lenses that cover everything from a close up to wide distance

shots. They range from the huge 128 degree (angle of coverage) wide angle lens – called 'bugeye' because of its enormous front element – down through the 64 – 48 and 36 degree lenses. And so the **Todd-AO 65/70mm** format was the guarantee for a sharp image when blown up onto a large wide screen and without the technical problems of the 3-strip **Cinerama** system where Mike Todd's dream for Todd-AO was born. The words Todd-AO on advertisements, film posters and on the theatre front had become a benchmark for superior picture, projection and sound quality. Even producers and directors were convinced of the necessity to produce a high quality motion picture with great care, that would guarantee high proceeds as a return on the large investment. The campaign to present the exceptional high quality film productions as a roadshow presentation only in prestigious theaters gave the public the feeling that going to such a 70mm film presentation was an event quite different from a normal cinema visit! Todd-AO films were only

"THE MIRACLE OF TODD-AO"

A prologue that presents all that the eye can see through the TODD-AO wide angle lens!



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starring

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Directed by FRED ZINNEBANN Produced by ARTHUR HORNBLow, Jr. Screenplay by AGNES DE MILLE Music by SONYA LEVINE and WILLIAM LUDWIG In EASTMAN COLOR Sound by TODD-AO

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You're in the show with TODD-AO!

Rodgers and

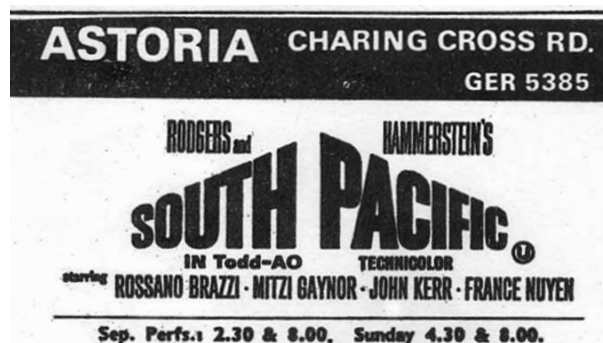
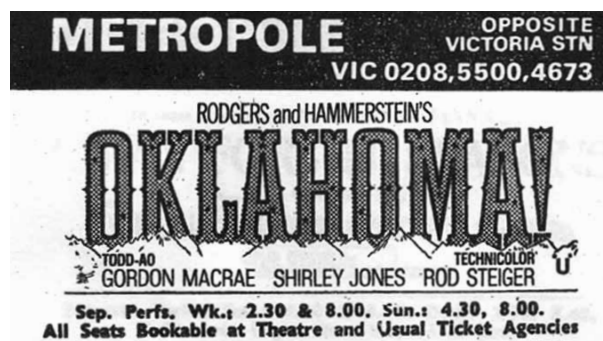
The original Broadway run of the musical production of **Oklahoma!** started on March 31, 1943 in New York. It ran for more than five years on Broadway and ended after 2212 performances on May 29, 1948. Meanwhile it had played in 252 cities in the US and Canada and in nine other countries outside the US. The original London premiere took place on 29 April 1947 and lasted 1548 performances. **Oklahoma!** was the beginning of a most successful partnership of Richard Rodgers and Oscar Hammerstein II, that ended in 1959 with **The Sound of Music** because of Hammerstein's death in 1960. That put an end to one of the richest partnerships ever known in show business.

The motion picture production of **Oklahoma!** was started in July 1954 at the MGM Studios in Hollywood with a budget of over 4 million dollars and was completed after 107 production days on December 6, of that same year. More than 325 people were involved in the production and more than 70 trucks and trailers were used to transport all the equipment to the outdoor locations in the state of Arizona. Most of the exterior shooting was done in Arizona since it looked more like Oklahoma at the beginning of the century, with all the oil rigs and telegraph poles now in the fifties. Stage 2 of the MGM Studios was used to set up the first Todd-AO projector and curved screen to check the daily rushes.

It was producer Arthur Hornblow Jr, who invited top director Fred Zinneman to fly on a highly secret mission to New York where a friend of his (Michael Todd) was experimenting with a new wide screen process. They wanted to show it to some people for an evaluation and so Zinneman got involved. Hornblow was a friend of Richard Rodgers and he arranged a meeting between Todd and Rodgers & Hammerstein.

At first **Rodgers and Hammerstein** were reluctant to sell the rights of their musical play to Michael Todd, but he invited both to a special screening of test sequences made by director Fred Zinneman.

The Fifties and Sixties: The 'Heydays' of 70mm



Nowadays visiting London is trying to get tickets for the Millennium Wheel, queuing for one of the many (free) museums or making a boat trip on the river Thames and in the evening another difficult choice out of the many exotic restaurants all over town.

Visiting London in the fifties and sixties however, was even more difficult in choosing where to go and what to do first. There was no Wheel (there was the Tower Bridge!), there were already a lot of museums to visit, but another great event for that time were the many spectacular big screen cinema theatres.

Even if you were not a cinema lover, you should visit the London Casino, not to loose your money, but to buy a ticket for the British premiere of the famous epic-scale Cinerama Western *How The West Was Won* in November 1961. This magnificent photographed, first feature film in the 3-strip film process, with famous stars like James Stewart, Debbie Reynolds, John Wayne, Henry Fonda and many others attracted thousands of excited visitors to the London Casino with it's 1337 seats. The Casino Cinerama theatre, which was a live theatre before, re-opened on the 1st of October 1954 with *This is Cinerama*, which ran for more than two years. Three minutes further down the road the beautiful Coliseum theatre with 1795 seats was also renovated in 1963 from a live theatre into a 70mm Cinerama theatre to show the first Cinerama feature film *The Wonderful World of the Brothers Grimm*.

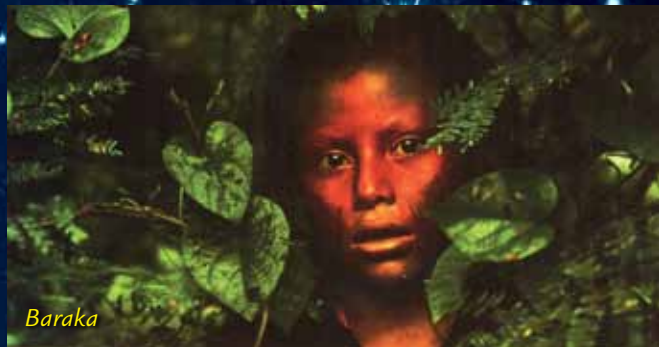
Another competitor of Cinerama was the Cinemiracle process. The first an only production Louis de Rochemont's *Windjammer* opened in the States on 9 april 1958 and arrived surprisingly already on 13 May 1958 in London where it opened at the Odeon Tottenham Court Road. The run at the Odeon with 1860 seats lasted relatively short until the 1st of November 1958 and the Cinemiracle installation was removed.

