

WIDE SCREEN MOVIES CORRECTIONS - Rev. 2.0 - Revised December, 2004.

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COMMENTS FOR VERSION 1.0 (PUBLISHED APRIL, 1994):

The following is a list of corrections and addenda to the book *Wide Screen Movies* by Robert E. Carr and R.M. Hayes, published in 1988 by McFarland & Company, Inc., Jefferson, NC and London; ISBN 0-89950-242-3. This document may be more understandable if you reference the book, but it is written so that you can read it by itself and get the general idea. This document was written at the request of several individuals to document the problems I found in the book. I am not in the habit of marking up books like I had done with this particular book, but the number of errors I found was overwhelming.

The corrections are referenced with the appropriate page number and paragraph in the book. I have primarily limited my comments to the state of the art as it was when the book was published in 1988. Since most subjects are discussed in multiple areas in the book, there is quite a bit of duplication in my comments. Some errors occur many times through the book (such as the 2.05 x 1 aspect ratio for 70mm) but I have given comments only where it seemed suitable. I have also pointed out some simple spelling errors. This is not meant to be nitpicking, but rather to ensure that the reader is not misled. It should also be mentioned that the lists of films in the various formats are organized alphabetically by year of release rather than by actual order of release. There are probably many other errors in the book which I have missed. Hopefully they will be included in a later revision of this document.

I have researched the subjects of film, video and audio technology for many, many years. This was due to my fascination with these topics and my desire to resolve the many contradictions in the literature. (In fairness to the authors, almost every general reference on the subject has errors.) My interest is primarily from an engineering standpoint: What the specifications were, how did a format change, what were the limitations, etc. This involved research into physical, mechanical, electrical, psychological, and historical aspects of the technology. In reality, the evolution of film technology was governed by many other factors including several technological developments. For example, sound films became more practical after the common availability of quality audio amplifiers. Cinerama became more appealing when Eastman color negative became available. Multiple track sound recording became common after high quality magnetic recording became available. Letterboxed video became common when videodiscs with their higher bandwidth became more popular.

I have also included addendum material that probably should have been included in the book. This includes missing specifications and information on additional formats. There are many other subjects that could be included but then this already lengthy document would turn into a book. Some subjects including the apertures of the formats used in 1930, the evolution of aperture sizes, video formats & technology, HDTV, special screens, motion base technology, experimental systems, and additional special venue presentations will have to wait until I do publish a book.

There are some necessary limitations in the formatting of this document due to designing it for general computer use. I would have preferred to use italics and paragraph indentions, but I wished to keep this document in a general format.

I would appreciate any comments or corrections from any readers. I can be reached via e-mail as filmformats@yahoo.com. You can also find my mailing address in the *Directory for Members* issued annually as a supplement to the *SMPTE Journal* published by the Society of Motion Picture and Television Engineers. I am also a member of the British Kinematograph Sound & Television Society (BKSTS) and they should be able to provide my mailing address as well.

-Daniel J. Sherlock

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COMMENTS FOR VERSION 1.1 (PUBLISHED AUGUST, 1994):

The new version incorporates some minor additions and corrections to the April, 1994 version as well as some grammatical changes to improve readability with less need to reference the book for understanding. I would like to thank Steven Gutttag for pointing out some minor errors in the first version, and Joseph Kaufman for providing additional information about the Illusion-O viewer. Some of the clarifications were due to additional explanations given by R.M. Hayes in the magazine *Widescreen Review*.

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COMMENTS FOR VERSION 1.2 (PUBLISHED DECEMBER, 1997):

The new version started out as incorporating some minor additions and corrections to version 1.1 that was published August 24, 1994. These include corrections to the frame rate for the Grandeur format; that the 7-track sound format was used for all Cinerama showings including the premiere showings at the Broadway Theater; prologues were used for all of the Cinerama travelogues except for *Search For Paradise*; the dimensions of the original Cinerama screen; *De Luxe Tour* does not appear to have been shown to the public at all, particularly not in 55mm; the addition of *The March of Todd-AO* and *Hello, Dolly!* to the Todd-AO film list; corrections to the titles for *The Monte Carlo Story* in Technirama and *Water, the Source of Life* in Stereospace; *Mission Galactica: The Cylon Attack* was apparently shown in Sensurround in Japan; and other small fixes to the original text.

I also decided to add about two dozen items to the list. There are additional errors for which I have not yet found definitive information for corrections. For example, almost all of the dates given in Chapter I are incorrect, and some of the films listed in the Panavision list were filmed with spherical lenses. Also, I have not addressed in this version the many missing movies from the film listings. Examples include the CinemaScope version of *Oklahoma!*, the Superscope film *Jet Pilot*, the VistaVision film *The Court Jester*, and the Technirama film *Davy*. It should also be noted by readers that if a film is listed as a 70mm Blowup it is usually not listed in the process listing. Thus, for example, to get a listing of all Panavision films it would be necessary to review both the Panavision list as well as the 70mm Blowup list.

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COMMENTS FOR VERSION 2.0 (PUBLISHED DECEMBER, 2004):

The new version incorporates some additions and corrections to version 1.2 that was published in December, 1997. In the ten years since the first version was published, additional resources including, most importantly, the internet, have become available to help check and confirm many of the remaining questionable items. There may still be many errors in the book not covered by these corrections. This is because in many cases there was insufficient evidence to identify the item as an error. For example, there are many films listed in the 70mm Blowup listing that cannot be confirmed as having been released in the United States in 70mm.

The major additions to this version are the dates given for Chapter 1; a clarification of the specifications for Cinerama, Cinemiracle, and Kinopanorama; clarifications on Dimension 150; clarifications to the 70mm split surround format; and added info about VistaSonic stereo. In addition, I have attempted to add missing films to several of the format lists. This has been a particularly challenging task, since many of the available references disagree on details or even on the existence of a film title. The film listings I have added to this document have some confirming evidence to support the dates and formats given in the lists. Many more films could be added to the film listings with some additional research, but most of the major omissions have been included. Titles have been deleted from the authors' film listings only if there is substantial evidence to disprove the listing.

It should be emphasized that the dates given for the premieres of various movies can be different depending upon the source. For example, the dates could be for a public premiere, or a press premiere, or an invitational premiere, or a trade demonstration, or even just a copyright date. For the most part, the dates given in this document reflect the first performance labeled as a "premiere" for the given film; otherwise, it is the date of the first public performance. It should also be noted that the dates given for the films in the book are for the US premiere dates;

the films may have played earlier in other countries. The corrections to the lists have been limited to the years covered by the authors, which is typically up to 1985 or 1986. This version now identifies over 600 errors (not counting dozens of times the errors are repeated in the book), over 250 titles missing from the film lists, and provides over 500 clarifications and additions to the material in the book.

Technology developments made after 1986 are generally not included in this document, except for some special cases. Therefore, formats such as IMAX Ridefilm, IMAX Solido, IMAX Magic Carpet, IMAX DMR, Maxivision, Super-Dimension 70 (SDS-70), Compact Distribution Print (CDP), Cinema Digital Sound (CDS), Dolby Digital (Dolby SR-D) stereo, DTS (Digital Theater Systems) digital audio, SDDS (Sony Dynamic Digital Sound) digital audio, DLP digital projection, and Digital Cinema are not covered in this document.

The authors' choice of sorting film titles by the United States release date can cause some confusion and mislead the reader. And in some cases the authors list a film as being released in 70mm, but it was not released in 70mm in the United States, and in some cases the film was not released in the United States at all. In fact, some films were in some cases released in other countries years before their United States release date. Readers not familiar with other reference sources may be surprised to learn that *Honeymoon* and *Parisian Ballet* were released in ARC 120 (Wonderama) but not in this country, or that *The Monte Carlo Story* was actually the first Technirama film, and that it was shown in 8-perf horizontal projection at its premiere.

Another change I have incorporated into this version is to include more information about special venue and world's fair showings of films. The authors attempted to eliminate many of these types of films in their book under the pretense that they were not "theatrical", but in fact they include some of them (such as *We Will Rock You* and the Showscan films) while eliminating others. It is particularly ironic since several of these short subjects actually played theatrically after their initial release. I have included in this document many of these short subjects to supplement the material available in the book. These short subjects cover only those films for which I have been able to locate production information and therefore some titles may have been missed.

I would like to thank the following individuals who have personally helped in developing these new additions to this document: John Belton, Michael Coate, David Coles, Steven Gutttag, Martin Hart, Thomas Hauerslev, William Kallay, Joseph Kaufman, Steve Kraus, Scott Marshall, John Mitchell, Rick Mitchell, David Strohmaier, and Richard Vetter. There have been many others that have helped and contributed as well - you know who you are, and I thank you very much for your help as well.

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SECTION I. EARLY WIDE SCREEN

<<Page 2 Paragraph 2 "Birt Acres use of 70mm film">>

The footage is of the Henley Regatta (not Henry) and the projector was built in Canastota (not Canatosta) New York by Herman Casler (not Caster). The footage may have been filmed as early as 1894. The images were 2.75" x 2", so the exact aspect ratio is known to be 1.38 x 1. The authors define "wide screen" in this paragraph as any ratio wider than 1.33 x 1, and declare this footage to be a "large, wide image". And yet they also say that "16mm projectors employ a 1.37 x 1 aperture today, and they are definitely not projecting a wide screen image." By the way, 16mm projectors typically use an aperture that is 0.380" x 0.286", which is a 1.33 x 1 aspect ratio rather than 1.37 x 1.

<<Page 3 Paragraph 1 "Panoramico Alberini">>

It is stated that the Panoramico Alberini format was "...a five-perf-per-frame, 2.20 x 1 70mm process identical to that now employed worldwide." It was not identical in that the 70mm film had the perforation holes closer to the edge of the film (since there were no magnetic stripes back then) and the aspect ratio was 2.52 x 1. The authors also state that Alberini and George Hill had a process that would be adopted by Paramount in the early fifties under the trade name VistaVision. In fact, the format invented by Corrado Cerqua in 1924 and promoted by Alberini and Hill in 1928 was a 10-perf horizontal 35mm frame, whereas VistaVision used an 8-perf horizontal 35mm frame. In fact, VistaVision more closely resembles the format developed by Edwin Clark during 1920-1922. Clark's process does not appear to have been used commercially at that time.

<<Page 3 Paragraph 2 “Natural Vision early films”>>

It is claimed that the short films *Rollercoaster Ride* and *Niagara Falls* received limited showings in 1926. In fact, no evidence has been found of any public showings of Natural Vision prior to 1929. The short subject *Niagara Falls* was released with *Danger Lights*, but the only reference found to footage of a rollercoaster ride is from the memory of someone recalling it in the 1950's. Thus if such footage was shot, it was probably made as a test sequence only. The feature film *The American* was also filmed in Natural Vision in 1925, but was not released in that format.

<<Page 3 Paragraph 4 “Polyvision”>>

The authors claim that Polyvision “...was in no way a wide screen process, nor was the name ever used to refer to Triptych, except by recent writers.” Although Gance referred to the technique as Triptych at the time, the name “Polyvision” was later coined by Emile Vuillermoz and Gance adopted the name to better describe the particular format used rather than just the technique. Gance then regularly used the name Polyvision to describe the three projector process.

<<Page 4 Paragraph 1 “Triptych”>>

It is stated that the aspect ratio for the Triptych format used for the three projector sequences of *Napoleon* was 3.66 x 1, compared to Cinerama's 2.72 x 1, and that “...the three-panel panoramic scenes did not have the same horizon and did not blend well at all.” The Triptych format placed edge to edge the three scenes from the three projectors which used the standard silent aperture aspect ratio of 1.33 x 1. This gives a total aspect ratio of 4.00 x 1. And as pointed out in the section on Cinerama in this document, the aspect ratio of Cinerama was 2.59 x 1 for the camera, and 2.65 x 1 for the maximum projectable area. It was not Gance's intent to create a perfect panoramic view but rather to produce a film version of the technique known as triptych as used in paintings. Such paintings used compositional techniques similar to those used by Gance, including subordinate images in the side panels, mirror-flipping the side panels, etc. The majority of the scenes were not panoramic since Gance decided to expand the use of the technique after photography had been completed. The use of vertically stacked cameras made it easier to align the cameras for photographing distant scenes. The horizon did line up in most of the shots, but there were instances where the difference in vertical positioning of each of the cameras was obvious. Side-by-side cameras were used for the closeup shot of the eagle to minimize the problem for this shot. Magirama was slightly different in that the side cameras used two mirrors each to give a common virtual focal point to the three lenses. This substantially reduced the parallax errors that were present in the original configuration.

<<Page 4 Paragraph 2 “Napoleon”>>

If indeed a Cinerama version of *Napoleon* was ever considered, it never made it past the discussion phase. The use by Abel Gance of “stereophonic” sound in the 1930's was actually a process where notches in the film would trigger a sequencer that would turn on and off various surround speakers for enhanced dramatic effects. All speakers were driven by the same monophonic soundtrack.

<<Page 5 Paragraph 2 “Magnascope films”>>

The authors are apparently confused about the usage of the term “Magnascope”. Lorenzo del Riccio did not “develop” a lens in 1924 that enabled enlargement by four times of any 35mm scene on the screen. It would merely be necessary to use a shorter focal length lens to achieve a larger projected image. In fact, the term “Magnascope” referred to a method of motion picture exhibiting incorporating the use of adjustable screen masking and switching to the larger projected image. Lorenzo del Riccio filed for the patent for the Magnascope “motion picture exhibiting” method in January 1927. The authors claim that Paramount used Magnascope for the films *North of '36* and *The Thundering Herd* prior to its use for the film *Old Ironsides*. Actually, the two prior presentations were special presentations at the Eastman Theater in Rochester, New York. They were presented this way through the initiative of the theater and Paramount was not involved in the special presentations. *Old Ironsides* was the first film to be promoted as being presented in Magnascope. The authors also claim that “initially the idea was to cover the screen in a ratio of 1.85 x 1 or whatever shape filled the stage proscenium arch.” This is not true, and the articles describing the masking changes for Magnascope as well as the dimensions given for early Magnascope screens indicate that it was intended to preserve the 1.33 x 1 aspect ratio for Magnascope scenes. However, it is true that in some theaters it was necessary to crop the enlarged image due to architectural limitations. The authors also fail to mention that the use of Magnascope in most theaters also involved the use of a special 72 degree Simplex intermittent movement to allow a longer exposure of the film upon the screen to give increased brightness.

<<Page 5 Paragraph 3 “Grandeur”>>

The authors portray Mitchell Camera Corporation as the innovator that introduced the 70mm format used for Grandeur. In fact, William Fox directed the development of Grandeur and Mitchell made Grandeur cameras for Fox. (Some Grandeur cameras were made by Wm. P. Stein & Company in New York and apparently by the Wall Camera Company in New York.) Kodak made the film for Fox, and Fox owned the perforators that were based at Kodak.

<<Page 5 Paragraph 4 “Grandeur”>>

The first public presentation of *Fox Grandeur News* was on September 17, 1929 rather than in April 1929. The book also states that “Grandeur was photographed in the same four-perf-per-frame format as regular 35mm, with the actual picture image being 22.5mm high and 48mm wide, giving a 2.13 x 1 aspect ratio.” The film had larger than standard perforation holes measuring 0.130" x 0.080", and a 0.234" pitch rather than the standard 0.187" pitch. Many references quote a pitch of 0.231", but the best information indicates that the pitch was 0.234" for unshrunk film. The dimensions quoted in the book are the ones most commonly quoted, but they are an approximation. In fact, I have found six contradictory specifications for the dimensions published in 1929-1930. Based upon measurements of frame samples, the most likely specifications appear to be as follows: Camera aperture: 1.890" x 0.9125"; projector aperture: 1.768" x 0.885"; width of soundtrack: 0.240"; width of sound reproducing aperture: 0.220"; offset between sound and picture: 11.5 frames; film speed: 20 or 24 frames per second. The linear film speed was originally 20 frames per second which is approximately equal to 90 feet per minute, which was the speed used for most sound films. However, in the summer of 1930, the standard speed for Grandeur was changed to 24 frames per second. This may have been partly due to the use by MGM of Grandeur cameras for the Realife format, which would necessitate the use of 24 frames per second photography to make the 35mm reduction prints that would reproduce at the proper speed on standard projectors, and the consideration by the Fox studio to also possibly using 35mm reduction prints. It is clear from the recently restored Grandeur version of *The Big Trail* that 24 frames per second was used for that film. The authors also claim that Grandeur used an oversized (literally by two) Movietone soundtrack. In fact, the 0.240" soundtrack width was 2.4 times the width of a normal Movietone soundtrack which was 0.100".

<<Page 6 Paragraph 1 “Grandeur”>>

The authors claim that the exposed image area on Grandeur film was not as large as present day 70mm due to the width of the soundtrack and “thicker framelines”. In fact, the frameline on Grandeur film was approximately 0.234 inches, which is actually thinner than the frameline on present day 65mm film (and the 70mm theater prints printed from it) which has a frameline of about 0.239 inches. Also, the first public presentation of the Grandeur version of the *Fox Movietone Follies of 1929* was on September 17, 1929 rather than on May 29, 1929. It was shown along with the *Fox Grandeur News*.

<<Page 6 Paragraph 2 “Magnafilm”>>

Paramount’s 56mm format was not named “Magnifilm” but rather “Magnafilm” to indicate an improvement to the then popular Magnascope technique. Magnifilm was the name used for the 65mm format used for the film *The Bat Whispers*, and this similarity of names has caused confusion with many writers. In addition, the often quoted frame height of 19.5mm is an approximation and not a specification. The film still used the standard 0.187" pitch and the image was four perforation holes tall with a thin frameline. Thus the image could not have been taller than 0.748" which equals 19.0mm. The actual size of the image on Magnafilm was about 1.62" x 0.74". This is an aspect ratio of 2.18 x 1, not 1.85 x 1 as claimed by the authors. In fact, it was shown on a 2 x 1 aspect ratio screen. It is very questionable if the camera was in fact a modified Fox Natural Color camera as claimed by the authors. The authors also state that the only review of the Magnafilm showing they could locate was extremely favorable. Most of the reviews I have located indicate that the showing was a disaster. The image had substantial brightness falloff in the corners of the frame (they are quite noticeable in some of the frame samples that have been published) and there were some obvious focus problems as well. These problems were part of the reason that Paramount started experimenting with a 65mm format virtually identical to the Fearless Super-Film format. Paramount’s official explanation for abandoning the 56mm format and then experimenting with 65mm was because it would have required separate projectors to support both 35mm and 56mm formats, whereas a single projector could easily be made to handle both the 35mm and 65mm sizes.

<<Page 6 Paragraph 3 “Natural Vision”>>

No evidence has been found to indicate that the short subject *Campus Sweethearts* was ever exhibited to the public in Natural Vision. It is also stated that “...Natural Vision required interlocked sound.” This is true, but to elaborate:

Both the 63.5mm film with the image and the separate 35mm film with the sound were at 90 ft/min. But since the images were six perforations high, this gave a picture frequency of about 20 frames per second. The RCA Photophone soundtrack was not reproduced by a "conventional 35mm projector" but rather by a RCA sound head attached to the side of the picture projector and driven by the same motor that drove the picture projector. The Natural Vision camera utilized a special shutter with a large opening that created the main exposure, and some additional openings that created underexposed additional images on the same frame to create an effect similar to "motion blur" in computer graphics. This reduced the strobing of objects as they moved across the large screen (which would have been particularly evident with the lower frame rate.) The projector also utilized a special shutter design that helped fade each frame on and off the screen to help reduce flicker. The projector also incorporated forced air jets that blew the film into a slight curve to improve focus stability and helped to cool the film. The size of the camera aperture was approximately 2.06" x 1.12".

<<Page 6 Paragraph 4 "Grandeur">>

The Big Trail premiered at Grauman's Chinese Theater in Hollywood on October 2, 1930 rather than October 24, 1930 (which is the date when it was shown at the Roxy in New York City.) The experimental directional sound system for Grandeur was not a "Perspecta-type" system based on control tones. The experimental system worked by trimming a small amount from the left or right edges of the film and using small switches that would sense this trimmed area. The switches would turn on and off speakers at the left and right sides of the screen. All speakers were to be driven by the same monophonic soundtrack. However, this sound system was never used for any public performances.

<<Page 7 "Realife frame caption">>

Contrary to the claims of the authors, there is no evidence that 70mm prints of *Billy the Kid* still exist. In fact, evidence indicates that *Billy the Kid* was never released in 70mm. The frame sample shown is a retouched contrast reversed image from the 70mm negative, not a theater print. Realife was not identical to Grandeur since Realife was shown with a 35mm reduction print with about a 1.75 x 1 aspect ratio rather than using a 70mm print in the theater. The authors also state that Realife-Grandeur prints could be transferred to present day 70mm prints by recentering the image and replacing the optical soundtrack with a magnetic one. This would only be true for Grandeur – Realife used sound-on-disk and did not have an optical soundtrack on the print. 35mm anamorphic prints have been made after the book was written of *The Big Trail* and some of the *Grandeur News* newsreels.

<<Page 7 Paragraph 1 "Realife">>

The Big Trail was released before *Billy the Kid*, not "a few days later". The authors claim that the 35mm version of *Billy the Kid* was filmed simultaneously rather than reduced from the 70mm version. Although a standard 35mm version was also filmed, the 35mm Realife version was reduced from a 70mm negative. I have in my files a discussion by someone involved in the reduction of the 70mm version to 35mm, and a photo of a few frames of the reduced-height image on the resulting 35mm film. The image on the 35mm theater print was approximately equal to the width of the area used by the older silent aperture, and the height was approximately equal to three perfs. Thus the optically printed image as measured off of a frame sample was about 0.969" x 0.555". This is an aspect ratio of about 1.75 x 1. A typical projector aperture for Realife would be about 0.904" x 0.517", which would give an approximate projection aspect ratio of 1.75 x 1 as opposed to the 2.00 x 1 aspect ratio used by Grandeur.

<<Page 7 Paragraph 2 "The Bat Whispers">>

The authors claim that *The Bat Whispers* was filmed in 70mm with a Mitchell camera, that one writer stated it was probably shot with the Fearless Super Picture camera (a 10 perforation 35mm pull-across format similar to VistaVision), and that a contemporary ad from Mitchell Camera clearly states it was shot with one of their units. I have not located the Mitchell Camera ad referenced by the authors, but a Mitchell Camera ad in the August 1930 *American Cinematographer* indicates other feature films already made or in production with the Mitchell camera but does not include *The Bat Whispers* (which was in production in August 1930). The individuals who helped to restore the film indicate that the negative was definitely on Dupont 65mm film and had a title card that read "MAGNIFILM". The authors have also apparently confused the Fearless Super Picture format (which was proposed but never used on a feature film) with the Fearless Super-Film format which is a 65mm format with identical dimensions to those used for *The Bat Whispers*. Both formats were offered by Ralph G. Fear (not Ralph M. Fear as given by the authors.) Cameras using the same format were also made by Warner Bros. (Vitascope), and Andre Debrie made a 65mm camera for Paramount for experimental purposes. Since it was indicated in a contemporary article that an unnamed feature film was produced with the Fearless Super-Film Camera, and since the Mitchell ad does not mention *The Bat Whispers*, I believe that the Fearless Super-Film camera was used.

Mitchell did mention in the ad that they could adapt their 70mm camera for a smaller gauge if requested, so it may be the case that a Mitchell camera was used. If the authors are correct and there is an ad somewhere for Mitchell cameras mentioning *The Bat Whispers*, it would of course give further credibility to their position. In any case, the size of the camera aperture used for *The Bat Whispers* is the same as that used by the Fearless Super-Film camera which was 1.811" x 0.906". The recommended projector aperture was 1.772" x 0.866". *The Bat Whispers* was also shown in London beginning April 4, 1931 using a 35mm reduction from the Magnifilm negative. It was probably also shown elsewhere using a reduction print, but I have not been able to confirm any other showings.

<<Page 8 Paragraph 2 “*Danger Lights in Natural Vision*”>>

It is stated that the movie *Danger Lights* was released on December 14, 1930 and played only in Chicago in Natural Vision. In fact, it opened in Chicago on November 15, 1930 and in New York City on December 12, 1930. The Natural Vision short subject *Niagara Falls* was presented with the feature at both locations.

<<Page 8 Paragraph 3 “*Vitascope*”>>

Vitascope used an interlocked Vitaphone soundtrack, but the format had a space to the left of the picture that was available for a larger than standard optical soundtrack. *A Soldier's Plaything* premiered on October 30, 1930 rather than November 1. *The Lash* premiered on December 26, 1930 rather than January 1, 1931. *Kismet* premiered on October 30, 1930 rather than on January 18, 1931. The best evidence indicates that Vitascope used the same specifications as those used for Magnifilm and the Fearless Super-Film camera.

<<Page 8 Paragraph 4 “*The Great Meadow*”>>

The Great Meadow premiered on March 13, 1931 rather than on March 15. It was not released in 70mm as claimed by the authors, but rather was apparently released using Realife 35mm reduction prints and conventional 35mm prints.

<<Page 9 “*Natural Vision film list*”>>

The format name “Natural Vision” is misspelled “Natural Vison” in the book. I have not found any confirmation that the short subject *Campus Sweethearts* was ever released in Natural Vision. And *Danger Lights* is listed as a short subject, when in fact it was an 87 minute long feature film as acknowledged by the authors in the filmography. Some filmographies by other authors list the films *Lady Fingers* and *Dixiana* as having been made in Natural Vision. In fact, short sequences from the first act of *Lady Fingers* were filmed in the format for demonstration purposes, along with possibly the *Rollercoaster Ride* footage. It had been announced that *Dixiana* was going to be filmed in Natural Vision but it was filmed only in 35mm. The feature film *The American* was photographed in Natural Vision in 1925, but it was not released in that format.

<<Page 10 “*Grandeur film list*”>>

Some Grandeur cameras were assigned to the Movietone news crews, and some additional Grandeur news shorts were produced. One of them covering the construction of the Hudson River Bridge was recently converted to anamorphic 35mm and shown at a widescreen festival in Hollywood.

<<Page 10 “*Format name titles*”>>

As indicated previously, the MAGNIFILM title should be spelled MAGNAFILM and the 70MM WIDE FILM title should read MAGNIFILM.

<<Page 10 “*Realife film list*”>>

Way For a Sailor and *Those Three French Girls* were announced as productions to be released in Realife, but they were released using only conventional 35mm prints.

<<Page 10 “*Vitascope film list*”>>

Evidence indicates that there was also an additional short subject in Vitascope called *Larry Ceballos Review*. It was shown at the Warner Bros Theater in Hollywood beginning July 6, 1930. Although *A Soldier's Plaything* premiered in New York City on October 30, 1930, no confirmation has been found that it was ever released in Vitascope.

SECTION II. THE MULTIPLE-FILM AND DEEP CURVED SCREEN PROCESSES

<<Page 11 “Cinerama sound”>>

All showings of Cinerama in theaters used seven track stereo, not six tracks.

<<Page 12 “Cinerama ad caption”>>

The authors state that the title is not given in the ad as *This Is Cinerama* but rather just as *Cinerama*. In fact, the Cinerama process was initially marketed as if it was the star of the movie, and the ad refers to the success of the “star” rather than the title of the movie.

<<Page 13 Paragraph 1 “Vitarama”>>

This paragraph includes one of the most common mistakes about Vitarama. In fact, the process was not shown at the 1939 New York World’s Fair. I have seen quotes that Vitarama was used in the Petroleum Pavilion, or in the Longines Pavilion, or even in the Perisphere. Investigation of contemporary literature about the Fair does not give any mention of such a format in any of the pavilions. Furthermore, architect Ralph Walker who gave Fred Waller the idea to use the curved screen expressly stated that the Vitarama format was to be used for the Petroleum exhibit, but that the representatives for the Petroleum industry decided that the system was too elaborate and another exhibit was used instead.

<<Page 13 Paragraph 6 “Cinerama cameras”>>

The authors state that “The cameras for Cinerama were standard 35mm studio cameras with only slight modifications.” Actually, there was very little that was standard. The camera was a single unit with three mechanisms in it. There was one shutter for all three lenses. The focus and exposure settings were set for all three lenses simultaneously, and the films were advanced six perforations per frame rather than four. In addition, the cameras operated at 26 frames per second rather than the standard 24 frames per second for all feature films except for *The Wonderful World of the Brothers Grimm* and *How the West Was Won*. The cameras were made for Cinerama by the Wall Camera Company in New York.

<<Page 13 Paragraph 6 “Cinerama projectors”>>

The authors state that “The projectors for Cinerama were standard 35mm with matching modifications to allow for the larger frame height and increased speed of the film.” Actually, the projectors were not standard 35mm and were specially made for Cinerama. Additional differences were the use of much larger reels of film, the gigolos to blend the edges of the panels, auxiliary motors to maintain interlock, and longer carbon rods for the arc lamp to allow for the longer running time for each projector.

<<Page 14 Paragraph 1 “Cinerama interlock”>>

The authors claim that the projectors were electrically interlocked with selsyn motors. Later showings were done in this manner, but originally it was a bit more sophisticated than this. The synchronizing devices used a black disk resembling a strobe card with 32 white gradations on it. Each time the disk revolved, 32 frames or about three feet of film passed through the projector. After each revolution of the master disk on the sound reproducer, the device sent out an electrical pulse to the slave units on the projectors. If they were in sync, a green light would flash. If one of the projectors was off by as little as one frame, the light would fail to flash. Then, one of two 6-volt synchro timing motors would accelerate or retard the projector by the required amount. This technique assured that the sound reproducer was the master reference and would maintain constant speed. Everything would start up with the sound just slightly ahead of the projectors which would then catch up while about 15 feet of leader ran through them.

<<Page 14 Paragraph 3 “Cinerama six/seven track stereo”>>

The authors assert that the sound for Cinerama was six tracks which remained the standard until *The Wonderful World of the Brothers Grimm* and *How the West Was Won*. There has been much confusion about whether the sound was six or seven tracks. The prototype original configuration used two head assemblies of three heads each with the odd-numbered heads in one assembly and the even-numbered heads in the second. The two assemblies were spaced apart by a distance of six perforations (one frame). According to Wentworth Fling who helped to create the sound system, seven track heads were made and used for all theater showings including the premiere of *This Is Cinerama*. *Journal of the SMPTE* confirmed the use of seven track heads in 1953. There were several reports at the time that the seventh track was used for either control tones or for a combined “emergency” track to be used during major failures of the sound system. However, the signal-to-noise of the system was sufficient that control tones were not necessary, and the use of an “emergency” track would not be practical since other procedures

(such as patching an adjacent track to the problem channel) would give better results. It is certain that seven channels of sound were used from at least 1954. Surviving prints of *This Is Cinerama* are all 7-channel designed for patching the surround channels as described in the information for Page 21 Paragraph 1 later in this document.

<<Page 15 Paragraph 4 “*This Is Cinerama*”>>

The quotation from the stereo demonstration of *This Is Cinerama* is as it appeared on the soundtrack album. In the actual film, there was considerable additional spoken material in front of the sentence “Please note the enormous power...” so, to be picky, the sentence should read “...Please note the enormous power, without distortion, when the full orchestra plays!” Also, it should be pointed out that this demo disappeared for a while after the first show in New York. The reason was simple: The length of the second half of the film (the part after the intermission) exceeded the 7500 ft. capacity of the reels. During the first show, the film slipped off of one of the projector reels and jammed during the end credits. The stereo demo along with a Lowell Thomas introduction to Cypress Gardens was added when 8000 ft. reels became available a few months later. This is why there are references to both 7500 ft. reels and 8000 ft. reels in descriptions of the format by other writers.

<<Page 16 Paragraph 2 “*This Is Cinerama*”>>

The authors claim that *This Is Cinerama* played in New York, at the same theater of its opening, for two years. In fact, the film moved from the Broadway theater (where it premiered) to the Warner theater in June 1953.

<<Page 16 Paragraph 6 “Cinerama Operators”>>

The authors state that five operators were necessary for each performance of Cinerama, which initially included three projectionists, a sound control engineer and a picture control engineer. In fact, a sixth operator was often needed to operate the conventional 35mm projector used for the prologues and for the “breakdown reels” if they became necessary. And in many theaters, union requirements dictated additional operators to serve as backup personnel since the operators could not leave their stations during the performance.

<<Page 17 Paragraph 1 “Cinerama Operators”>>

The authors claim that eventually the fifth operator had the sole duties of opening and closing the curtain and controlling the house lights. In fact, the fifth operator was typically the operator of the prologue/breakdown projector since that booth was the typical location of the controls for the curtains and house lights.