There were so many 70mm epics and filmed musicals which ran for a year or more in the West End cine-



mas, that releasing companies were urgently looking for possibilities of renting a live theatre that could be renovated for one of the new 70mm widescreen processes. In April 1958 the Dominion at Tottenham Court Road was equipped as the first Todd-AO 70mm theatre in Britain for the premiere of Rodgers and Hammerstein's *South Pacific*. At the end of the next year the Empire and the Metropole Victoria were also equipped with 70mm installations, for *Ben-Hur* and for *Oklahoma!*. The Royalty which was opened in 1960 as a live theatre with 850 seats, was also renovated as a 70mm cinema, to find a place for Stanley Kramer's *It's A Mad, Mad, Mad, Mad World*.





Baraka



Hamlet



Far and Away



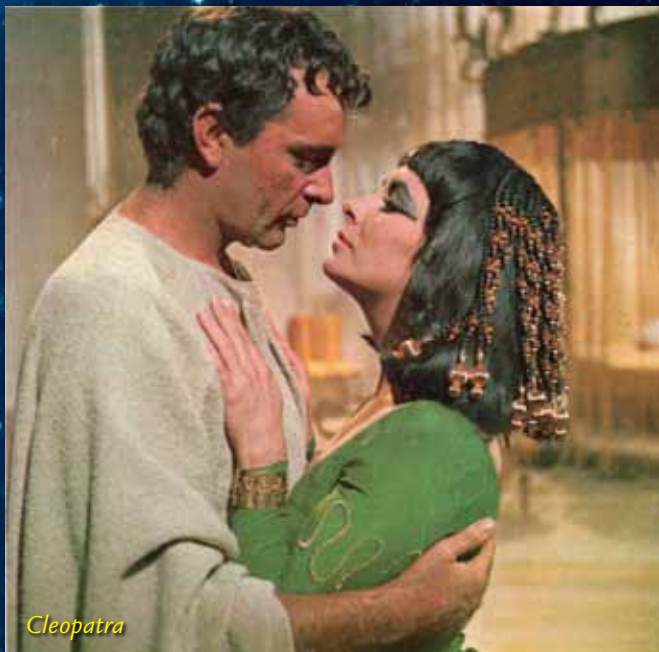
Ben-Hur



South Pacific



Oklahoma!



Cleopatra



Around the World in 80 Days



Far and Away

mm
TION CINEMA



55 Days at Peking



Hello Dolly



My Fair Lady



Cleopatra



Lawrence of Arabia



Little Buddha



Ryan's Daughter

Michael Todd, the 'Magnificent Showman' and...

It was a foggy Saturday night in March 1958, when a twin-engine twelve-passenger Lockheed airplane, the "Lucky Liz", crashed on the hills of a mountain in the US state of New Mexico. On board were **Michael Todd**, the famous showman with his friend Art Cohn, screenwriter and a pilot. Nobody survived the crash.

Mike Todd was on his way to New York, where he would be proclaimed **Showman of the Year** during a dinner at the Friar's club. At the last moment his wife Elizabeth Taylor had to stay home because of a severe illness. She was in total shock when she heard of the sudden death of her fairy-tale husband. Despite Mike was nearly twice her age, she was deperately in love with him. Nobody will ever know what we have missed through the unexpected death of this most extraordinary film and musical producer. The only thing that we know is that he was busy with the preparations of a new film production **Don Quichote** with the Mexican actor Cantinflas, who played also one of the main characters in **Around the World** and the French actor Fernandel, and a small part for Elizabeth Taylor as the wife of Sancho Panza (Cantinflas). This was the unexpected end of the life of a man who was born in 1909 in Minneapolis as Avrom Hirsch Goldbogen, one of eight children from Chaim and Sophia Goldbogen, Jewish immigrants from Poland. Michael Todd, a self-made man who became a flamboyant Broadway producer, only 5 feet-9 inch tall, but a bundle of energy.

At the time of their plane crash, Mr Cohn had just nearly completed Mike's biography. Luckily Mr. Cohn's wife was able to reconstruct the two last chapters of the biography, that was called: **The Nine Lives of Michael Todd**.

He left the world with only one motion picture **Around the World in 80 Days**. One of the most extravagant motion pictures of all time! He started his career in showbusiness in 1932 with the musical **Call me Ziggy**, but before that he had already had an impressive