<<Page 18 Paragraph 3 “Cinerama”>>

The book states “The Cinerama engineer was stationed in the center booth....” In some theaters, he was in other locations. A very common location in Cinerama theaters was directly in front of the center booth. This made it easier to see the entire screen and to detect any sound problems.

<<Page 18 Paragraph 6 “Cinerama film edge numbering”>>

The authors state that for Cinerama, “All reels were edge-numbered at one-foot intervals.” Originally, the films were not edge numbered and it was believed that a footage counter on the projector would suffice. It didn’t. The authors also describe that, in the event of a film break, “the operators simply placed the very first frame of the new scene in the projector aperture, and all three picture machines were again in perfect sync.” However, this is not how it was done since obviously it would not be possible to locate the first frame of a scene on the magnetic sound film. Instead, all machines were rethreaded based upon the edge-numbering on each film.

<<Page 21 Paragraph 1 “Caption for *Search For Paradise* sound control settings figure”>>

The authors state “It appears track seven was encoded with a Perspecta Stereophonic-type switching signal to render eight channels of sound.” Track seven did not have a switching signal; tracks 6 and 7 were manually patched so that they either came out of the right and left sides of the auditorium, or track 7 came out of the back of the theater and track 6 came out of both sides. This manual patching arrangement was used for all five of the Cinerama travelogues, although a rotary switch box was eventually introduced that simplified the change between these two settings. The right-hand column in this figure appears to describe the position of this rotary switch. For the two MGM feature films and *Holiday in Spain*, the patching was eliminated and only the left-surround and right-surround channel configuration was used. It is also interesting to note that the authors’ reference to the use of track 7 here is contradictory to their claim that 7 tracks were not introduced until the change to Super Cinerama as stated on Page 27 Paragraph 1, and in the filmography listing for *Search For Paradise* on Page 416.

<<Page 21 Paragraph 1 “Cinerama prologue projector”>>

The authors state that, for Cinerama, “...a regular 35mm projector was standard equipment in the center booth of the theater. With *This Is Cinerama*, it was used for the prologue sequence.” Obviously, it was also used for the prologue for *Search For Paradise* as indicated in the projectionists’ cue sheet on page 20. All of the 26 frames per second travelogues from Cinerama (with the exception of *Cinerama South Seas Adventure*) and the Cinemiracle film *Windjammer* (which was also shown in Cinerama) used a regular 35mm prologue. And in most theaters retrofitted for Cinerama, the prologue projector was in the original projection booth for the theater rather than in the added center projection booth used for the Cinerama projector.

<<Page 22 Paragraph 2 “Cinerama frames per second”>>

The authors assert that “When Cinerama was finally used for dramatic feature presentations, increased film length necessitated changing the speed from 26 to 24 frames per second and using larger-than-normal reels.” The speed was not slowed down to allow longer films. The speed was slowed to 24 frames per second to allow printing ’scope 35mm prints for showings in conventional theaters. The making of such prints was considered by MGM to be necessary to achieve an adequate profit for making the film. The increased available length was a side benefit.

<<Page 22 Paragraph 3 “Cinerama reel lifts”>>

The lifts available to assist in mounting the large reels of film on Cinerama projectors were electric, not hydraulic.

<<Page 23 Paragraph 2 “Cinerama splices”>>

It should be mentioned that tape splices were not invented because of Cinerama.

<<Page 23 Paragraph 3 “Cinerama screen”>>

The authors state that one could go behind a Cinerama screen during a performance “...and look out at the audience without their knowledge, as one would peer through the slats of a venetian blind.” The authors fail to mention that alignment boards were used to hold the screen strips at the correct angle. The typical angle for the screen strips is so that the plane of each screen strip intersects with the center of the screen. Because of the angle of the strips of screen material, if you looked between them you would only see the opposite side of the curved screen. If you pried the strips apart to see the audience, many of the people in the audience could certainly notice it.

<<Page 25 Paragraph 1 “Cinerama screen strips”>>

The elastic bands at the end of the screen strips were typically placed at the bottom of the screen rather than at the top to reduce the amount of stress on the elastic.

<<Page 25 Paragraph 2 “Cinerama screen”>>

The authors give the dimensions of the standard Cinerama screen as 75 feet in width and 26 feet tall and composed of 1100 strips, with an area of about 1700 square feet. Some quick math will show that a 26 foot tall 1700 square foot screen would be about 10 feet narrower than 75 feet. Actually, the screen was 23 feet tall with the center section curved on a 25 foot radius. The sides were a bit flatter than the cylindrical center section. The arc length along the curve was 64 feet and the cord (straight from one edge to the other) was about 50 feet. The center section of the screen (a little less than the width used by the image from the prologue projector) was originally solid perforated material rather than made of strips. The authors also state that with the move to dramatic feature films, the *minimum* screen installed was “a staggering 3,000 square feet!” However, in the next paragraph, they give the size of the Cinerama screen in the largest houses as approximately 94 feet wide by 32 1/2 feet tall. Some quick math will show that this largest screen is about 3,000 square feet, the same as what the authors quoted for the minimum size screen. In fact, there were five standard sizes ranging from the original 64 x 23 foot screen with a radius of 25 feet up to the 110 x 40 foot largest standard screen with a radius of 43 feet. There were variations in size and curvature in some theaters due to architectural limitations and screen masking.

<<Page 25 Paragraph 5 “Cinerama specifications”>>

The specifications for Cinerama are different than those for Cinemiracle and Kinopanorama. For the sake of clarity, the complete specifications for Cinerama are as follows, with corrections and clarifications added as needed: Camera and Negative: Film(s): 3 x 35mm; Lenses: 3 x 27mm; Effective overall useable camera frame width perfo-to-perfo 3 x 35mm: 2.895"; Distance between matchlines: 0.9478"; Overlap from adjacent perfs for each film: 0.051"; Camera aperture height for each film: 1.116"; Camera aperture width for each film (runs into perfs): 1.014"; Effective aspect ratio of camera exposed area (runs into perfs): 2.61 x 1; Effective aspect ratio of useable camera exposed area: 2.59 x 1; Optical printer aperture height for each film: 1.115"; Optical printer aperture width for each film: 0.996"; Perfs per frame: 6; Camera perf style: Bell & Howell (BH), but Dubray Howell (DH) preferred;

Camera linear film speed: 146.25 ft. per min., except for the two MGM feature films which were 135 ft. per min.; Useable horizontal angular visual field to be used for projected image: 146 degrees; Useable vertical angular visual field to be used for projected image: 55 degrees; Individual camera horizontal angular visual field: 50 degrees; Projectable image overlap: 2 degrees. Release print: Film(s): 3 x 35mm; Projected image height for each film: 1.088"; Projected image width for each film: 0.985"; Effective overall maximum projectable frame width: 2.8806"; Effective overall maximum projectable frame aspect ratio: 2.65 x 1; Perfs per frame: 6; Projector perf style: Kodak Standard (KS); Projector speed: 26 frames per second, except for *The Wonderful World of the Brothers Grimm* and *How the West Was Won* and *Holiday In Spain* which were 24 frames per second; Projector linear film speed: 146.25 ft. per min., except for *The Wonderful World of the Brothers Grimm* and *How the West Was Won* and *Holiday In Spain* which were 135 ft. per min.; Screen curvature: 146 degrees or 120 degrees; Sound system: 35mm interlocked magnetic; Sound format: Discrete stereophonic; Soundtrack reproducer linear speed: Same as projector; Soundtracks: Seven; Recorded soundtrack width (each track): 0.063"; Soundtrack reproducer head width (each track): 0.050"; Soundtrack assignments to speaker channels (normal): 1 - Left, 2 - Left Center, 3 - Center, 4 - Right Center, 5 - Right, 6 - Right wall surround, 7 - Left wall surround; Alternate configuration soundtrack assignments to speaker channels: Same as Normal except 6 - Right wall surround and left wall surround, 7 - Back wall surround. The distance between the matchlines for films made after *This Is Cinerama* was slightly further apart by a few thousandths of an inch due to slight differences between camera #1 and the later Cinerama cameras.

<<Page 25 Paragraph 5 "Cinemiracle specifications">>

The specifications for Cinemiracle are different than those for Cinerama and Kinopanorama. Although the camera and projector aperture specifications have been published for Cinemiracle, the amount of overlap has not been officially published. The following specifications are estimates based upon careful examination and measurements of the projector alignment strips and frame samples of *Windjammer*, along with data collected from patents and other sources. For the sake of clarity, the complete specifications for Cinemiracle are as follows, with corrections and clarifications added as needed: Camera and Negative: Film(s): 3 x 35mm; Lenses: 3 x 27mm; Effective overall useable camera aperture width 3 x 35mm: 2.758"; Distance between matchlines: 0.889"; Overlap from adjacent perfs for each film: 0.110"; Camera aperture height for each film: 1.110"; Camera aperture width for each film: 0.980"; Effective aspect ratio of useable camera exposed area: 2.48 x 1; Perfs per frame: 6; Camera perf style: Dubray Howell (DH); Linear film speed: 146.25 ft. per min.; Useable horizontal angular visual field to be used for projected image: 144 degrees; Useable vertical angular visual field to be used for projected image: 55 degrees; Individual camera horizontal angular visual field: 50 degrees; Release print: Film(s): 3 x 35mm; Projected image height for each film: 1.090"; Projected image width for each film: 0.960"; Effective overall maximum projectable area width: 2.738"; Effective overall maximum projectable area aspect ratio: 2.51 x 1; Perfs per frame: 6; Projector perf style: Kodak Standard (KS); Projector speed: 26 frames per second, except for *Holiday In Spain* which was 24 frames per second; Projector linear film speed: 146.25 ft. per min., except for *Holiday In Spain* which was 135 ft. per min.; Screen curvature: Typically 90 degrees; Sound system: 35mm interlocked magnetic; Soundtrack reproducer linear speed: Same as projector; Sound format: Discrete stereophonic; Soundtracks: Seven; Recorded soundtrack width (each track): 0.063"; Soundtrack reproducer head width (each track): 0.050"; Adjacent soundtrack center-to-center spacing: 0.124"; Soundtrack assignments to speaker channels (normal): 1 - Left, 2 - Left Center, 3 - Center, 4 - Right Center, 5 - Right, 6 - Right wall surround, 7 - Left wall surround; Alternate configuration soundtrack assignments to speaker channels: Same as Normal except 6 - Right wall surround and left wall surround, 7 - Back wall surround.

<<Page 25 Paragraph 5 "Kinopanorama specifications">>

The specifications for Kinopanorama are different than those for Cinerama and Cinemiracle. The following specifications are estimates based upon careful examination and measurements of Kinopanorama frame samples, along with data collected from other sources. For the sake of clarity, the complete specifications for Kinopanorama are as follows, with corrections and clarifications added as needed: Camera and Negative: Film(s): 3 x 35mm; Lenses: Interchangeable lens sets of 3 x 27mm, 35mm, 50mm, 75mm, and 100mm; Effective overall useable camera aperture width perf-to-perf 3 x 35mm: 71.72 mm (2.824"); Distance between matchlines: 23.8 mm (0.912"); Overlap from adjacent perfs for each film: 2.2 mm (0.087"); Camera aperture height for each film: 28.0 mm (1.102"); Camera aperture width for each film (runs into perfs): 25.5 mm (1.004"); Effective aspect ratio of camera exposed area (runs into perfs): 2.57 x 1; Effective aspect ratio of useable camera exposed area: 2.56 x 1; Perfs per frame: 6; Camera perf style: Kodak Standard (KS); Linear camera film speed: 140.625 ft. per min.; Useable horizontal angular visual field to be used for projected image: 146, 116, 80, 56, or 38 degrees; Useable vertical angular visual field to be used for projected image: 55, 44, 30, 21, or 14 degrees; Individual camera horizontal angular visual field to be used for projected image: 50, 40, 27, 19, or 13 degrees. Release print: Film(s): 3 x 35mm;

Projected image height for each film: 27.5 mm (1.083"); Projected image width for each film: 24.8 mm (0.976"); Effective overall maximum projectable aperture width: 2.801"; Effective overall maximum projectable aperture aspect ratio: 2.59 x 1; Perfs per frame: 6; Projector perf style: Kodak Standard (KS); Projector speed: 25 frames per second; Projector linear film speed: 140.625 ft. per min. except for the films photographed in Sovscope which were 135 ft. per min.; Screen curvature: 146 degrees or 120 degrees or 90 degrees; Sound system: 35mm interlocked magnetic; Soundtrack reproducer linear speed: Same as projector; Sound format: Discrete stereophonic; Soundtracks: Nine; Recorded soundtrack width (each track): 1.6 mm (0.063"); Soundtrack reproducer head width (each track): 1.25 mm (0.050"); Adjacent soundtrack center-to-center spacing: 3.15 mm (0.124"); Outer soundtrack center-to-center spacing to adjacent soundtrack: 7.05 mm (0.2775"); Soundtrack assignments to speaker channels (normal): 1 - Left, 2 - Left Center, 3 - Center, 4 - Right Center, 5 - Right, 6 - Right wall surround, 7 - Back wall surround; 8 - Left wall surround; 9 - Above (ceiling) surround. Note that the Kinopanorama soundtrack 8 is positioned where the Cinerama soundtrack 7 is located so that Cinerama movies may be presented on Kinopanorama equipment without special sound patching except for prints that used Cinerama's special effect sound configuration. Kinopanorama soundtrack 7 was located outside of the perfs adjacent to soundtrack 8, and soundtrack 9 was located outside of the perfs adjacent to soundtrack 1.

<<Page 25 "Cinerama diagram and photo caption">>

As has been mentioned elsewhere in this document, Super Cinerama was the use of a larger floor-to-ceiling screen for increased sensations over those obtained with a regular Cinerama screen. The use of three projectors in one booth was used in some Cinerama installations prior to the development of "Super Cinerama". The first "single booth" Cinerama installation was at the Clairidge Theater in Montclair, N.J. in August 1960. And as has been also mentioned elsewhere in this document, Cinerama had 7-track stereo since the first Cinerama film *This Is Cinerama* and did not "increase to seven-track separation" with the introduction of Super Cinerama as claimed by the authors.

<<Page 25 "Cinemiracle specifications">>

It is worth noting that the "blend area" used for Cinemiracle was not always centered on the matchline as was the case when using gigolos for Cinerama. The Cinemiracle blend area, which typically had a width of about 0.027", could vary in position from being slightly outboard from the matchlines for shots where the cameras were focused at three feet, to aligned with the matchlines for shots where the cameras were focused at about five feet, to adjacent to the matchline in the inboard direction for when the cameras were focused at infinity. These changes were due to the movement of the blend areas as recorded by the cameras themselves. An interesting consequence of these dimensions was that Cinemiracle prints could be projected in Cinerama projectors merely by threading the films in the side projectors with the emulsion side towards the screen rather than towards the lamp and realigning the horizontal position of the side projected panels, but without requiring the removal of the gigolo combs.

<<Page 25 "Kinopanorama specifications">>

The Kinopanorama projectors initially did not use any blending between projected panels. The images were aligned to abut one another on the screen. Beginning about 1960, the Soviets used a stationary mask edge between the film and the projection lens. This edge of the mask was out of focus and created a vignette to help blend the panels. The specifications for Kinopanorama given previously in this document are based upon using the masks to create a blend area.

<<Page 26 "Specification for Cinerama/Cinemiracle/Kinopanorama soundtrack dimensions">>

No specifications are given for the dimensions or usage of the soundtracks on the separate 35mm sound film. The normal usage of tracks 1-7 were as follows: Left, Left Center, Center, Right Center, Right, Right Surround, Left Surround. The tracks would be patched at particular moments during a performance such that track 6 would be sent to the Left Surround and Right Surround speakers on the left and right walls, and track 7 would be sent to the Back Surround speakers located on the back wall of the theater. (The two MGM features and *Holiday in Spain* did not utilize this optional patching of the sound.) The Kinopanorama format added two tracks to the film, and designated their track 8 to be where track 7 was on Cinerama and Cinemiracle films. The Kinopanorama track 7 was used for the Back Surround speakers on the back wall, and track 9 was used for the Above Surround speakers located on the ceiling. (The same arrangement was used for Circular Kinopanorama films, except that track 7 was used for Low Frequency Effects subwoofers located in the floor. This usage of low frequency effects rumble predates Sensurround or the Dolby "baby boom" formats.) It should also be mentioned that some Cinemiracle prints used two magnetic tracks on the center panel print. These tracks were located between the sprocket holes and the outer edges of the film. One track had a monophonic mix of the entire soundtrack, and the other had a 1.6 KHz tone for automated switching of the surround channels. Cinerama prints used at the Century Drive-In in Inglewood, CA also

had two oxide stripes on the center panel print. One stripe has the monophonic sound that was fed to the speakers in the cars. The other stripe just served as a balance stripe so the film would wind evenly.

<<Page 26 “Specification for Cinerama camera aspect ratio”>>

The camera aspect ratio for Cinerama is found by overlapping the three panels so that the match lines are aligned. When this is done, the distance between the outer sets of perforation holes on the side panels is 2.895 inches as indicated on page 25 of the book. This dimension divided by the camera aperture height of 1.116 inches gives the generally acknowledged camera aspect ratio of 2.59 x 1. The actual exposed area which extends into the perforation area has a wider aspect ratio of 2.61 x 1, but of course the extra area is not useable. The “variable between 2.72 x 1 and 2.77 x 1” camera aspect ratio specification quoted in the book is wrong. The authors do quote the correct 2.59 x 1 aspect ratio for Super Cinerama except that Super Cinerama is only a presentation technique and not a camera format.

<<Page 26 “Specification for Cinerama projector aspect ratio”>>

A clarification should be made about the derivation of the Cinerama projector aspect ratio. Using the dimensions listed in the standard for the individual camera and projector apertures, the overlap for the projector prints is made to match that prescribed for the camera negatives so that the matchlines align on each panel. The total effective projector aperture is equal to three times the space between the matchlines plus the little bit extra on the left side of the left panel and the right side of the right panel. This little bit extra on each side is equal to the projector aperture width (0.985 inches) minus the distance between matchlines (0.9478 inches) times 1/2 which equals 0.0186 inches. (This assumes that the gigolos were set to not crop the outer edges of the outer panels during projection.) Thus the total effective aperture width is equal to $0.0186 + 0.9478 + 0.9478 + 0.9478 + 0.0186$ inches which equals 2.8806 inches. This width divided by the projector aperture height of 1.088 inches gives an effective aspect ratio of 2.65 x 1. Of course, this width would only be possible if the gigolo combs for the outer edges on the outer projectors were removed. In many theaters this was not done since the screen masking typically hid the outer edges of the side frames. Note that this is the maximum projectable area aspect ratio and not that of the deeply curved screen.

<<Page 26 “Specification for Cinemiracle projected aspect ratio”>>

A clarification should be made about the derivation of the Cinemiracle release print projected aspect ratio. Using the 0.960 x 1.090 inches size previously listed for the individual projector apertures, the overlap for the projector prints is made so that the matchlines align on each panel. The total effective projector aperture is equal to three times the space between the matchlines plus the little bit extra on the left side of the left panel and the right side of the right panel. This little bit extra is equal to the projector aperture width (0.960 inches) minus the distance between match lines (approximately 0.889 inches) times 1/2 which equals 0.0355 inches. (The distance between the matchlines is an estimate based on careful measurements made on actual Cinemiracle projector alignment strips and frames from the movie *Windjammer*.) Thus the total effective aperture width is equal to $0.0355 + 0.889 + 0.889 + 0.889 + 0.0355$ inches which equals 2.738 inches. This width divided by the projector aperture height of 1.090 inches gives an effective aspect ratio of 2.51 x 1. This value closely matches the published quoted aspect ratio of Cinemiracle as being 2.5 x 1. Note that this is the projectable area aspect ratio and not that of the curved screen. Remember that this aspect ratio is an estimate based upon measurements of film samples and the published specifications for the camera and projector apertures.

<<Page 26 “Specification for Kinopanorama frames per second”>>

Kinopanorama (the Soviet system) is stated by the authors as using 24 frames per second. In fact, it was filmed and presented in Kinopanorama theaters at 25 frames per second. The films were shown in Cinerama theaters at either 26 or 24 frames per second (depending upon when they were shown) with little discernible difference.

<<Page 26 “Specification for Kinopanorama angular visual field”>>

The Kinopanorama films photographed with the PSO camera (after about 1960) could use five different focal length lenses on the camera. Thus only the 27mm lens would give the angular visual field specified here. For details about the other focal lengths, see “Bottom caption for Kinopanorama camera” for page 47 later in this document.

<<Page 26 “Specification for Cinerama/Cinemiracle/Kinopanorama perforation hole types”>>

The authors do not mention that the three types of 3-strip cameras used different types of negative film. Cinerama cameras used film with Bell & Howell (BH) perforation holes, but could also use Dubray-Howell (DH) perforated film. Cinemiracle cameras only used DH perforated film. Kinopanorama cameras used Kodak Standard (KS) perforated film. All three formats used KS perforated film for theater prints.

<<Page 27 Paragraph 2 “Cinerama”>>

As was stated earlier, Cinerama used seven track sound for all theatrical showings. The authors also claim that the 24 frames per second Cinerama format was known as Super Cinerama and that the souvenir books for *The Wonderful World of the Brothers Grimm* and *How the West Was Won* referenced the new name. I have the souvenir books for both of these films, and neither of them mentions the term “Super Cinerama”. It may be possible that there were multiple versions of the books, but I have found nothing to indicate this. In fact, “Super Cinerama” refers to the use of a large curved screen filling the front wall of the theater. The term was never used for a photographic process.

<<Page 27 Paragraph 3 “Cinerama projection”>>

The authors claim that a triple-image projector was designed and built. A triple-image projector was considered, but I have found no evidence that such a projector was built or used. If such a projector were used, it would probably have necessitated the use of a screen with a less deep curvature than normal Cinerama screens to avoid distortion in the side panels.

<<Page 28 Paragraph 2 “Cinerama 70mm anamorphic compression”>>

The authors claim that the anamorphic compression for *It’s a Mad, Mad, Mad, Mad World* wasn’t corrected for the Cinerama screen. In fact, a variable squeeze “rectified” print was made that produced a corrected image on the curved screen; i.e., the center part of the image had no squeeze with a progressively increasing squeeze toward the sides of the image. The design goal that this squeeze approximated was about zero percent in the middle, about 9 percent at a point half-way to the side of the image, about 20 percent at a point that was 0.7 times the distance to the side of the image, and about 30 percent at the side of the image. The curved screen stretched the image to correct for the squeeze. The authors also reference using a 2.05 x 1 aspect ratio area on the 70mm prints for Cinerama. The aperture was not 2.05 x 1, but rather the standard 2.20 x 1 area. (See the comments on Todd-AO for further details.) There does not appear to be any evidence substantiating the claim that rectified prints were made from Super Panavision 70 negatives. A slight degree of rectification was present on some of the Technirama films that were presented in 70mm Cinerama. This was due to the characteristics of the optical printer lens that was used. This non-linear squeeze in the Technirama printer lens does not appear to have been intentional since there is a reference in internal Cinerama documentation to improving the non-linearity of the squeeze in the design. The optical printer lens for producing the 70mm Cinerama prints from Technirama negatives was designed by Optical Research Associates.

<<Page 30 Paragraph 3 “Cinerama”>>

It is stated that Cinerama’s last 70mm film, *The Last Valley*, was not shown in Cinerama since “there were no more Cinerama theaters to book it in”. In fact, there were a number of Cinerama theaters still in operation at the time, with some still in operation to this day. It should also be noted that *The Last Valley* was not officially released “In Cinerama”, and does not appear to have been intended to be shown “In Cinerama”. The actual last 70mm film released “In Cinerama” was the 1973 70mm conversion of *This Is Cinerama*.

<<Page 30 Paragraph 5 “How the West Was Won”>>

The authors assert that, concerning *How the West Was Won*, “...MGM has destroyed all Super Cinerama prints, keeping only a 70mm Super Cinerama dupe.” This is misleading. MGM did not retain any three strip prints since there were no more theaters that could show the format and none were expected to be built. Therefore MGM sold the prints as spacer material. However, they have kept the camera negatives as well as the black and white separations used for Technicolor printing in their vaults as well as the 70mm dupe and could produce three strip prints if necessary. In fact, new prints of *How the West Was Won* were created in this manner in 2002.

<<Page 32 Paragraph 3 “The Golden Head”>>

Concerning the film *The Golden Head*, the authors refer to it as a “lost” film. In fact, Pacific Theaters has a 70mm print in their archives. The authors also wonder why the film was never released in the United States. They say it premiered in London and then in Hungary and received “modest, and limited, reviews” but “What went wrong next is a mystery.” In fact, the film was a critical and financial flop at these showings. William Forman, President of Cinerama, Inc. at the time and producer of the film, was quoted in the June 30, 1965 issue of the *Los Angeles Times* as saying, “It won’t be shown in the United States in Cinerama. It was a picture that shouldn’t have been made.” Of course, the picture was initially produced by his predecessor Nicolas Reisini.

<<Page 32 Paragraph 3 “Cinerama Management”>>

The authors state that “Reisini would loose control of Cinerama, Inc., to William Forman and Pacific Theaters”, and there was a “long, bloody stockholders’ feud to save Cinerama, Inc., from Pacific Theaters and its ultimate demise.” Forman assumed a \$15 million debt from a loan to Cinerama Inc. from Prudential Insurance in 1963, and loaned Cinerama Inc. and additional \$4 million in 1964, with Reisini resigning in 1964 as the company was on the edge of bankruptcy. Cinerama continued to exist (albeit as a 70mm process) for about another decade, and the theaters continued to play films on the huge curved screens for years after that. Without the intervention of William Forman in 1963 and 1964, it is likely that Cinerama, Inc. would have declared bankruptcy at that time.

<<Page 40 Paragraph 4 “Cinemiracle”>>

It is stated that Cinemiracle used “...three films synchronously projected side by side onto a deeply curved screen. (The screen was not louvered.)” The screen was not louvered because it was not as deep a curve as Cinerama. (It also would have infringed on Cinerama’s patent for the louvered screen.) The dimensions of the original demonstration screen were the same as the demonstration screen originally used for Todd-AO and had a curve of about 120 degrees. One floorplan shows a screen curvature of about 90 degrees. Many reports by others indicate some showings used a screen with a very shallow curvature. Since the screen was less curved, the projectors could be placed closer together, and this allowed all of them to be placed into one large projection booth. Putting the projectors into one booth was not a patented aspect of Cinemiracle – it was merely due to the shallower screen curvature.

<<Page 40 Paragraph 6 “Gigolos”>>

Mention is made of Cinerama’s “gigolos” and that they were so-called “...because they jiggled the image.” Actually, they jiggled to create a vignette to match the intensities of the overlap areas used for Cinerama. The image itself did not jiggle (at least not intentionally). Incidentally, other spellings have been used for these devices including “giglo”, “jigolo” and “jiggolo”. All 35mm Cinerama projectors did use gigolos, but Cinemiracle projectors used the optically printed vignettes on the film instead, and Kinopanorama projectors initially just adjusted the images to abut side by side. Beginning about 1960, the Soviets used a stationary mask edge between the film and the projection lens. This edge was out of focus and created a vignette that permitted improved blending between panels.

<<Page 41 Paragraph 2 “Cinemiracle mirrors”>>

The authors claim that Cinemiracle overcame the problem of the join lines by using mirrors. In fact the brightness matching at the blend lines was primarily due to a vignette added to the edges of the images in the optical printer. The camera assembly had the side cameras pointing into mirrors to place the lens focal points at the same “virtual focal point” which minimized the parallax problems at the join lines. The mirrors on the projectors were primarily to give the widest spacing between the projection beams to allow the deepest curved screen possible, and to reintroduce the image flip created by the camera mirrors. An additional benefit was that it was easier to adjust the projector mirrors for alignment rather than the projectors themselves. The claim that mirrors created the vignette blend between panels can be seen to be false simply by noting that the center panel was not projected with a mirror and thus would not have had a vignette at the edges. There was another reason why the Cinemiracle blend area looked better than with Cinerama projection: When gigolos were used, they could not be in focus if the image on the film was in focus because the gigolos’ teeth were not in the same focal plane as the film image. Thus it was very difficult to achieve a perfect linear ramp vignette from light to dark. Typically the effect would be visible on light scenes as a slight lightening of the image at each side of the blend area with a darker center. The visibility of this effect was dependent on the scene content. Cinemiracle could achieve a near-perfect blend since the vignette was part of the film image.

<<Page 41 Paragraph 3 “Cinemiracle cameras”>>

The authors state that the Cinemiracle used “a special three-lens optical arrangement mounted to three standard 35mm motion picture cameras.” Of course, the cameras were modified for the six perforation 26 frames per second format.

<<Page 43 “Caption for Cinemiracle”>>

The authors state that two logos were developed for Cinemiracle. There was also a third logo that appeared in some ads, and it resembled a slightly flattened version of the offset letters that were used in the Cinerama logo.

<<Page 44 Paragraph 2 “Cinerama projection booths”>>

The authors state that Cinerama adopted an almost identical arrangement (to Cinemiracle) in booths of its newer theaters. This statement is deceptive. Newly built Cinerama theaters did use one booth, but this was either a very wide booth, or a somewhat narrower booth due to the later use of Cinerama screens with a smaller curvature (thus allowing the projectors to be closer together). And, of course, Cinerama never used mirrors on the side projectors as was done with Cinemiracle.

<<Page 45 Paragraph 4 “Kinopanorama”>>

Kinopanorama (the Soviet version of Cinerama) was not, in fact, the blueprint for the Cinemiracle process since the Cinemiracle process was developed first. Cinemiracle development began in 1954, and the world premiere of *Great Is My Country* was only about 5 weeks before the world premiere of *Windjammer*. In fact, the Kinopanorama format was designed to be compatible with Cinerama, and was designed to be compatible with the Cinerama specifications. Thus, the side panels were not mirror flipped as was the case with Cinemiracle, there was no vignette applied to the image on the film, and the panel overlap was designed to be approximately the same as Cinerama rather than the overlap used for Cinemiracle. Also, the Kinopanorama camera used film with KS perforation holes, whereas the Cinerama and Cinemiracle cameras used film with DH perforation holes (although the Cinerama cameras could also use film with BH perforation holes). The authors also claim that the frames for Kinopanorama overlap considerably more than Cinemiracle frames. It can be seen in the specifications mentioned earlier that, in fact, Cinemiracle frames overlap more than Kinopanorama frames, as evidenced by the narrower aspect ratio for Cinemiracle.

<<Page 47 “Bottom caption for Kinopanorama camera”>>

The text indicates that the triangular lens for Kinopanorama is mounted on a 70mm camera. This appears to be an error that originated in an improper caption in a report on Soviet technology that appeared in an issue of the *Journal of the SMPTE*. There are no further claims that a triangular lens was used on a 70mm camera in any of the literature I have examined. Other reasons for believing that the triangular lens was not used on a 70mm camera is the difference in aspect ratio, the difficulties in using three lenses and one camera aperture, and remarks in later literature that there was research being done on using a 105mm film in a camera with a triangular lens. (This would imply that the film could be slit into three 35mm films and then processed and presented like other Kinopanorama films. There is no evidence that this was actually done, although the PSO Kinopanorama camera is designed as if a 105mm film could be used with some modifications to the camera.) Also, careful examination of the two photos on page 46 reveals that the two cameras are, in fact, the same model. The authors also failed to mention that the original Kinopanorama SKP-1 camera had non-removable f/4.5 27mm lenses, but the newer PSO camera shown in the photo had removable f/2.8 lens assemblies with different focal lengths that yielded a different field-of-view. Available focal lengths were 27mm (146 degrees), 35mm (116 degrees), 50mm (80 degrees), 75mm (56 degrees), and 100mm (38 degrees). The field of view of the three lenses had a common focal point due to the use of mirrored prisms on the side lenses. It was this choice of focal lengths that was the greatest difference between Kinopanorama and Cinerama. In addition, the camera included a viewfinder that utilized a second set of lenses positioned below the set used for photography. This second set of lenses were used by an integral viewfinder that presented a blended view of the three panels. This was substantially easier to use than the viewfinder for an individual panel that was used with the Cinerama cameras.

<<Page 48 Paragraph 1 “Kinopanorama film speed”>>

The standard speed for Kinopanorama for filming and projection was not 24 frames per second but rather 25 frames per second. However, Kinopanorama films were shown at either 26 or 24 frames per second in Cinerama or Cinemiracle theaters with little noticeable difference by the audience. It is also claimed that “projection was via mirror system by one projector with triple-reel magazines, apertures, lenses, etc.” In fact, three projectors – typically Lomo/Kinap KPP-3 projectors – were used in a manner similar to Cinerama. In very few theaters, six projectors were used to avoid the need for an intermission. The authors also state that the nine track stereo for Kinopanorama “...might have involved Perspecta-type encoding, though this is unclear.” The Kinopanorama system used a separate 35mm audio film with nine discrete tracks on it. Seven of the tracks were positioned to be compatible with Cinerama and Cinemiracle sound films, and the other two tracks were placed between the perforation holes and the edges of the film as was described earlier.