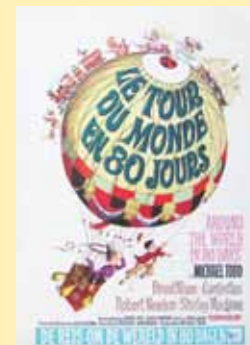
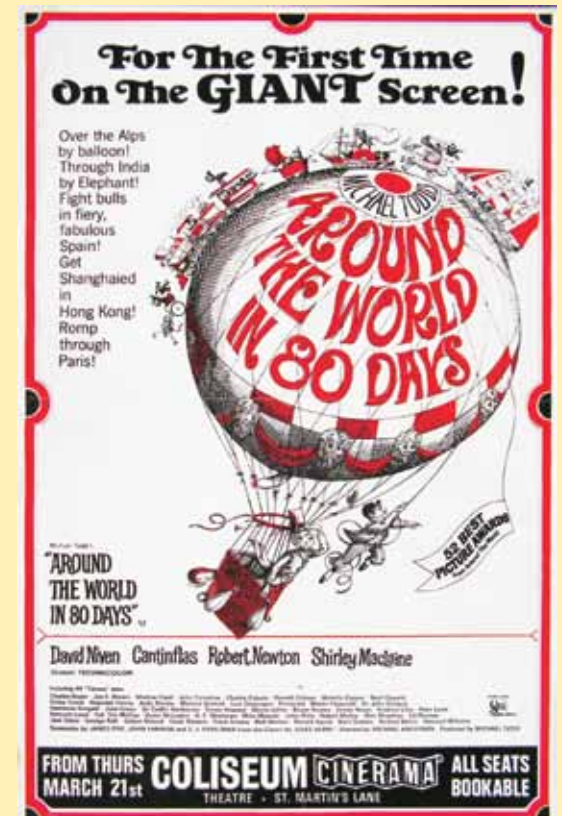
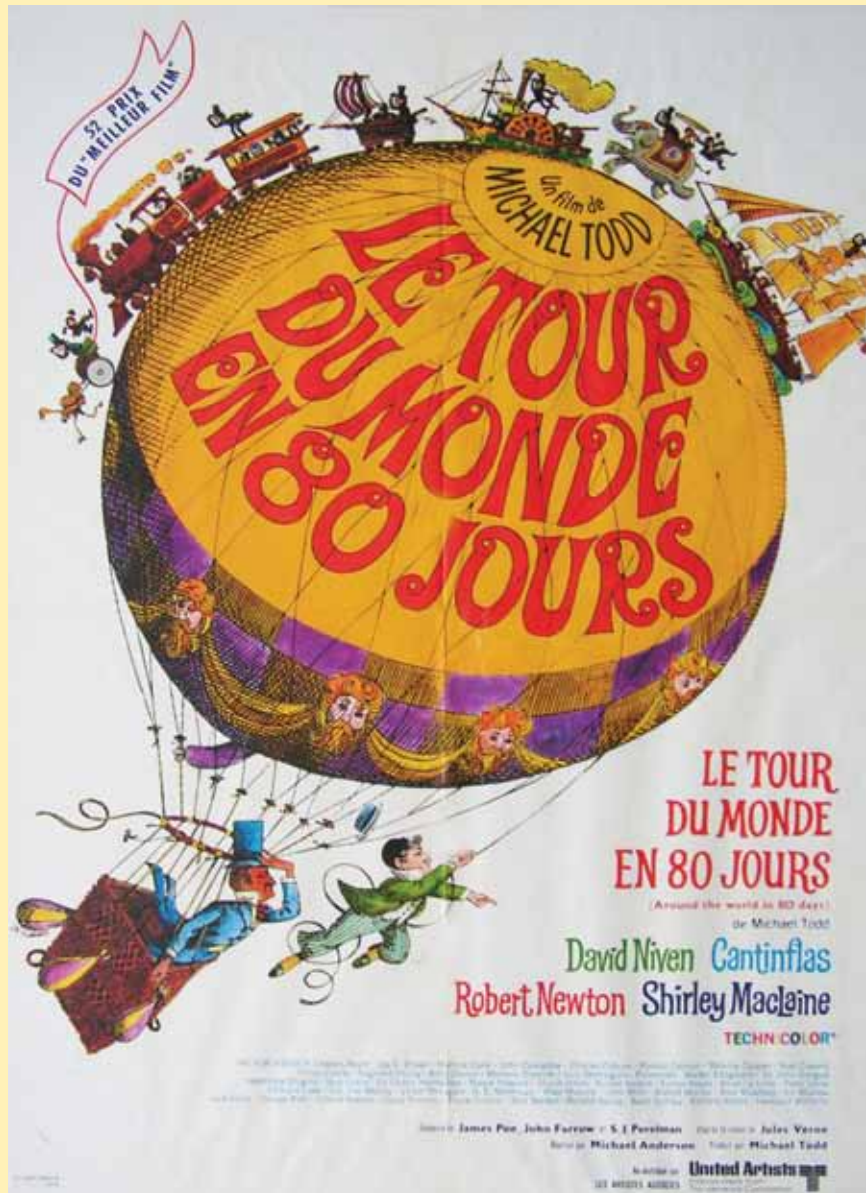
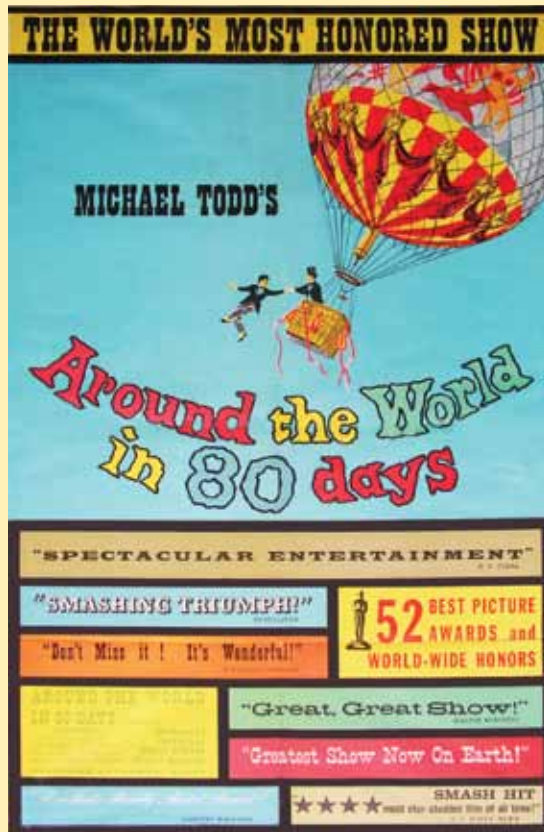
number of jobs. At the age of seven he delivered newspapers. When he was eight he practised in poker games and at eleven he was the assistant of a magician. An hour after his tonsils were removed he returned to school, inviting everyone to examine his bloody throat at five cents a look! At eighteen he was operating a multi-million dollar business in Chicago. In 1927 on Saint Valentine's Day, he married a beautiful, sensible 18 year old Jewish girl, Bertha Freshman. She was the daughter of a rich family.

Reading about **The Jazz Singer**, a semi talking picture, started his interest in the film industry and in 1928 they moved to Hollywood and he announced himself as a soundproof expert. At the age of twenty he was one of the most successful business men in Los Angeles, but his interest in the making of film rose! In the meantime his son Michael was born on October 8, 1929. Two years later his father, whom he admired very much, passed away in a hospital in Chicago. Not being able to say goodbye to him, he was so shocked by his death, that he changed his name Avrom Goldbogen to Michael Todd, Michael after his son and Todd because of Avrom's own nickname 'toat'. Meanwhile he was also a successful producer of Broadway shows, such as **The Hot Mikado**, **Something for the Boys**, **Mexican Hayride**, **Up in Central Park** and **Hamlet**, the longest running play in Broadway history! At the age of 37, he had four shows running simultaneously that brought him a huge profit. But the next year he went into bankruptcy for more than a million dollar!

In 1945 Michael Todd started as an independent filmproducer and in 1951 he founded with Lowell Thomas the Thomas-Todd production company. Together with Thomas he was the originator of the so-called 'Road-Show' trying to make a show out of a film performance! Through the co-operation with Lowell Thomas, Mike became involved in the Cinerama 3-strip film process and was one of the financial backers.