<<Page 48 Paragraph 2 “Variscope description”>>

The authors state that Variscope (and some other formats) are “70mm presentations in which the frame is split into several different scenes at once.” The Soviet format of varioscopic film is called “Vario-70” which utilizes a 70mm

frame advanced 10 perforations at a time. There is also a 35mm version called “Vario-35”. The format is not primarily designed for multi-image presentations – it is designed to provide high-quality variable aspect ratios for a single projected image.

<<Page 48 Paragraph 3 “Dimension 150 aspect ratio”>>

The 2 x 1 ratio quoted for Dimension 150 is the ratio of the cord of the screen used for many installations. The arc length had an aspect ratio of about 2.4 x 1, and the projected aspect ratio was about 2.2 x 1.

<<Page 49 Paragraph 2 “Dimension 150 lens”>>

The initial D-150 photographic lenses of 50, 70, 120, and 150 degrees are mentioned, but not the fact that after *The Bible* was filmed the complement of Todd-AO lenses were also available for use. These lenses included a 60 – 150 mm zoom and a 100 – 300 mm zoom and a 500 mm telephoto lens. The authors also comment on the Dimension 150 process and state that “The 150-degree lens was considered the main photographic element; from this lens, the highly misleading process name was taken.” It is hard to understand how this can be considered misleading since the lens did have a 150 degree field of view. Most of the D-150 theaters had a screen with a 120 degree curve, but then many of the Cinerama theaters being built at the time also had 120 degree screens. The design of the D-150 projection lens allowed for screens with a curvature up to 150 degrees, but this depended upon the focal length of the projection lens and the theater geometry. The authors also state that “The 70mm Super Cinerama projection lens, by comparison, was little more than an enlarging device.” In fact, the main function of the 70mm Cinerama projection lens was to introduce intentional pincushion distortion that compressed in height the center of the image so that there was less cropping of the image due to the curved screen. In addition, the lens had an intentional curved depth-of-focus where the sides of the image would be in focus at a closer distance than the center of the image. This gave the ability to maintain focus over the entire curved screen. The magnification of the image by this lens was to give the proper focal length for filling the screen with the projected image, and to help maintain focus by creating an effectively longer focal length as “seen” by the film. The special Cinerama projection lenses were designed by Optical Research Associates and manufactured by Applied Optics and Mechanics.

<<Page 49 Paragraph 3 “Dimension 150 screen”>>

The Dimension 150 screen was not louvered since it used a combination retroreflective/diffusing surface coating made by Goodyear. The retroreflective part of the surface increased the amount of light that was reflected back towards the audience rather than reflected from one side of the screen to the other. The diffuse part of the surface spread out the light to provide a more even illumination of the screen for most of the audience. 35mm anamorphic films could be shown at the standard 2.35 x 1 aspect ratio in use at the time, and 70mm could be shown either over the whole screen for films “Presented in D-150” or over a smaller part of the screen for films better suited to a smaller, flatter screen. While some Todd-AO theaters did have screens that could alter the curvature of the screen to minimize the distortion for different formats (such as the Syosset theater in Syosset, New York and the Columbia theater in London), D-150 theaters used a fixed curvature screen.

<<Page 50 Paragraph 1 “Dimension 150”>>

D-150 died as a production format in 1970, but not due to problems with the format. It died along with virtually all other 65mm photographic systems for feature film photography. As an exhibition format it continued for a few more years, with several films unofficially “Presented in D-150” during the 1970’s. (The name “D-150” was used for *The Bible*, and “Dimension 150” was used for *Patton*, but ads for the presentations of other feature films could use either version of the name.)

<<Page 50 “Dimension 150 specifications”>>

The authors give the release print aspect ratio for D-150 as 2.21 x 1 sans soundtrack, with a projected aspect ratio of 2 x 1, a “rectified” aspect ratio of 2.20 x 1, and a compression of 1.25 x 1 on each side as used on some specially produced prints. In fact, the original design of the Dimension 150 process was to incorporate a form of rectification that was similar to the corrections used for 70mm Cinerama, except that the center of the image was to be more compressed in height relative to the sides to provide a better fit of the image to the screen. However, it was realized that such prints would be limited to showing only on curved screens. Also, fears of having the film exchanges handle two types of 70mm prints and getting them mixed up were confirmed with the problems that occurred with handling the early “rectified” 70mm Cinerama prints. The design of the Kollmorgen projection lens incorporated most of the desired correction needed to project standard 70mm prints over the entire Dimension 150 screen, and so the idea of using rectified prints was abandoned early on during the development phase of Dimension 150.

<<Page 51 “Dimension 150 screen caption”>>

The authors mention how close the front seats are to the screen, and that “the uncomfortable viewing did not help it compete against Super Cinerama, whose screen was ceiling-to-floor and seating not nearly so extreme.” In fact, the ceiling-to-floor design of Cinerama screens was mainly due to the treatment of the floor and ceiling design rather than the viewing angles as seen by the audience. There were a number of Cinerama theaters that also had uncomfortable viewing from the first few rows.

<<Page 51 “Dimension 150 compression specification”>>

Dimension 150 did not have a “1.25 x 1 compression on each side.” Although the original intent was to have graded compression rectified prints similar to those used for 70mm Cinerama, it was decided to use conventional 70mm prints and use the special projection lens to mostly correct for projection onto a deeply curved screen.

<<Page 52 Paragraph 1 “Thrillarama”>>

The authors discuss the Thrillarama process (which used two projectors projecting side-by-side images in a 2.66 x 1 aspect ratio). The authors claim that this was foolish and that the same results could have been obtained with anamorphic lenses. In fact, the authors seemed to have missed the point. The idea behind Thrillarama was to have wide angle photography and projection onto a deeply curved screen. The widest 'scope camera lenses at the time did not cover a particularly wide field of view, and the use of two projectors allowed for a greater curvature of the screen with a sharper and brighter image and with less image distortion than what would be obtained with a short focal length lens. Unfortunately, the join line for Thrillarama was dead center on the screen which made it much more obvious and objectionable than with the three projector systems.

<<Page 53 Paragraph 1 “Wonderama/ARC 120”>>

Wonderama was a new name given to the ARC 120 format. (The proper spelling is ARC 120, not ARC-120.) The process used 35mm film in the projector, not 70mm film. The full width “silent” size aperture was used for increased brightness on the large screen. The image was split into two halves which were rotated and printed toe-to-toe next to each other on the film. The printed images were 0.750 x 0.499 inches each. The effective projected area was approximately 1.440 x 0.480 inches. ARC 120 was first used for the film *Honeymoon* in August, 1960 at the Palace Cinema in Blackpool, England and later for the film *Parisian Ballet* at the Lutetia Cinema in Paris. The first showing of *Mediterranean Holiday* using the Wonderama name was March 5, 1964 (not 1965) at the Strand Theater in Plainfield, N.J. on a screen 61 feet wide and 21 feet high. The Wonderama process was promoted by Leon Bronesky and was invented by Dr. Leon Wells.

<<Page 53 Paragraph 4 “Cinéorama”>>

The Cinéorama format was developed beginning in 1896, but was exhibited for three days only at the Paris Exhibition of 1900 beginning on April 24th. The short run was due to the exhibit being closed by the authorities due to excessive heat in the projection booth and an accident involving the projectionist. This three day showing was the only reported use of the system. Although the authors could not locate any information about the films, for the record, the program consisted of scenes including the pigeon market on the Grande-Place in Brussels, the bullfight in Barcelona, the sea breaking on the rocks in Biarritz, the embarking of English troops on the ship Maplemore in Southampton, shots of a carnival in Nice, and the Fantasia in Sousse.

<<Page 53 Paragraph 5 “Cinerama 360”>>

It is stated that Cinerama 360 used “...an extreme wide angle image covering the area of two 70mm frames...” This is somewhat deceptive. The show in Seattle did not use conventional 70mm film, but rather it used ASA Type I film which was basically the same long-pitch (0.234”) film with the larger perforation holes that was used for Grandeur. The image on the film was a circular image about 2 1/4” in diameter that fit into this 10 perforation area. Film speed for this format was 24 frames per second. A small number of additional films were made in the format for showing in the theater following the Seattle World’s Fair. However, due to the difficulty in using this unusual film stock, and due to excessive wear on the prints, the show for the New York World’s Fair used a circular image about 1.87” in diameter on conventional 70mm stock with magnetic stripes and ran at 18 frames per second. The lens was a 0.9 inch focal length 160 degree field-of-view f/2.0 fisheye lens designed by Felix Bednarz and made by Fairchild Curtis. The same lens was used for photographing both versions of Cinerama 360. The formats used for these films were also sometimes referred to as “Spacearium” and as “Cinerama Spacearium 360”. After the New York World’s Fair, the format was used for short sequence “thrill” films in inflatable theaters under the name “ShowSphere”.

<<Page 54 Paragraph 2 “Cosmos”>>

Nearly this entire paragraph is horribly messed up. In fact, the 18 minute film *To The Moon and Beyond* was the 10 perforation 70mm 18 frames per second film made for the 1964 New York World’s Fair. After the fair, the film was retitled *Cosmos* and shown in traveling theaters. Dynavision, which is an 8 perforation 65mm camera format (not “double frame”) was used to produce some footage for enlargement to the OMNIMAX format for sequences for *Voyage to the Outer Planets* in 1973 and *Cosmos: The Universe of Loren Eiseley* in 1975. The latter film was the 33 minute short that was made for and shown in San Diego’s Reuben H. Fleet Space Theater, but was advertised as OMNIMAX and not as Cinerama 360. San Diego’s theater never had the ability to project the 10 perforation 70mm Cinerama 360 format. The fact that ShowSphere Inc. helped produce *Voyage to the Outer Planets* in 1973 may have contributed to the authors’ confusion about the formats.

<<Page 54 Paragraph 3 “Cinerama 360”>>

It is stated that “Few remember, or even saw, Cinerama 360. It was that minor.” In fact, the two shorts were seen by millions at the two World’s Fairs, and was the forerunner to the OMNIMAX format, and was possibly a contributing factor to the demise of the three film Cinerama format. Announcements from Cinerama corporation indicated that they were considering using a version of the lens used for Cinerama 360 with five perforation 65mm cameras to give the wide field-of-view capability of the three film camera. In fact, the Cinerama 360 lens was used with a five perforation 65mm camera for some of the shots in *2001: A Space Odyssey* and for the short subject *Probes In Space*.

<<Page 54 Paragraph 4 “Circle-Vision”>>

A clarification of the use of the Circle-Vision name is necessary. The multi-film 360 degree format originally used eleven 16mm cameras and projectors and the format was known as “Circarama”. Later, nine 35mm cameras and projectors were used and the format was renamed “Circle-Vision 360”. It was often referred to by the shorter name “Circle-Vision”. For the film *Impressions de France* (Disney, 1982), five cameras and projectors were used to give a 200 degree coverage. The authors also claim that “recently an attempt has been made to eliminate definite dividing sections by overlapping each image slightly.” All Circle-Vision 360 theaters made to date have utilized the black “dividing sections” rather than overlapping the images. Some competing formats such as the video projection circular format made by Iwerks attempt to match the edges of the projected images.

<<Page 54 “Circular Kinopanorama”>>

The authors did not include a description of the Circular Kinopanorama process. This was a format similar to the 11-projector Circarama process, except that 35mm equipment was used, and an optional second set of 11 screens were placed above the first set to extend the vertical visual field. A second set of 11 projectors was used in some theaters to fill these additional screens for some films that utilized them.

<<Page 54 “Circlorama”>>

The authors reference a British circular film system with multiple cameras and projectors with the title *Circlorama Cavalcade* released in 1964, but don’t give any details about the format. The Circlorama theater opened in London in 1963 with the film *Russian Roundabout* which was apparently filmed with the Soviet 11-camera Circular Kinopanorama unit. The projectors used, however, were model FP20 35mm projectors made by Philips. The sound reproducer was also made by Philips. Each show lasted approximately 20 minutes. In 1964, the film was replaced with *Circlorama Cavalcade* which was photographed using 11 16mm cameras. The projection equipment was removed and replaced with Philips FP16 16mm projectors. *Circlorama Cavalcade* was also about 20 minutes long.

<<Page 55 “Cinerama film list”>>

The film *Seven Wonders of the World* is listed as released in 1955, when in fact the premiere was on April 10, 1956 as stated in the filmography. The short subject *Renault Dauphin* was released in 1959, not 1960. There was also a special 55-minute edited version of *This Is Cinerama* that was shown at the 1958 World’s Fair in Brussels. *The Best of Cinerama* (listed under Super Cinerama) is listed as released in 1963, when in fact the premiere was on November 13, 1962 at the Palace Theater in Cleveland, Ohio.

<<Page 55 “Footnotes for Super Cinerama”>>

There should be two asterisks in front of the footnote “optically converted from Super Technirama 70 and exhibited in Super Cinerama”. However, a greater error is the fact that the movie *Lafayette* was never presented in 3-strip Cinerama but was instead shown in 70mm Cinerama in Europe. It should also be noted that the movies listed under Super Cinerama should actually be part of the Cinerama list since Super Cinerama is not a production process.

<<Page 55 “70mm Super Cinerama film list”>>

The release date for the 70mm version of *This Is Cinerama* was February 15, 1973 and not in 1972 as claimed by the authors. The short subject *Fortress Of Peace* (1964) was advertised as presented “In Cinerama” when it was shown with *The Golden Head* in 1962. Also, *The Last Valley* and *The Great Waltz* did not have official Cinerama showings although some Cinerama theaters may have advertised them as such. *Song of Norway* was announced as a Cinerama production when filming started, but it was advertised as “On the Cinerama Screen” or just “70mm” rather than “In Cinerama” in most Cinerama theaters when it was released.

<<Page 55 “Cinemiracle film list”>>

The film *Holiday in Spain* was initially shown in 3-strip format in Cinemiracle theaters prior to being shown in Cinerama theaters.

<<Page 56 “Kinopanorama film list”>>

Missing from the film list is *Udivitelnaya okhota* (which translates as *Amazing Hunting*) (1962) but which is listed by the authors in the filmography, and the films *Deux heures en U.R.S.S.* (which translates as *Two Hours in the U.S.S.R.*) (1959) and *Un Français à Moscou* (which translates as *A Frenchman in Moscow*) (1960) which are not listed by the authors in the filmography. *Deux heures en U.R.S.S.* was actually just an edited version of the first two Kinopanorama films *Great Is My Country* and *The Enchanted Mirror*. *Volga Volga* was shown in Paris, France in 1962 and was just an 80 minute edited version of *The Volga Flows On*. *Na samom bolishom stadione* (which translates as *At the Biggest Stadium*) should not be in this listing since it is in fact a Circular Kinopanorama film rather than a Kinopanorama 70 film.

<<Page 56 “Dimension 150 film list”>>

This is the only film list in the book where the authors explicitly exclude “international fair shorts”. In fact, there was only one D-150 short subject shown to the public: The 12 minute short subject *Harmony, the Nature of Man* made for the State of Washington exhibit for Expo '70 in 1970.

<<Page 56 “Circarama film list”>>

The book is missing a list of films that were presented in the 11-projector Circarama process: *A Tour of the West* (Disney, 1955); and *America the Beautiful* (Disney, 1958).

<<Page 56 “Circle-Vision 360 film list”>>

The book is missing a list of films that were presented in the 9-projector Circle-Vision 360 process. These films included: *Italia '61* (Disney, 1961); *Magic of the Rails* (Disney, 1965); *America the Beautiful* (Disney, 1967); *Canada '67* (Disney, 1967); *America the Beautiful* (Bicentennial version) (Disney, 1975); *O Canada!* (Disney, 1982); *Wonders of China* (Disney, 1982); *Magic Carpet 'Round the World* (Disney, 1983); *American Journeys* (Disney, 1984); and *Portraits of Canada* (Disney, 1986). *Italia '61* was credited as being in Circarama, but was actually filmed with nine 16mm cameras. It was projected with nine 35mm projectors like Circle-Vision 360, and so it is included in this list. The film *Impressions de France* (Disney, 1982) was filmed and presented in what probably should have been called “Circle-Vision 200” because it only used five of the cameras with the existing Circle-Vision 360 rig and five projectors in the theater.

<<Page 56 “Circular Kinopanorama film list”>>

The book is missing a list of films that were presented in the Circular Kinopanorama process. These films included: *The Path of Spring* (also called *The March of Spring*) (Tsentraliniy dokumentaliniy film studiya, 1959); *Vienna Festival* (Tsentraliniy dokumentaliniy film studiya, 1960); *Russian Roundabout* (Tsentraliniy dokumentaliniy film studiya, 1961); and *Na samom bolishom stadione* (*At the Biggest Stadium*) (Tsentraliniy dokumentaliniy film studiya, 1966). The latter film was erroneously included in the list of Kinopanorama films in the book.

SECTION III. THE ANAMORPHIC PROCESSES

<<Page 57 Paragraph 2 “Early anamorphic lens use”>>

The authors state that the anamorphic technique was applied to movies as early as 1898 by Professor Ernst Abbe and the Zeiss company. Although Professor Ernst Abbe patented an anamorphic lens design in 1898, there is no evidence that it had been used with motion pictures at that time.

<<Page 57 Paragraph 3 “Early anamorphic lens use”>>

The authors mention that some claim that Henri Chrétien did not make his ‘scope lens until 1931. In fact, test footage photographed using the lens was shown in 1928.

<<Page 59 Paragraph 1 “First Cinerama travelogue production”>>

Louis B. Mayer did not participate in the production of the first travelogue in Cinerama. He joined the Cinerama organization a few weeks after the premiere of *This Is Cinerama*.

<<Page 59 Paragraph 1 “Fox interest in ‘scope lens”>>

The book says “Chrétien’s ‘scope lens ... was put on display again, and 20th Century-Fox bought it. In fact, the lens was not “put on display” but rather Chrétien was located in France by Fox representatives and a contract to use his lenses was made after quiet negotiations.

<<Page 60 Paragraph 3 “NTSC color/interlocked sound”>>

The authors state “Now we do have color TV, much longer in arriving than promised...” In fact, the first NTSC color broadcast was by CBS on December 17, 1953 – the day the standard was approved by the FCC. NBC broadcast the 1954 Rose Parade in NTSC color, and there were regular color broadcasts in some cities in 1955. (Prior to the NTSC color system, the CBS field-sequential color broadcasts had been used from June 25, 1951 to October 22, 1951.) The delay in widespread use (until the mid-1960’s) was due to the cost of the sets. Also, the authors comment that Fox chose the sound on film format while some of the other studios chose interlocked stereo. This is because the interlocked sound had a better signal to noise ratio, and the multi-gap audio heads for the projectors were still in limited supply, and the magnetic striping machines arrived too late to have any problems fixed and make enough prints for the initial release dates.

<<Page 61 Paragraph 1 “Original Panavision anamorphic lens design”>>

The authors claim that Panavision originally had a policy of compression via mirror devices. None of Panavision’s designs used mirror devices. The authors appear to be confusing Panavision’s use of achromatized Brewster prisms with the mirrored curved prisms used in some Delrama adapters.

<<Page 63 Paragraph 1 “CinemaScope/Magoptical”>>

The authors claim “The standard 1.33 x 1 aperture was retained. This ratio was reduced to 2.55 x 1 by the addition of MagOptical Stereophonic Sound, which slightly cut into the picture area on each side. Regular optical sound and Perspecta Stereophonic Sound prints retained the 2.66 x 1 shape.” Fox originally did not permit the use of optical sound and considered the stereo sound to be integral to CinemaScope. The only “official” use of CinemaScope with a 2.66 x 1 aspect ratio was at the early demonstrations in 1953 using the full “silent” aperture on the camera and projector. When *The Robe* premiered, the standard was 2.55 x 1. This ratio was for magnetic stereo prints without an optical track, not magoptical as claimed by the authors. In 1954, with other studios releasing some ‘scope films with optical sound, Fox agreed that optical sound could be used for some films. They made the 2.35 x 1 aspect ratio for these prints official, but strongly urged that the 2.55 x 1 aspect ratio and stereo sound should be used. The Motion Picture Research Council then recommended the use of a so-called “magoptical” (not “MagOptical”) print which included a half-width optical track along with the magnetic stripes with a 2.35 x 1 aspect ratio. Fox (which did not develop magoptical) strongly disagreed with the use of such a print claiming that the stereo tracks could be used for non-stereo theaters by using just track #2 with a magnetic pickup. They also provided prints that had monophonic sound on track #2 for films that needed it (such as films not recorded in “true stereo” which used pan-pots during mixing). Some theaters may have used the Academy aperture with ‘scope projection of regular optical sound and Perspecta sound to achieve a 2.66 x 1 aspect ratio, but this was not the recommended standard. Some theaters used interlocked stereo since they already had reproducers for 3D films, and the interlocked stereo had a superior signal to noise ratio. Further information is provided in the comments on magoptical sound.

<<Page 63 Paragraph 1 “CinemaScope perforation holes”>>

It is claimed that the smaller perforation holes (known informally as “Fox-holes” and formally as CinemaScope or CS perforations) “...tended to tear easily and damage the MagOptical tracks, reducing print life substantially.” The main cause of damage to the CS perforations was due to improper tension settings by projectionists and the use of prints in some projectors where the projectionists had neglected to replace the standard sprockets with the recommended sprockets that had smaller teeth. And the use of CS perforations had nothing to do with making the magnetic-coated prints run more stably through projectors as claimed by the authors.

<<Page 64 “CinemaScope 55 photo caption”>>

The CinemaScope 55 camera in the photo is identified as a "modified Mitchell Grandeur-Realife" camera. In fact, the Mitchell Grandeur-Realife camera looked like a slightly larger version of the regular 35mm Mitchell camera. The camera in the photo was a Grandeur camera made by William P. Stein & Company in New York.

<<Page 65 Paragraph 3 “CinemaScope 55 camera”>>

As was mentioned in the photo caption for the CinemaScope 55 camera, the original CinemaScope 55 camera was a modified Grandeur camera made by William P. Stein & Company in New York and not by the Mitchell Camera Company. Later CinemaScope 55 cameras were made by the Fox camera department as a totally new camera design.

<< Page 65 “Anamorphic 35mm specifications”>>

For some reason the specifications for the anamorphic 35mm formats (CinemaScope, Panavision, etc.) were not included in the book. The 2.55 x 1 aspect ratio was used first, with 2.35 x 1 becoming the standard for monophonic optical sound prints during the 1954-1955 time frame. The 2.55 x 1 aspect ratio was finally abandoned in 1957 by 20th Century-Fox when they adopted the magoptical format that was already in use by other studios. The aspect ratio was changed to 2.39 x 1 (sometimes referred to as 2.40 x 1) in 1971 since film splices could be seen on the screen with the larger aperture. The specifications for the format are as follows: Camera aperture (for 2.55 x 1 aspect ratio photography): 0.937" x 0.735"; Camera aperture (for 2.35 x 1 aspect ratio photography): 0.868" x 0.735"; Camera aperture (for films designed for 2.39 x 1 aspect ratio projection): 0.864" x 0.738"; Projectable area (with 2.55 x 1 aspect ratio 4-track magnetic prints): 0.912" x 0.715"; Projectable area (with 2.35 x 1 aspect ratio optical or magoptical prints): 0.839" x 0.715"; Projectable area (revised 2.39 x 1 aspect ratio for use with optical or magoptical prints): 0.838" x 0.700". After the book was written, the standard was further revised in 1993 to specify a maximum projectable area of 0.825" x 0.690", which is still a 2.39 x 1 aspect ratio.

<<Page 65 Paragraph 3 “CinemaScope 55”>>

The authors claim that CinemaScope 55 was the same as 35mm CinemaScope except the larger image was photographed on 55mm film, and that “...the perfs were the same, as were the aspect ratio and the four-track MagOptical Stereophonic Sound. ...The idea was to eventually change the sound system from four-channel to six channel-stereophonic, but that would be sometime in the future.” In fact, the CinemaScope 55 camera used film with CS perforations and a frame that was eight perforation holes tall. The 55mm print that was designed for theater use was six perforation holes tall with six magnetic tracks on the print. The use of four channels was due to the fact that 55mm prints were not used. Instead, first run showings of *Carousel* used interlock 6-track magnetic stereo for showings in New York and Los Angeles, while other first-run showings initially used 4-track magnetic stereo (not magoptical) prints and a 2.55 x 1 aspect ratio using the original CinemaScope aperture. (Fox did not use any 35mm magoptical prints for their movies until the release of *Bus Stop* about 2 months after the release of *The King and I*. Later prints of the CinemaScope 55 films were magoptical or mono with the image cropped to 2.35 x 1.)

<<Page 65 Paragraph 4 “CinemaScope 55”>>

The CinemaScope 4x35 camera format was renamed CinemaScope 55, but there was also some consideration given to another name. The new lenses made by Bausch & Lomb were marked “Super CinemaScope”. Twentieth Century-Fox had already worked out the optical reduction process and had a working 55mm projector on the lot prior to the start of production on *Carousel*. Although the first few weeks of shooting was done with both the 55mm and 35mm cameras, the best evidence is that this was done due to uncertainty about the reliability and performance of the prototype 55mm camera for feature production. Once it became clear that there were no rude surprises in using the 55mm camera and in the printdown process to 6-perf 55mm and 35mm, 35mm cameras were no longer used for the remaining photography of *Carousel*.

<<Page 66 Paragraph 2 “CinemaScope 55”>>

Carousel was released only in 35mm due to the lack of 55mm projectors and sound reproducing heads. Although *The King and I* was intended to be released using 55mm prints, there was reluctance by theaters since the projector design could show 55mm and 35mm but not 70mm prints, and it was difficult to change them from 55mm to 35mm use. (Century later produced modification kits to retrofit the 55mm projectors so that they could be used for 70mm projection.) There were also many complaints about introducing yet another projection standard. The best evidence is that 55mm prints were never shown to the public. There is also no evidence that *De Luxe Tour* was ever shown to the public in any form.

<<Page 67 Paragraph 2 “CinemaScope 55”>>

Carousel was not a “huge financial success” and actually lost money by the end of the first release. The authors claim that CinemaScope 55 was “...clearer, sharper and wider (when decompressed) than 70mm.” It was wider than non-anamorphic 70mm, but many reports at the time indicate that it was not clearer and sharper. In fact, the camera lenses had a very shallow depth of field and the sides of the frame were not sharp for most of *The King And I*. The authors also state “Like other studios, however, Twentieth Century-Fox decided on 70mm as the best wide gauge format.” Actually, at the time Fox decided to use Todd-AO, virtually no other studio had decided on using Todd-AO. (*Porgy and Bess* was only distributed by Columbia, and *The Alamo* was in Todd-AO at the insistence of John Wayne. MGM was the only other studio at that time using 65mm photography, and it was the anamorphic Camera 65 format.) Fox adopted 70mm for roadshow use due to availability of 70mm theaters, the marketing advantages due to public awareness and preference of “70mm”, and a change in licensing policy by the Todd-AO corporation. There is also a comment by the authors that Twentieth Century-Fox had built new cameras for CinemaScope 55. There were new cameras built that were an improvement over the older modified Grandeur camera. The new cameras incorporated larger film magazines and rack-over viewing through the camera lens. One of these cameras has been on display at the Twentieth Century-Fox lot for many years.

<<Page 67 Paragraph 3 “CinemaScope 55”>>

The letterboxed videodisc of *The King and I* does say “A CinemaScope Picture in CinemaScope 55” at the beginning, despite the claim that existing prints do not include it. Fox reports that they still have the 55mm negatives to *Carousel* and *The King and I*, but there is no known optical printer that can use that gauge. The 55mm negatives were used in 1997 to create new video transfers of these two movies. Optical conversions to 35mm from the 55mm negatives of these titles were made by Cineric, Inc. in 2004 using a specially modified optical printer.

<< Page 67 CinemaScope 55 specifications>>

For some reason the specifications for CinemaScope 55 were not included in the book. The specifications for the format are as follows: Film width (negative and positive): 2.190"; Perforations per frame: 8 for camera, 6 for projector; Perforation type (negative and positive): CS perforations; Camera film speed: 180 ft/min; Camera aperture: 1.824" x 1.430"; Projectable area: 1.340" x 1.050"; Projector film speed: 135 ft/min; Number of magnetic tracks: 6.

<<Page 68 “Superscope ad”>>

Readers should note in the text of the ad from Superscope, Inc. that the correct spelling of “Superscope” does not capitalize the “s” in the middle of the name. It may also be of interest to note that the address given for Superscope, Inc. is the same as for the RKO Studio lot in Hollywood.

<<Page 69 Paragraph 3 “Superscope”>>

The authors indicate that Superscope used a 0.715" square image with a black strip on the right side of the print so that a standard CinemaScope aperture could be used. This was done only at the very beginning, and after the first two films the image was centered with black on each side. This was accomplished by having Technicolor recenter the image during the manufacturing of the matrices for dye-transfer printing. Incidentally, the process was originally going to use the full 'scope image area with a squeeze factor of 1.5. The process was changed to a 2 x squeeze due to protests by theaters and to allow use of fixed 2 x squeeze projection adaptors.

<<Page 69 “Caption for Superscope frame samples”>>

It is claimed that the Superscope image required realignment of projectors “...in order that the slight black border would be even on both sides of the screen.” This was not true if a Superscope lens was used for projection, as the ad shown on page 145 clearly indicates that “There is never any need to shift the position of your projection machine with Superscope, because the lens itself is adjustable to the right or left.” It would be necessary with a CinemaScope lens if the image was to be centered. This is why Superscope prints were changed to have black on each side of the image.

<<Page 72 Paragraph 2 “Superscope 235”>>

It is claimed that a change in going from Superscope to Superscope 235 was “...that the taking camera had a widened aperture that exposed over the soundtrack area...” However, it is clear from the frames on page 68 that Superscope used the widened aperture as well. In fact, Superscope and Superscope 235 films were made from both widened aperture and non-widened aperture negatives without any distinction in the advertising.

<<Page 72 Paragraph 3 “Superscope 235”>>

The authors state that films shot today using the Superscope 235 technique are billed as Super Techniscope when processed by Technicolor and System 35 when processed by other labs. In fact, the System 35 name was coined by Clairmont Camera for their format, but now virtually everyone refers to this format as “Super 35”.

<<Page 72 Paragraph 4 “Techniscope”>>

Doubling the size of a Techniscope negative image to fill a full 'scope format is not a 50% enlargement as claimed. Also, Techniscope was generally not “clearer and sharper” than 'scope but rather was usually grainier.

<<Page 76 Paragraph 2 “Cinepanoramic”>>

In the paragraph on Cinepanoramic, the authors imply that Fox had expected to have exclusive rights to the lens they called CinemaScope. In fact, the lens had been developed in the 1920's and Chrétien told them that his patent had expired and was now public domain. Fox wanted Chrétien's lenses to get a head start on making films right away and to keep them out of the hands of other studios. The authors also comment that the Cinepanoramic lens was a French lens built by Professor Ernst Abbe who surprised 20th Century-Fox by announcing the lens and that he sold the lens to several studios. Professor Ernst Abbe was not French but rather was the German Director of the Zeiss optical company in Germany. 20th Century-Fox and others would have been very surprised at such an announcement from him in 1953 since Professor Ernst Abbe died in 1905. In fact, he had patented a basic anamorphic lens design in 1898 which formed the basis of many anamorphic lens designs. So it could be said that Cinepanoramic was based on that lens design, but then so were many other designs.

<<Page 76 Paragraph 3 “Cinescope/Superfilmscope”>>

The authors state that they are not aware of any films with screen credits using the term “Superfilmscope”. *Le Diciottenni* (Carlo Ponti; 1957) which was released in the United States as *Eighteen Year Olds*, credited the use of Superfilmscope.

<<Page 77 Paragraph 5 “Delrama”>>

The authors state that the Delrama unit could be adjusted to produce an anamorphic image compatible with CinemaScope or any other system. It should be clarified that the Delrama unit was adjustable only for focus and was manufactured for a particular squeeze as defined by the ratio of the two curved surfaces.

<<Page 77 Last paragraph “Dynavision”>>

Dynavision (both the large frame and 3D versions) covered the area of an eight perforation frame, not that of two normal 70mm images as claimed by the authors. It should also be mentioned that the 3D version of Dynavision was experimental only and no public performances used the process.