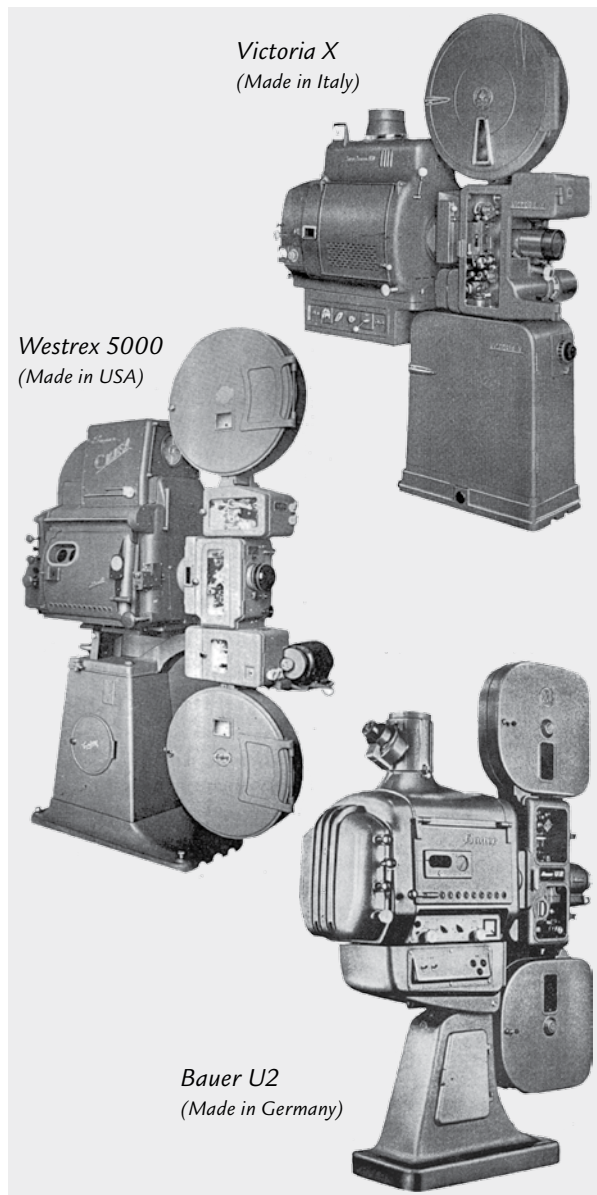


Michael Todd's 'Around the World in 80 Days'



Classic 70mm Projectors

by Nigel Wolland

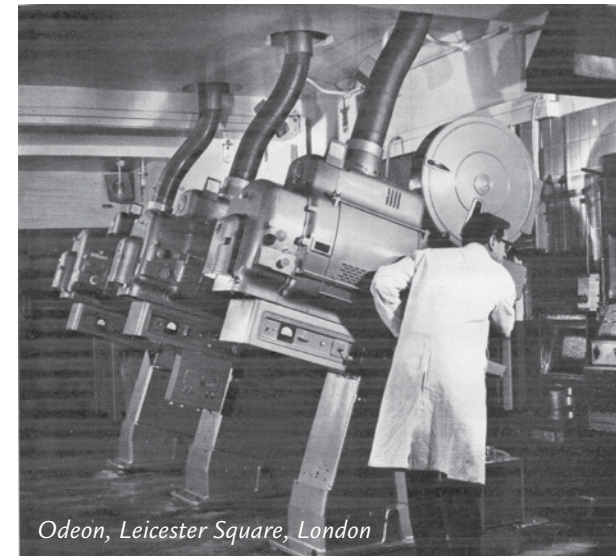


CINEMECCANICA VICTORIA X 70/35mm Multi-Purpose Projector

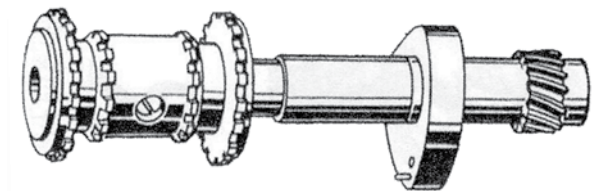
The Victoria X 70/35mm Multi-Purpose Projector was manufactured in the Cinemeccanica factory in Milan. From the late 1950s until 1964. It was discontinued because it was much more expensive to produce than the Victoria 8 (launched in 1961) which became very popular, so much so that it is still produced today after nearly fifty years. The Victoria X was a top design in its days for the motion picture industry, completely versatile and instantly interchangeable from 35mm to 70mm, handling six track and four track as well as optical sound. The film mechanism including the optical sound head was mounted on a heavy projector base with the lamphouse supported on a cantilevered beam behind. The inside of the base on the operating side was the lower spool box, and the rear housed the independent take up motor, gate cooling fan (the film gate could also be water cooled) main terminal board and exciter lamp supply.

For the film interchange from 35mm to 70mm the film gate and plates could be quickly and accurately inserted and locked into the operating position, with the large diameter dual purpose sprockets and intermittent having the eccentrically mounted 35/70 rollers simply turned and locked for the required operation, also including the rollers and cluster on the magnetic sound head. Lubrication for the projector was effected by a geared pump with filters distributing the lubricant to all the bearings and gears with the high efficiency barrel shutter driven through a special shock absorber joint. The Victoria X could also be equipped with a three lens turret, and a 35mm only version was available, easily converted to 70mm if and when required.

All in all a very versatile machine, and in the words of Cinemeccanica managing director Vittore Nicelli: "The best we ever made."



This triple installation of Victoria X 70/35mm projectors with Super Zenith 450 lamphouses was the first in the United Kingdom. They were installed at the Odeon Leicester Square for a 70mm screening of **West Side Story** for the Royal Film Performance in 1962. They remained in the theatre until 1983 and after 23 years of valuable service they were replaced with three Victoria 8 70/35mm projectors. One of the three original Victoria Xs is still in use today at the Projected Picture Trust, Museum of Cinema Technology in Bletchley Park. UK.



DP 70 sprocket wheel

Dates in the States

compiled by Michael Coate and Johan Wolthuis

This is Cinerama

New York - Sep. 30, 1952 Broadway (36 weeks)
 New York - June 5, 1953 Warner (+ 87 wks)
 (moveover)
 Los Angeles - April 29, 1953 Warner (133 wks)

CinemaScope (The Robe)

New York - Sep 16, 1953 Roxy
 Los Angeles - Sep 24 1953 Mann's Chinese

Oklahoma! (Todd-AO 70mm)

New York - Oct.13, 1955 Rivoli (51 wks)
 Los Angeles - Nov 17 1955 Egyptian (51 wks)
 Los Angeles - Dec 24,1955 United Artists (52 wks)

Oklahoma! (35mm CinemaScope)

Theatres unknown - Oct 1956

Around the World in 80 Days

New York - Oct. 17, 1956 Rivoli (103 wks)
 Los Angeles - Dec 21, 1956 Carthay Circle (128 wks)

South Pacific

New York - March 19, 1958 Criterion (29 wks)
 New York - Oct 7, 1958 Rivoli (+ 25 wks)
 (moveover)
 Los Angeles - May 21, 1958 Egyptian (44 wks)

Porgy and Bess

New York - June 24, 1959 unknown (30 wks)
 Los Angeles - July 15, 1959 Carthay Circle (28 wks)

CineMiracle (Windjammer)

New York - April 9, 1958 Roxy (24 wks)
 Los Angeles - April 8,1958 Mann's Chinese (37 wks)
 Los Angeles - Dec 25, 1958 Fox (+ 15 wks)
 (moveover)



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Other European opening dates

This is Cinerama

London Sept 30, 1954 Casino (> than 2 years)

CineMiracle

London May 13, 1958 Odeon (24 wks)

TODD-AO (introduction in Europe by the Philips Cy.)

The Miracle of Todd-AO + 1 reel *Oklahoma!*

Cologne - Germany Sep 1956, Photokina
 The Hague, The Netherlands July 1957, Holland
 Festival Kurhaus

Oklahoma! In Todd-AO 70mm

Hamburg - March 1957 Savoy
 London - December 1959 Metropole

Around the World in 80 Days (34mm!)

London - July 2, 1957 Astoria (< 2 years)

Around the World in 80 Days (70mm)

London - Dec 17, 1968 Astoria

South Pacific

London - April 1958 Dominion (< 5 years)



The Legend of 'Lawrence of Arabia' A film by David Lean

On May 22, 1935, the London Times announced : "After a week of hope and fear, a commonplace accident has robbed the nation of one of its most remarkable personalities. Lawrence of Arabia is dead!"

Among the people who said they knew him, was prime minister Winston Churchill, who wrote: "In Colonel Lawrence we have lost one of the greatest beings of our time. I had the honour of his friendship. I knew him well. I hoped to see him quit his retirement and take a commanding part in facing the dangers which now threaten the country. No such blow has befallen the Empire for many years as his untimely death."



Thomas Edward Lawrence as his official name was, became a legend, despite his life ended at the age of 47! His death caused a stream of publicity, more than he had known during his adventurous life in the Arab region and the legend kept growing. Even the accident on a small road that was responsible for his decease was discussed in the papers. Did he commit suicide? What about the mysterious black limousine that was seen on the spot? The most likely explanation however, was that he tried to avoid two boys on a bicycle, but his speed was too high! All his other names passed through the newspaper pages: Hero of Aqaba,

Liberator of Damascus, Uncrowned King of Arabia. The Bedouin Sheiks called him 'Prince Dynamite' after his heroic attack against the Hejaz railway in the desert. But to the ordinary Bedouin tribesmen he was 'El Aurens' as they had problems with the 'L' of Lawrence. He was a fighter like them, a brother-in-arms of Auda ibu Tayi, chief of the Howeitat tribe fighting against the Turkish Army. He also was a scholar, thinker and a flamboyant gentleman but also a man of action, decision which was sometimes strange and harsh. Nevertheless after his death his legendary image rose to unprecedented height and he was often called the 'Hero of Arabia'.

Despite all his adventures and busy life, Lawrence found the time to keep his diary and write his own story. He called it 'The Seven Pillars of Wisdom'. The first edition was of only 212 copies, beautifully printed and bound in leather. These were for those who had pre-ordered a copy. He could see, however, that the book was not going to make a profit with this expensive format, so he hastily created an abridged version with the more popular title 'Revolt in the Desert'. This became a best-seller and he was able to pay off his debts.

Producer Sam Spiegel, born in Austria, became fascinated by reading 'The Seven Pillars of Wisdom' and was thinking of making a film on the subject. He was already talking with director David Lean with whom he made '*The Bridge on the River Kwai*' to make a film about the life of Ghandi. When Spiegel acquired the filmrights of Lawrence's autobiographical book in February 1960, he and Lean decided that their next project should be '*Lawrence of Arabia*'. They realised it would be a very complicated and difficult project, but seeing their previous cooperation they had much confidence in succeeding. When the screenplay was ready they were immediately confronted with one of the greatest problems: the casting of the main characters. After a long search their choice fell on Peter

O'Toole, a young Irish rising star of the Royal Shakespeare Theatre, 28 years old. Omar Sharif, a famous actor known in the cinemas in the Middle East was introduced in his first role in a European movie, as Sheik Ali ibn el Karish of the Harith tribe, friend and sometimes teacher of Lawrence. Alec Guinness got the role of Prince Feisal while Antony Quin was the most suitable actor to play the Bedouin Sheik Auda ibu Tayi, a larger-than-life character!



When David Lean visited Jordan searching for locations, he found in the desert a landscape of unprecedented beauty and when they discovered the wreckage of the trains just as Lawrence had left them forty years ago the decision was quickly made by Spiegel and Lean that Jordan would be the main location for the filming. They were very lucky with the cooperation of King Hussein of Jordan who was very interested in the film project. By his order they got a lot of assistance from the camel riders of the Jordan army and he secured the participation of hundreds of Bedouin fighters. They were filming five months in Jordan,

Large Screen Formats

		Negative	Projection:
1952	Cinerama <i>This is Cinerama</i>	3x35mm – 6 perf – (non-an)	3 x 35mm +1 x 35mm for sound
1953	CinemaScope <i>The Robe</i>	35mm (an)	35mm (an)
1954	VistaVision <i>White Christmas</i>	35mm horizontal (non-an)	35mm (an)
1955	Todd-AO <i>Oklahoma!</i>	65mm (30 fps) (non-an)	70mm – 30 fps
		35mm (24 fps) (an)	CinemaScope 24 fps
1956	Todd-AO <i>Around the World in 80 Days</i>	65mm (30 fps) (non-an)	70mm 30 fps
		65mm (24 fps) (non-an)	70mm 24 fps
			35mm CinemaScope
1956	CinemaScope 55 <i>Carousel</i>	55mm (an)	35mm CinemaScope
1956	CinemaScope 55 <i>The King and I</i>	55mm (an)	35mm CinemaScope
			70mm Grandeur
1957	MGM Camera 65 <i>Raintree County</i>	65mm (an)	35mm (an)
1958	CineMiracle <i>Windjammer</i>	3x35mm – 6 perf (non-an)	3 x 35mm (non-an)
1959	MGM Camera 65 <i>Ben-Hur</i>	65mm (an)	70mm (an)
1959	Super Technirama 70 <i>Solomon and Sheba</i>	35mm (VistaVision type)	70mm (non-an)
1960	Super Panavision 70 <i>The Big Fisherman</i>	65mm (non-an)	70mm (non-an)
1962	Ultra Panavision 70 <i>Mutiny on the Bounty</i>	65mm (an)	70mm (an)
1964	Super Panarama 70 <i>Flying Clipper</i>	65mm (non-an)	70mm (non-an)
1966	Dimension 150 <i>The Bible</i>	65mm (non-an)	70mm (non-an)
1970	Imax/Omnimax <i>Tiger Child</i>	65mm horizontal (non-an)	70mm horizontal (non-an)
1994	Arriflex 765 <i>Little Buddha</i>	65mm (non-an)	70mm (non-an)