<<Page 79 Paragraph 8 “ImageVision”>>

ImageVision was actually a high resolution, widescreen, wide bandwidth, 24 Hz frame rate video system optimized for conversion to film for presentation in theaters. The system had higher resolution than standard video recording techniques due to the use of 655 scan lines, an 8.5 MHz bandwidth, and a 1.66 x 1 aspect ratio (not 1.85 x 1 as quoted by the authors). It used a ME-258 VTR which was a Fernseh BCN-51 1-inch Type B video recorder that was modified by Merlin Engineering Works. Indications were that the camera was adjusted to scan a wide aspect ratio area rather than use anamorphic lenses. The ImageVision system was developed by Image Transform.

<<Page 80 “J-D-C Scope”>>

It is stated that “...all indications are that it will replace Panavision as the most often used anamorphic lens.” This has turned out not to be the case.

<<Page 80 “Multiple Screen and Multiscreen”>>

The terms “Multiple Screen” and “Multiscreen” refer to the use of multiple images in different frames on the same screen at the same time. Multiscreen techniques have been used in many feature films, including *The Boston Strangler* (20th-Fox, 1968), *The Thomas Crown Affair* (UA, 1968), *Andromeda Strain* (Univ, 1974), *Woodstock* (Warner Bros, 1970), and many other films including some “rockumentaries”. But they are not always photographed in standard 16mm, and are not always printed onto anamorphic 35mm. Contrary to the authors' claims, both *Woodstock* and *Concert For Bangladesh* also included footage where a single 16mm image was converted to fill the entire screen.

<<Page 81 “Panoscope”>>

The authors misspell the name of the Goerz Optical company lens as PanaScope rather than Panoscope even though they spell it correctly on page 144 of the book. The Panoscope lens was fixed at a 1.5 x 1 compression and was never marketed as a variable anamorphic projection system as speculated by the authors.

<<Page 83 “Super Techniscope”>>

The authors state that the same technique is called “System 35” when processed by labs other than Technicolor. In fact, “System 35” is a format name coined by Clairmont Camera for their version of the process. The general name for the process is “Super 35”.

<<Page 83 “Totalscope”>>

Totalscope actually used Taylor & Hobson prime lenses with Cinepanoramic anamorphic adapters.

<<Page 83 “Totalvision”>>

Totalvision was not the same as Totalscope. Totalvision was from France, whereas Totalscope was from Italy.

<<Page 83 “Ultrascope”>>

Ultrascope was from Germany rather than from Italy as claimed by the authors.

<<Page 91-103 “CinemaScope film list”>>

There are several movies with the titles listed incorrectly: *13 Flying Men* should be *13 Fighting Men*; *I Think a Fool* should be *I Thank a Fool*; *The Long Grey Line* should be *The Long Gray Line*; *Rich Girl* should be *Rice Girl*; and *The Way of the Gold* should be *The Way to the Gold*. The movie *Appointment with a Shadow* (UI, 1959) is also incorrectly listed a second time in 1958. Omissions from the list include: *Frou-Frou* (1955); *King’s Rhapsody* (1955); *Lola Montes* (1955); *Oh Rosalinda!!* (1955); *Donatella* (1956); *The Good Companions* (1956); *Loser Takes All* (1956); *The Mystery of Picasso* (1956); *Oklahoma!* (CinemaScope version) (1956); *Pacific Destiny* (1956); *The Devil’s Commandment* (1957); *No Time for Tears* (1957); *The Long Hot Summer* (1958); *The Man Inside* (1958); *Man of the West* (1958); *House of Usher* (1960); *In the Nick* (1960); *The Secret of the Purple Reef* (1960); *Tess of the Storm Country* (1960); *Two Women* (1960); *Until Hell is Frozen* (1960); *Petticoat Pirates* (1961); *Sanctuary* (1961); *Women of Devil’s Island* (1961); *Adventures of a Young Man* (1962); *Go to Blazes* (1962); *Madison Avenue* (1962); *Seven Seas to Calais* (1962); *We Are in the Navy Now* (1962); *We Joined the Navy* (1962); *80,000 Suspects* (1963); *Alone on the Pacific* (1963); *The Queen’s Guards* (1963); *And Suddenly It’s Murder!* (1964); *Gladiators 7* (1964); *Ninety Degrees in the Shade* (1964); *Dingaka* (1965); *The Love Robots* (1965); and *Contest Girl* (1966).

<<Page 103 “CinemaScope 55 film list”>>

The best evidence indicates that 55mm prints were never used for public showings of any of the films. *De Luxe Tour* was to be a feature film rather than a short subject. It started production in CinemaScope 55, but the production was stopped and the movie was never released.

<<Page 104 “Superscope film list”>>

Omissions from the list include: *The Come-On* (1956); *The Day the World Ended* (1956); *The Oklahoma Woman* (1956); *The Weapon* (1956); and *Zorro* (1961). There are several sources that indicate that *Jet Pilot* (1957) was released in Superscope, but apparently its release was delayed for so long that it was just released in regular spherical widescreen.

<<Page 104-109 “Techniscope film list”>>

There are several movies with the titles listed incorrectly: *Adalen* should be *Adalen 31*; *Arizona Bushwhackers* should be *Arizona Bushwhacker*; and *Mission Blood Mary* should be *Mission Bloody Mary*. *American Graffiti* (1973) is shown as a stereo release, but it was released in mono in 1973 and then reissued in 1978 in stereo. Omissions from the list include: *The Savage Hordes* (1961); *Hercules Against the Sons of the Sun* (1963); *Death Drums Along the River* (Sanders) (1963); *Code 7, Victim 5!* (1964); *Sandokan Fights Back* (1964); *Yesterday, Today and Tomorrow* (1964); *One Million Dollars* (1965); *Requiem for a Secret Agent* (1965); *Twenty-four Hours to Kill* (1965); *And Now Miguel* (1966); *Kiss Kiss-Bang Bang* (1966); *Made in U.S.A.* (1966); *Oh! Those Most Secret Agents* (1966); *One Eyed Soldiers* (1966); *Secret Agent Fireball* (1966); *Fearless Frank* (1967); *A Maiden for a Prince* (1967); *Man-Eater of Hydra* (1967); *Theatre of Death* (1967); *The Torture Chamber of Dr. Sadism* (1967); *War Italian Style* (1967); *Beyond the Law* (1968); *It’s Your Move* (1968); *The Last Roman* (1968); *Operation St. Peter’s* (1968); *Rogues’ Gallery* (1968); *Thunderbird 6* (1968); *Boot Hill* (1969); *God Forgives, I Don’t* (1969); *Seven Times Seven* (1969); *Suicide Commando* (1969); *The Animals* (1970); *Cannabis* (1970); *Certain, Very Certain, As a Matter of Fact – Dead Certain* (1970); *Eagles Over London* (1970); *Operation Snafu*

(1970); *Web of the Spider* (1970); *Confessions of a Police Captain* (1971); *The Night Evelyn Came Out of the Grave* (1971); *No Drums, No Bugles* (1971); *Raid on Rommel* (1971); *The Tender Warrior* (1971); *They Call Me Trinity* (1971); *Blood of Ghastly Horror* (1972); *Dracula Versus Frankenstein* (1972); *Duck, You Sucker* (1972); *The Gatling Gun* (1972); *The Heroes* (1972); *No Way Out* (1972); *Trinity Is STILL My Name!* (1972); *High Crime* (1973); *Malicious* (1973); *The Master Touch* (1973); *Mister Superinvisible* (1973); *The Violent Professionals* (1973); *Dead People* (1974); *Truck Stop Women* (1974); *The Inheritance* (1976); *The Love Butcher* (1982); and *The Bronx Warriors* (1983).

<<Page 116 “Panoramic film list”>>

The “Panoramic” process and its films are placed out of alphabetical order and should have been placed after the Panavision film list.

<<Page 116 “Panavision film list”>>

The following movies should not be included in this list since they are (or should be) included in the 70mm Blowup list: *Bye Bye Birdie* (Col, 1963); *Born Free* (Col, 1966); *Half a Sixpence* (Par, 1968); *Darling Lili* (Par, 1970); *Scrooge* (NG, 1970); *Waterloo* (Par, 1971); *The Poseidon Adventure* (20th-Fox, 1972); *The Towering Inferno* (20th-Fox, 1974); *The Trial of Billy Jack* (Taylor-Laughlin, 1974); *The Wind and the Lion* (MGM, 1975); *A Bridge Too Far* (UA, 1977); *Comes a Horseman* (UA, 1978); and *The Adventures of Buckaroo Banzai Across the 8th Dimension* (20th-Fox, 1984). The movie *Earthquake* (Univ, 1974)* should be moved here from the 70mm Blowup list since it was not released in the United States in 70mm. The movies *The Day of the Dolphin* (Avco, 1973) and *The Swarm* (WB, 1978) should have an asterisk after their listings since they were released in stereo sound. The movie *Midway* (Univ, 1976) should not have an asterisk after it since it was not released in stereo sound. The movie *American Graffiti* (Univ, 1973) should not have an asterisk after it since it was not released in stereo sound in 1973; however, the reissue in 1978 was in Dolby Stereo. There are several movies with the titles listed incorrectly: *Caboblanca* should be *Caboblanco*; *The Chant of Jimmy Blacksmith* (1980) should be *The Chant of Jimmie Blacksmith* (1978); and *In the Cold of the Day* (1963) should be *In the Cool of the Day* (1963). Movies that should be removed from the list since they were photographed with spherical lenses include: *The Life and Times of Judge Roy Bean* (1972); *Detroit 9000* (1973); *Mackintosh Man* (1973); *Night Watch* (1973); *The Nelson Affair* (1973); *Old Dracula* (1975); *Posse* (1975); *The Bingo Long Traveling All-Stars & Motor Kings* (1976) (which is misspelled as *The Bingo Long Travelling All-Stars and Motor Kings* in the book); *The Front* (1976); *The Last Tycoon* (1976); *Escape From Alcatraz* (1979); *The Promise* (1979); *Roadie* (1980); *Absence of Malice* (1981); *Carbon Copy* (1981); *The Sword and the Sorcerer* (1982); *Silkwood* (1983); *The Survivors* (1983); *Godzilla 1985* (1985); *Murphy’s Romance* (1985); *Prizzi’s Honor* (1985); and *Ran* (1985). The films *At Close Range* (1986) and *Ferris Bueller’s Day Off* (1986) should also be removed since they were filmed in Super 35. Omissions from the list include: *Chartreuse Caboose* (1960); *Billy Rose’s Jumbo* (1962); *Othello* (1965); *7 Women* (1966); *Doctor, You’ve Got to Be Kidding* (1967); *The Moonshine War* (1970); *The Traveling Executioner* (1970); *Sometimes a Great Notion* (1971); *Kansas City Bomber* (1972); *11 Harrowhouse* (1974); *The Girl From Petrovka* (1974); *Golden Needles* (1974); *Mc Q* (1974); *The Taking of Pelham One Two Three* (1974); *Jacqueline Susann’s Once Is Not Enough* (1975); *Lisztomania* (1975); *Mr. Ricco* (1975); *Peeper* (1975); *Sheila Levine is Dead and Living in New York* (1975); *Whiffs* (1975); *The Big Bus* (1976); *The Eagle Has Landed* (1976); *The Sailor Who Fell From Grace With the Sea* (1976); *Shout at the Devil* (1976); *Two Minute Warning* (1976); *3 Women* (1977); *Checkered Flag or Crash* (1977); *Demon Seed* (1977); *Rollercoaster* (1977); *Brass Target* (1978); *The Cheap Detective* (1978); *FM* (1978); *Game of Death* (1978); *Moment by Moment* (1978); *Escape to Athena* (1979); *H.E.A.L.T.H.* (1979); *The Ravagers* (1979); *Wanda Nevada* (1979); *Winter Kills* (1979); *Hopscotch* (1980); *Silver Dream Racer* (1980); *Wholly Moses* (1980); *The Star Chamber* (1983); and *Desert Bloom* (1986).

<<Page 134 “System 35/Super 35 film list”>>

The “System 35” process is now commonly referred to as “Super 35”. The film *Absolute Beginners* (Orion, 1985) belongs in the 70mm blowup list rather than being listed here. The films *At Close Range* (1986) and *Ferris Bueller’s Day Off* (1986) should be added to this list.

<<Page 135 “Technovision film list”>>

Reds (Par, 1981) should be removed from the list since it was photographed with spherical lenses.

<<Page 135 “Todd-AO 35 film list”>>

Omissions from the list include: *Diary of Forbidden Dreams* (1973); *The Pyx* (1973); *What?* (1973); *Boss Nigger* (1974); *The Treasure of Jamaica Reef* (1974); *Conversation Piece* (1975); *Trained to Kill* (1975); *Zebra Force* (1977); and *Mountain Family Robinson* (1979).

SECTION IV. THE WIDE FRAME PROCESSES

<<Page 144 Paragraph 1“Hill-Alberini system”>>

As was indicated previously, the 35mm pull-across format by Alberini and Hill was a ten perforation frame, not eight perforations.

<<Page 144 Paragraph 2 “Magnifilm/Hill-Alberini system”>>

As was indicated previously, Paramount’s 56mm format was spelled Magnafilm, not Magnifilm. The authors also state that the VistaVision camera “...exposed eight perforations (two frames) instead of the regular four frames of vertical movement...” This should say four perforations rather than frames. And although Paramount may have been motivated by the Hill-Alberini system to use the horizontal format for photography, the first two cameras actually used for *White Christmas* were converted William Fox “Natural Color” cameras made by William P. Stein & Company of New York and were used with Leica lenses. The authors also assert that Paramount felt that 1.85 x 1 was the proper shape for the screen. In fact, Paramount originally recommended the use of a 2.00 x 1 aspect ratio for their anamorphic prints, and about the same shape (1.96 x 1) for the 8-perforation horizontal prints.

<<Page 146 Paragraph 2 “VistaVision horizontal prints”>>

The authors state that, officially, *Strategic Air Command* was the first VistaVision film released in double frame horizontal format, and they suspect that *White Christmas* was shown as an experiment of sorts in Los Angeles. In fact, *White Christmas* premiered on October 14, 1954 at Radio City Music Hall using prototype horizontal projectors. These were built on extremely short notice with a phone order to Century Projector Corp. placed on September 23rd. It is suspected that the decision was made on short notice to use the horizontal format due to the size of the screen and the desire to have a bright image. Sound was provided from an interlocked standard 35mm projector since the sound head was not included in the prototype projectors. An additional set of prototype horizontal projectors was installed at the Stanley-Warner Beverly Hills Theater and another set was installed at the Paramount lot at about the same time frame.

<<Page 146 Paragraph 2 “White Christmas”>>

The authors state that *White Christmas* “was shot before the improved cameras were ready”, and “although the results were still outstanding, they were not up to the quality of the films that followed.” It is hard to understand why *White Christmas* would not look as good on screen as later films due to the age of the camera. They also claim that anamorphic aperture plates were commercially manufactured and bore the legend VV 2x1. This is very unlikely since the recommended aperture plates for anamorphic VistaVision were exactly the same dimensions as the existing Academy aperture plates that had been used for decades. Test/alignment films were made that included the markings “VV 2.0 x 1” on the Academy projector markings to ensure that projectionists knew they were the same dimensions on the film.

<<Page 147 Paragraph 2 “VistaVision cameras/Camera 65”>>

It is claimed that two VistaVision cameras “...were sold to Daiei in Japan, ...but had them converted to 70mm and dubbed the process Super 70 Technirama.” The cameras were obviously not converted to 70mm but were conventional 8-perforation pull-across 35mm cameras. The authors also claim that the expense of using VistaVision was approximately four times that of spherical 35mm. This claim is hard to justify since only twice as much film stock is used in photography. Later in the same paragraph, the authors state that “MGM...briefly considered the Fearless Super Picture process...as the basis for Camera 65.” As previously indicated, there has been some confusion between the Fearless Super Picture 35mm process and the Fearless Super-Film 65mm process. The Camera 65 process, except for the anamorphic lenses, is basically the same as the Super-Film process with the aperture widened to include the area previously reserved for the soundtrack. This of course makes it the same as the Todd-AO camera format without making it sound like directly copying Todd-AO.

<<Page 147 “VistaVision specifications”>>

The specification for “Ground glassing markings” should read “Ground glass markings”. The specification for “Film movement” is given from left to right, but this actually means the movement of the film is from the right side of the camera (or projector) to the left side as illustrated for the projector on page 149.