('an' = anamorphic; 'non-an' = non anamorphic)

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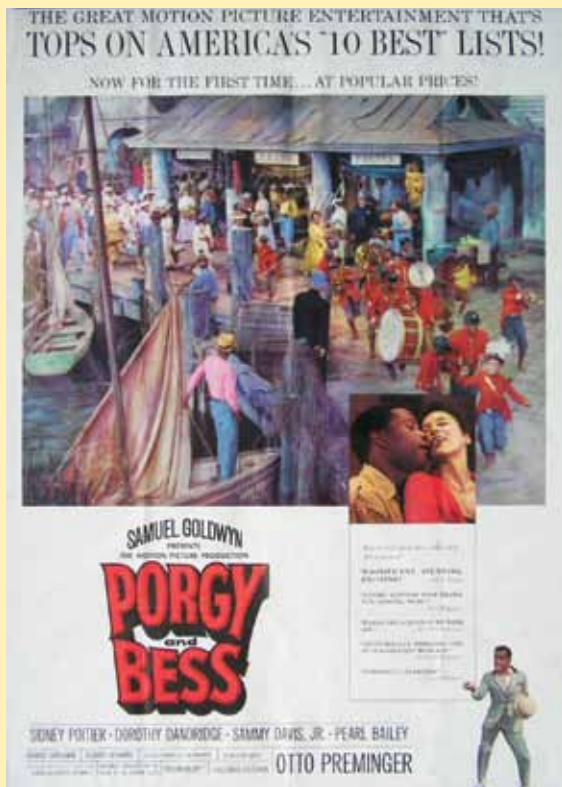
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As Good As It Gets

An interview with Bill Bennett, ASC

If you spend a lot of time watching movies and television with a critical eye, you probably think you have a good idea of what a high-quality image looks like. Well, think again... because cinematographer Bill Bennett, ASC has just reset the bar!

Bennett, known affectionately by his peers as 'The Car Guy' for his extensive résumé of TV commercials featuring slickly-photographed automobiles, recently shot a demonstration film which has been titled **As Good As It Gets**. The six-minute demo, captured in 65-millimeter(!), features breathtaking imagery of two young women trekking through the desert landscapes of Death Valley and the lush forests of the Sierra Nevada mountains. The film also features a drive through Los Angeles.

Originally shown at a film format seminar at UCLA in 2006, 'As Good As It Gets' was privately screened on April 11, 2007, at the American Cinematheque's Egyptian Theatre in Hollywood to a gathering of filmmakers, film-format enthusiasts and a journalist or two. Among the attendees impressed by the demonstration was cinematographer M. David Mullen, ASC (**The Astronaut Farmer, Akeelah And The Bee**). "The simple truth is that Bill Bennett's demo proves that oversampling works," Mullen said. "It also makes you realize that we still have the technology to return cinema to the grandeur of 1960s epics like **Lawrence Of Arabia** and **2001**, when movies floored you with their technical quality on the big screen."

"This looked **terrific!!!**," remarked film historian Rick Mitchell, who also was in attendance. "The detail you could see was breathtaking. Little grain was visible, and I was sitting in the seventh row!" So could this lead to a new feature shot in 65mm? "Maybe...if some contemporary filmmakers with **true vision** can be gotten to see this test film," says Mitchell.

Following the screening, Bennett agreed to do an interview. The conversation, of course, is no substitute for actually viewing the film, but offers some insight

into how and why the demo was made.

Michael Coate, from script to DVD: How did you become involved with this project?

Bill Bennett, ASC: *I was having a meeting with Franz Krauz, CEO of Arnold & Richter, the parent company of Arriflex, at their offices in Munich, Germany, in the spring of '06. During that discussion, he asked me if I would shoot this demo.*

M: What is the objective of the demo?

B: *During my discussion with Franz, we were talking about what we felt was a continuous decline over the past 30 years of the quality of images seen in the typical cinema, along with the fact that new digital camera and projector manufacturers were claiming that the images from their products were truly excellent.*

Franz and I felt that we needed to shoot some material in the 65mm/5 perforation format, using the latest modern film stocks, to "reset the bar" as far as high image quality is concerned. It has been many years since audiences have been

able to view 70mm images that were shot in the ultra high resolution 65mm format.

We also wanted to have a source of high quality images to blend into 4k DI [Digital Intermediate] workflow streams, to prove the following: Assuming that you are doing a DI for your movie, and you are shooting in 35mm, you gain a lot more detail in your wide establishing shots if you shoot those shots in 65mm, scan them at 8k or 6k, downsample them to 4k, and blend them into your DI with your 35mm dialogue and close-up shots. We proved that at the November screening at UCLA, where we showed the same scene, shot in both 65mm and 35mm. In wide shots, the 65mm contained much more detail, when compared to the same scene shot in 35mm. In the close-ups, there was not as much of a noticeable difference, proving that you don't need to shoot your entire movie in 65mm, just the wide shots, then blend them all together in your DI, to achieve a much better audience experience.

Recently, **The New World** (photographed by 'Chivo' Emmanuel Lubezki, AMC, ASC), **We Fight To Be Free** (by Kees van Oostrum, ASC), and **The Prestige** (by Wally



Cinematographer Bill Bennett, ASC with ARRIFLEX 765

For more about Bill Bennett, ASC, see: www.wfb4.com

The Essence of Cinema

Some years ago a group of projectionists invited me to Sweden for a 70mm screening of *'Paint Your Wagon'*. It was the most unusual show I have ever seen, complete with 70mm projectors and rewind table which had been set up in a living room pointing directly out into the garden where a curved screen had been installed on the lawn, between two trees. It struck me just how much they love cinema and film. They could have done it the easy way with a VHS tape and a TV, but that was not good enough. This group, depressed by Hecta-plexes and the closing of cinemas, simply set up their own cinema, as they believed cinema should be.



'They shared everything: gold, fun and even their wife!'

Reclaim the Cinemas!

'Reclaim the Cinema', as they called it and I realized how great this was. People being together, having a good time, watching a motion picture, sharing something exceptional. To see enthusiasm for the movies like this - an old film coming alive again for an enthusiastic crowd was spectacular. I think the Swedes captured the 'Essence of Cinema'. Difficult to explain - you have to see this yourself to understand.

But what is this '70mm' with people rebuilding their living room to see it? Well, 70mm is the superior cinema experience widely used in the 1960s for big epic movies like *'Lawrence of Arabia'* and *'2001, A Space Odyssey'*. Films which created a lasting impact on people, and for some, this impression has stayed with them since their childhood. 70mm is a better product, and considered the ultimate cinema experience. During the 1950s and 60s, nearly a 100 films were produced in 70mm. Still, those titles have acquired such an aura of mystique, like the royalty of cinema, that fans are flying in from all around the world to see them somewhere on a 70mm festival.

'Essence of Cinema', say what?

Can the 'Essence of Cinema' be found elsewhere? Indeed it can, in many places - it is really up to yourself. I have been fortunate to experience it several places myself. Mr. Herbert Born, owner of the Schauburg Theatre in Karlsruhe, invited me to come to Germany for his first Todd-AO Festival back in October 2005. Being familiar with 70mm festivals, I was excited to see how he would organize his 70mm festival. Mr Born has worked for 30 years in German movie industry and has received several awards for his work in Karlsruhe. He has a 'good nose' and understanding of what the audience likes and how they prefer the 'Essence of Cinema' at his Schauburg Theatre.

The Historic Schauburg cinema dates back to 1906 when it was built as a single screen theatre. Nowadays it has 3 screens under the same roof: 'Schauburg', 'Cinema' (on the former balcony) and the 'Bambi' with just 61 seats. All three screens have 2K digital projection and naturally all sorts of sound formats. The Schauburg is a leading and independent cinema in Germany, and the 70mm Todd-AO festival is a supplement to a wide range of activities already taking place in the cinema.

I felt I was in for something special, and I was not disappointed. I looked forward to 3 days of quality projection and got everything I could wish for. The staff

of the Schauburg has an open and relaxed attitude and at the same time show incredible attention to detail in projection and care of the audience. The festival turned out to be a wonderful experience, with posters, German beer, ultra sharp pictures on a curved screen, 6-track magnetic sound, a fabulous cinema, very nice feeling of being welcome.



Community and understanding your audience

The Todd-AO Festival attracts a large and diverse audience, mainly from Germany, but the festival has grown into an annual international event with guests from France, Holland, Czech Republic, Slovak Republic, Canada, Denmark, Sweden, Austria, Switzerland, Spain, Portugal, United Kingdom and USA. The core audience is very dedicated to 70mm and some are signing in months in advance before making their pilgrimage to Karlsruhe. They possess a huge knowledge of film and formats and can debate for hours and hours about how films should be presented, and not least how they USED to be presented in the golden days of 70mm presentation. Some have even gone the extra 'mile' and promote 70mm, to keep the flame alive a little longer. That includes Johan Wolthuys, from The Netherlands, who is promoting 70mm through his International 70mm Publishers and of

European 70mm History

by Jan Hein Bal

Besides the USA three other countries constructed cameras for 70mm films, the USSR (Soviet-Union), the German Democratic Republic (East Germany) and the German Federal Republic (West Germany). Although English language 70mm production was more widely known, continental Europe produced much more 70mm films. The Soviet-Union had the highest production with three quarters of the world output and was the most successful.

Western Europe

In West Germany two cameras were constructed for 65mm negative. The Norwegian engineer Jan Jacobsen designed the light field reflex camera MCS-70 for the West German company Modern Cinema Systems, so European countries could shoot their own 70mm films. It was first used for the West German long travelogue *Flying Clipper* (Mediterranean Holiday, 1962). It was restored for the 2009 Berlinale festival '70mm retrospective' by Fotokem in Los Angeles.

Later also a blimped studio version was built. About ten European MCS-70 feature films (called *MCS Superpanorama-70*) were produced in the sixties, also in France, Spain and Hungary and often as international co-productions. Feature films included the French costume adventure *La Tulipe Noire* (Black Tulip, 1964, Christian-Jaque) and the comedy *Playtime* (1967, Tati) which was partly shot in MCS-70. Shorts included John Fernhout (Ferno)'s remarkable documentaries *Fortress of Peace* (1964) for the Swiss army, and *Sky over Holland* (1967) for the Canadian World Fair. Both were nominated for Academy Awards. The last MCS-70 film was the Norwegian animated short *Tanakh Bibelen Al-Quran* (Tanakh The Bible Al-Quran, 2007, Vevle).

The lightweight 65mm camera ARRI-765 was constructed in 1989 for West German company Arnold & Richter. Its usage for flashbacks in *Little Buddha* (1993, Bertolucci) is best known. But only shorts films were entirely shot with this camera, like the German comedy *Tour Eiffel* (1994, Helmer). See also: Chris-

tian Appelt, Dream journeys, the MCS-70 process and European cinema of the 1960s (www.in70mm.com).

East Germany

The East German state film studio DEFA in Potsdam-Babelsberg developed in 1964 the DEFA-70 Reflex, a 70mm studio camera with an internal magazine and blimp. Instead of western 65mm cameras here 70mm negative was used mostly with *Orwocolor*. The only camera was first used for the short film *DEFA 70* (1967) but also Soviet 70mm cameras were used in East Germany. Eight feature length films, partly eastern European co-productions. The first was the



comedy *Hauptmann Florian von der Muehle* (Captain Florian Of The Mill, 1968). Also two SF-films were produced and an ambitious documentary *Du Bist Min* (You Are Mine, 1969, Thorndike etc.), a troubled production with much political interference and cutting. The most successful feature film was *Goya* (1971, Wolf), an ambitious biography of the painter. The last film was the musical *Orpheus in der Unterwelt* (Orpheus In The Underworld, 1974, Bonnet).

Ultimately 70mm appeared too expensive and not successful. East German party leader Walter Ulbricht

considered it useful for ideological purposes but after he was replaced by Erich Honecker in 1971 the 70mm film production was declared a waste of money and became banned.

In 1961 a universal 35/70mm projector was constructed, the Pyrcon UP-700 by the company Zeiss Ikon in Dresden. There were first-run 70mm cinemas in Leipzig (Schauburg) and East Berlin (Kosmos and Kino International) which also screened Soviet films in 70mm. The 2009 Berlinale festival '70mm retrospective' was partly in former East Berlin's most beautiful 70mm cinema, the *Kino International* from 1963 whose only auditorium is still intact.

Soviet-Union

Several Soviet cameras were built for 70mm negative including the studio camera *Rossia 1-SWS* (1-CWC in Cyrillic) for live sound recording, the studio and location camera *Kinap 70-SK*, the high-speed *Kinap 70-KSK* (with a double set of exterior magazines), and a *Kinap* hand-held camera. As colour raw stock *Agfa* and *Orwocolor* was used. Prints were credited as *Sovcolor*.

The Soviet-Union had the highest 70mm production in the world and also the most cinemas, with billions of visitors each year. After Stalin's death in 1953 the film industry became more liberal and increased gradually from about 15 films a year to about 125 films by 1968. In 1974 there were 156.000 projection units, including 24.000 continuously operating theatres, though mostly 16mm and mobile units.

The boom period was between 1960 to 1978. The number of cinemas which could also screen 70mm increased from 87 in 1965, to 620 in 1972 and almost 1000 in 1974, including the Moscow Oktyabr and Rossiya theatres (with auditoria for about 2500 visitors) and one in the Kremlin. A popular Soviet 35/70mm projector was the *Odessa KPK-30*.

The 2009 Berlinale publication '70mm, bigger than life' includes the most accurate European filmography to date which lists about 175 Soviet films produced in

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Uitgaan in **JAPAN**

KOMA PROJECT WEERSPIEGELT KENNIS
EN KUNDE VAN 58 PHILIPS ORGANISATIES



PHILIPS

No 70mm films are known in Asia, at least no feature films shot on 65mm negative by Asian companies. According to Georges Loisel: "In the Seventies, India and China are also believed to have produced a few films in 70mm which cinema journalists were able to view while travelling in these countries" (70mm Newsletter, March 1993). However no sources existed then to verify whether these were domestic 65mm productions or blowups. These do exist now and no current filmographies mention Asian 65mm productions. And authors from countries like China, India, Turkey acknowledged that no domestic 65mm productions exist (see reports on www.in70mm.com). Of course

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* A large poster 'Original 70mm Films' goes as a supplement with this publication!

What does 70mm Mean Today?

For most moviegoers of the Sixties, 70mm meant the ultimate theatrical presentation experience, the best alternate to the 21-25 inch television set in the home. Given the theatrical industry's current desperation in dealing with recent audience declines, and given the fact that camera and projection equipment for the format are fairly readily available, many with fond memories of their past 70mm moviegoing experiences have wondered why it is not being considered for attracting new audiences.

Unfortunately, what's being overlooked is that the term '**70mm**' doesn't have the same meaning today that it had 40 years ago. Originally it referred to the presentation on large wide screens of 70mm prints photographed on 65mm negative stock, one of the highest resolution formats ever used for motion pictures. (And henceforth in this article, 65mm will be used when *specifically referring to this mode*.) Over the last thirty years it has come to mean anything shown using a 70mm print, for other methods of achieving such prints soon evolved, ultimately leading to a diminution of their effectiveness, especially when they were shown in small auditoriums on small screens. Though new 70mm prints of 65mm films from the Fifties and Sixties have been struck and shown over the last 25 years, most current programs of '70mm films' consist primarily or exclusively of blow-ups from the Eighties, which are really not reflective of the original idea behind the format. A two week '70mm Festival' thrown by a Los Angeles theater in 2008 for celebration of its 70th anniversary had only *one* film actually shot in 65mm!

Initially 65mm was used exclusively for films that were roadshown in their first run engagements. That is, they were shown in one movie palace in one major city for at least a month or more, two showings a day at higher ticket prices and often with reserved seats. Not all the subsequent 65mm productions were hits, but the ones that were turned out to be monsters, playing

over a year in many cities and interesting many producers and studios in getting on the roadshow bandwagon. To increase the number of such films, in 1959 Technicolor began making 70mm prints of films photographed in its 35mm Technirama format: 35mm film run through the camera horizontally photographing an image over eight perforations in width with a 1.5x anamorphic squeeze. The original idea was to make better quality standard 35mm anamorphic prints, but the frame size was close enough to that of 65mm that 70mm prints of equal quality resulted (Super Technirama 70). Then, in 1963, using an optical printer lens designed by Panavision, they began making 70mm prints from 35mm anamorphic negatives with results that were considered comparable to original 65mm or Technirama photography, and this led to a further increase in titles shown in 70mm, especially in Europe. In 1967 MGM Laboratories made the first blowup from 35mm spherical photography on **The Dirty Dozen**. Here the graininess and loss of sharpness was quite obvious and initially only a handful of such films got this treatment, in many instances musicals, blown up more for their stereophonic sound tracks than their images, which would lead to the ultimate tragic fate to date of 70mm.

The earliest attempts to bring stereophonic sound to film involved cumbersome systems that interlocked the playback machines and the projectors. Engineers from 20th Century-Fox thought they'd solved this problem when they developed a method of applying 4 iron oxide stripes to a 35mm print. However, many theater owners, especially of smaller houses, refused to spend the money for the extra speakers and amplifiers involved, and even the big movie palaces did not properly maintain their systems, which quickly diminished its popularity and use. By the mid-Sixties, only a few really big 35mm releases were being released with stereo prints, mostly musicals. In the mid-Seventies Ray Dolby developed a method of encoding four stereo channels into two channels from which an

Technirama



8 Perforation negative (anamorphic factor 1.5)



Double frame print (anamorphic factor 1.5)



CinemaScope type print (anamorphic factor 2.0)



Super Technirama-70 print



Unsqueezed print (aspect ratio 1.85:1)

This poster is a supplement to this publication 'Digital & 65mm' by International 70mm Publishers in The Netherlands.

Hollywood Classics

London, United Kingdom

FOTOKEM
FILM . VIDEO . DATA

Burbank, California



ORIGINAL
70mm
FILMS

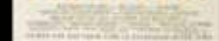
TOM CRUISE



NICOLE KIDMAN



FARAWAY



WEST SIDE STORY



IT'S A MAD, MAD, MAD, MAD WORLD



La Fille de Ryan



Ryan's Tochter



Hollywood Classics

70mm
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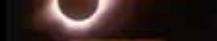
A BOLD BEYOND BOLD



THE THIN RED LINE



THE AGONY AND THE ECSTASY



THE SOUND OF MUSIC



MY FAIR LADY



2001: A SPACE ODYSSEY



FOTOKEM



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