<<Page 150 “VistaVision negative frames caption”>>

The authors state that “...later VistaVision cameras had a reduced height aperture that blocked the top area of the frame that would be filled in by the Perspecta Stereophonic Soundtrack.” This appears to be false. I have not located a specification for a reduced height camera aperture in any of the literature that I have examined. It would not have been necessary to use a smaller aperture since the soundtrack could have been added to the horizontal

prints using standard soundtrack printing techniques. The published specifications for the camera aperture remained at either the initial specification of 1.485 x 0.991 inches or else the nearly identical 1.486 x 0.992 inches specified for Technirama cameras. And frames from films photographed in the later years of VistaVision show that the same aperture size was used.

<<Page 151 “8-perforation VistaVision release print specifications”>>

The authors give the aspect ratio for the large aperture 8-perforation VistaVision release prints as using a cropped aspect ratio of 1.66 x 1, 1.85 x 1, and 2 x 1, and an uncropped aspect ratio of 1.50 x 1 with squared corners. In fact, the recommended aperture for such prints was 1.4180 x 0.7225 inches which had an aspect ratio of 1.96 x 1 (nearly the same as 2 z 1). The original specification had the center of the projector aperture 0.6952 inches from the guided edge of the film. This was quickly changed by moving the projected area further from the soundtrack area and having the center of the projector aperture be the same as the center of the film and camera aperture. The 1.66 x 1 and 1.85 x 1 ratios were not recommended for use with 8-perforation release prints. And since an optical track was added to the print, there is no basis for the 1.50 x 1 “uncropped” aspect ratio on 8-perforation release prints. The only reason for the “squared corners” on the *White Christmas* negative was because the Natural Color camera aperture had been filed to the desired size. Later VistaVision camera apertures had slightly rounded corners.

<<Page 151 “Footnote for VistaVision specifications”>>

The authors claim that no complete feature has been made using the “Anamorphic reduction format”. In fact, *Buddha* and *The Great Wall* were released this way, and all of the elements of *Tron* were rephotographed or rendered in this format for conversion to 35mm anamorphic prints and 70mm prints.

<<Page 152 Paragraphs 3 “Technirama cameras”>>

The authors state that only marginally modified cameras would be necessary. In fact, the original Technirama cameras were made from extensively modified 3-strip Technicolor cameras.

<<Page 152 Paragraphs 4 “Technirama camera aperture”>>

It is claimed that the Technirama camera aperture was taller than the VistaVision camera aperture since the VistaVision camera aperture allowed for placement of an optical soundtrack. In fact, as can be seen in the dimensions of the camera apertures as given by the authors, the Technirama camera aperture specification was only 0.001 inch taller than the VistaVision camera aperture specification.

<<Page 152 Paragraphs 5 “Technirama”>>

The authors state that it is unlikely that many, if any, features were released in eight perforation prints for projection. There were several features released this way. In fact, the first showing of the first Technirama film, *The Monte Carlo Story*, used eight perforation projection. 8-perforation horizontal 35mm Technirama projectors were manufactured by Microtechnica in Italy and by Gaumont-Kalee in England.

<<Page 153 Paragraphs 1-2 “Technirama”>>

The authors imply that Superscope lenses may have been used for the optical conversion from Technirama to standard 35mm anamorphic format. In fact Technicolor Corporation stated that the printer lenses were made by Panavision and Taylor, Taylor and Hobson. The Panavision printer lens was not the Super-Panatar prismatic lens used for projection but was rather a specially designed Micro-Panatar lens. In addition, the authors state “Producers, when faced with the choice, generally went with VistaVision if they wanted a large format negative.” This is contradicted by the authors’ own accounting of films on pages 160-162, which from the beginning of 1958 (shortly after Technirama became available) until 1963 (when the last VistaVision film was made) gives Technirama used by seven studios on 21 films vs. VistaVision used by three studios for four films (not including those made by Paramount where the producers would not have had a choice). And this doesn’t even include Super Technirama 70 films.

<<Page 153 “Technirama release print specification”>>

The aspect ratio is the same as for conventional ‘scope which is 2.35 x 1, not 2.34 x 1. It is an insignificant difference, but there is no basis for quoting a difference.

<<Page 153 “Technirama 8-perforation release print specification”>>

The authors did not include the specification for 8-perforation horizontal 35mm Technirama theater prints. The recommended aperture for these prints was 1.421 x 0.881 inches. With a 1.5 anamorphic expansion, this gave a projected aspect ratio of 2.42 x 1.

<<Page 155 “Technirama trade ad”>>

The Technicolor trade ad reproduced in the book lists as Technirama productions titles including *Davy*, *Sea Wall*, and *Souvenir D'Italie* (which was released in the United States as *It Happened In Rome*). Yet the book does not include these titles in the list of Technirama films.

<<Page 157 Paragraph 3 “Super Technirama 70”>>

There is a reference that Super Technirama 70 films benefited from being advertised as “photographed in 70mm.” It should be clarified that the films were, in fact, not filmed in 70mm but in Technirama.

<<Page 157 Paragraph 3 “Caption for *Solomon and Sheba*”>>

The caption for the advertisement for *Solomon and Sheba* indicates that it was the first feature to utilize the Super Technirama 70 process. *Sleeping Beauty* was the first film released that utilized the process as indicated by the release dates given in the filmography.

<<Page 159 “35mm to 70mm blowup”>>

The authors state that “The Cardinal [1963] was the first full-length feature completely blown up from 35mm to 70mm.” There are several reports that the film *Taras Bulba* [1963] was blown up to 70mm and shown in Europe prior to *The Cardinal* receiving this treatment. In fact, *Bye, Bye Birdie!* [1963] is listed by the authors as a 35mm to 70mm blowup, yet it was released several months before *The Cardinal*. I have not located any confirmation of *Bye, Bye Birdie!* having been presented in 70mm.

<<Page 159 “Super Technirama 70 specifications”>>

The actual projected aspect ratio is the stated projected image width (1.913 inches) divided by the stated projected image height (0.866 inches) which is 2.21 x 1. It is not 2.05 x 1 as claimed by the authors on this page and in numerous other places in the book.

<<Page 160-161 “VistaVision film list”>>

It should be pointed out that the VistaVision films noted by an asterisk are primarily Perspecta releases rather than separate magnetic stereo releases. However, there are reports of some VistaVision films that used interlock magnetic stereo for some showings. Some of the films shown with asterisks were actually released without either Perspecta or interlock stereo. For example, most of the films made by Alfred Hitchcock are only in mono. The vast majority of the films marked with an asterisk were available only with Perspecta. Omissions from the list include: *You're Never Too Young* (1955); *The Court Jester* (1956); *The Admirable Crichton* (1957); *Omar Khayyam* (1957); *The Black Orchid* (1958); *Hell Drivers* (1958); *Houseboat* (1958); *But Not for Me* (1959); *Li'l Abner* (1959); *That Kind of Woman* (1959); and *It Started in Naples* (1960). The authors mention that there were nine short travelogues called *VistaVision Visits...* but then decide not to include them in the list. For the record, the nine travelogues were *VistaVision Visits Norway* (Par, 1954); *VistaVision Visits Hawaii* (Par, 1955); *VistaVision Visits Japan* (Par, 1955); *VistaVision Visits Mexico* (Par, 1955); *VistaVision Visits Spain* (Par, 1955); *VistaVision Visits the Sun Trails* (Par, 1955); *VistaVision Visits Austria* (Par, 1956); *VistaVision Visits Gibraltar* (Par, 1956); and *VistaVision Visits Panama* (Par, 1956). A VistaVision short subject worth noting was *The Door In the Wall* (BFI, 1955) which also utilized a technique called “Dynamic Frame” that incorporated changing aspect ratios and image sizes. Another VistaVision short subject worth noting was *Williamsburg: The Story of a Patriot* (Colonial Williamsburg Foundation, 1957) which was the only 8-perf VistaVision film to use a projected format with 6 magnetic tracks on 35mm film with CinemaScope (CS) perforations. *Williamsburg: The Story of a Patriot* was shown in two special theaters at Williamsburg, Virginia for many years.

<<Page 161-162 “Technirama film list”>>

Omissions from the list include: *Davy* (1957); *Les Miserables* (1957); *The Sea Wall (Regazza Del Palio)* (1958); *Honeymoon* (1959); *It Happened in Rome (Souvenir D'Italie)* (1959); *The Love Specialist* (1959); *The Man With the Green Carnation* (1960); and *Imperial Venus* (1962).

<<Page 162-163 “Super Technirama 70 film list”>>

It should be noted that some of the films in this film list were advertised as Technirama rather than Super Technirama 70 in the credits, and that some of the films were released in the United States in 35mm only (which is acknowledged in some cases by the authors in the filmography.)

SECTION V. THE 70MM PROCESSES

<<Page 164 Paragraph 2 “70mm rate of magnification”>>

The authors attribute to the Phillips Corporation a claim that a 44-foot picture has a rate of magnification for 70mm film of 80,400 times versus 406,000 times for 35mm film. This number is very deceptive and is based on the use of a 35mm film with a spherical lens and a projector aperture height that is approximately equal to 2-perforations tall or roughly the same size as a Techniscope camera frame. A more realistic comparison is with a 2.35 x 1 CinemaScope frame filling a screen with the same square footage. This would result in a magnification of about 220,000 times the area of a CinemaScope projector aperture. But it is still true that a 70mm projected image can be brighter and have a less-grainy picture due to the larger frame.

<<Page 164 Paragraph 3 “Todd-AO steadiness”>>

It was claimed that the increased frame rate of 30 frames per second for the original Todd-AO resulted in a much steadier image on the screen. The improved steadiness (due to jump and weave errors) was partly due to the faster frame rate but mainly due to the smaller magnification of any movements in the projector compared to 35mm.

<<Page 165 Paragraph 2 “This Is Cinerama premiere engagement”>>

As was indicated previously, *This Is Cinerama* moved from the Broadway theater to the Warner theater in June, 1953.

<<Page 165 Paragraph 5 “Cinerama sound”>>

As was indicated previously, Cinerama had a seven-channel sound reproducer rather than six-channels.

<<Page 166 Paragraph 4 “Prior use of 70mm”>>

The reference to Fox, MGM and United Artists using 70mm in 1929 should not include United Artists since they used 65mm as was indicated previously. Also, the test footage of Todd-AO was with converted 65mm Thomascolor cameras (which were modified Fearless Super-Film cameras), not the Mitchell cameras as claimed by the authors.

<<Page 168 Paragraph 3 “Todd-AO projection”>>

The authors state that any theater equipped with Todd-AO could show 70mm, CinemaScope or standard “flat” 35mm films. Although this is technically true, the deeply curved screen caused focus difficulty and sometimes severe distortion with CinemaScope projection. Todd-AO had developed a “rectified” 70mm print for downward projection onto a deeply curved screen to permit projection from existing projection booths in theaters. But this did not help CinemaScope projection. This was the main reason that the specification of a deeply curved screen for Todd-AO installations was quickly abandoned. Ironically, a technique was later developed which could correct this distortion with CinemaScope projection.

<<Page 168 Paragraph 4 “Todd-AO film speed”>>

The text states “...faster film speed of 140.6 frames per minute (35mm normally ran at 90 frames per minute).” These numbers should be, of course, in feet per minute. Also, the short *The Miracle of Todd-AO* was 30 frames per second as well as the features listed.

<<Page 168 Paragraph 5 “Todd-AO and anamorphic”>>

The authors claim that “...those first two Todd-AO productions were also photographed in 35mm anamorphic. Dual camera setups were used on both films. ...a suitable optical printer had not yet been constructed that could render a faultless 35mm anamorphic print from the original 65mm negative.” The film *Oklahoma!* was also filmed in CinemaScope, with supposedly only about ten scenes shot with side by side cameras. But due to the differences in the field of view of the lenses, alternate camera setups were used for most of the film. Due to these difficulties, *Around the World In 80 Days* was not filmed in CinemaScope but rather in 24 frames per second Todd-AO in addition to 30 frames per second Todd-AO. In general, the same camera was used for different takes with the speed indicated on the camera slate. The main reason for the 24 frames per second filming of the two features was to provide prints for general release since experimental conversions from 30 frames per second to 24 frames per second were deemed unsatisfactory.

<<Page 170 Paragraph 2 “Todd-AO lenses”>>

The four lenses quoted for Todd-AO use were the original lenses used. There were other lenses (including zoom lenses) used on later films.

<<Page 170 Paragraph 3 “Todd-AO sound”>>

The text refers to quotes that Todd-AO used seven audio channels – six sound channels plus one control. This was partly marketing publicity. There were six tracks of audio on the print. The use of a control channel was optional and was to be included on track 6 with the surround audio. The control channel could have been chosen to be Perspecta control tones to provide directional surround, or could have been chosen to be the same 12 KHz tone used with the CinemaScope effects track to turn on the surround channel. I am not aware of any documented usage of any Todd-AO film titles that used any control tones. It should also be noted that a large number of Todd-AO films were mixed for three screen channels which were then “spread” to fill the five screen channels.

<<Page 172 Paragraph 1 “Todd-AO sound”>>

The first showings of Todd-AO did use an interlock arrangement, but this was primarily due to the late efforts to make “rectified” prints.

<<Page 172 Paragraph 4 “Cinestage”>>

The authors claim that Cinestage was a reduction from the 65mm 30 frames per second negative. They also state that Cinestage prints had to be projected on 35-70 projectors since 35mm projectors could not operate at 30 frames per second. In fact, the Cinestage prints shown in the United Kingdom used Gaumont-Kalee 21 projectors operating at 24 frames per second. There were definitely 24 frames per second versions with the 1.567 x squeeze which were used in many theaters including some in the United States. There has been no verified usage of 30 frames per second Cinestage prints. Cinestage theater prints used the same mag-stripped film with the smaller perforation holes that was used by CinemaScope except that there was no optical track as was used with Magoptical sound. The original recommended projector aperture was 0.912" x 0.675" which was the same width as the original 2.55 x 1 CinemaScope aperture but with a shorter height. However, due to encroachment of the magnetic striping into the picture area, the final recommended projector aperture for the format was 0.906" x 0.675". The main reasons for the unusual format wasn't just the tax policy in the United Kingdom, but to provide a greater distribution for roadshow use. Prints used in the United Kingdom were trimmed to 34mm to avoid the restrictions on 35mm prints. The 34mm Cinestage prints used in England were not magnetically striped and were run in interlock with a 6-track magnetic reproducer. One millimeter was trimmed from the film edge near the right side of the image.

<<Page 172 Paragraph 4 “Cinestage use of Perspecta”>>

It should be pointed out that the use of a Perspecta integrator for creating the directional surround effect required a modified Perspecta integrator. Normal 4-track magnetic stereo included a 12 KHz control tone added to the surround channel to switch on the surround speakers whenever they were to be used. The absence of this control signal would switch off the surround speakers to avoid having the hiss from the speakers distract the audience when the surround track was not in use. The Cinestage version of Perspecta did not use the 12 KHz control tone but rather used the Perspecta control tones to silence the surround speakers. The modification to the Perspecta integrator unit was to keep the three output channels on all the time and let the control tones adjust the volume, rather than the normal technique of switching off the side channels when the tones were absent. This ensured that all surround speakers would be used rather than just the back wall speakers as a fail-safe mode for the Cinestage prints and for non-Perspecta encoded surround tracks.

<<Page 173 Paragraph 2 “MGM Camera 65”>>

The authors state that MGM “...had rejected the 35mm 10-perf-per-frame horizontal movement Fearless Super Picture process originally developed in 1927 after testing; owner Ralph G. Fear had already announced to the industry that his system would be used as the basis for MGM Camera 65.” There is probably some confusion by either the authors or the referenced industry reports concerning the Fearless Super Picture format and the Fearless Super-Film format. The latter was a 65mm camera format and, with the camera aperture widened over the area reserved for the soundtrack in the original format, was basically the same as Todd-AO without sounding like a copy of Todd-AO.

<<Page 173 Paragraph 3 “MGM Camera 65 squeeze”>>

The authors claim that, for MGM Camera 65, “The anamorphic compression ratio was variable from 1.25 x 1 to 1.33 x 1.” The exact squeeze ratio used has been the source of much confusion. The specifications given by the SMPTE and early trade references quote the 1.33 x 1 ratio. The ratio for Ultra Panavision 70 was definitely a 1.25 x 1 ratio. I have never seen any other reference that indicated that the squeeze ratio was adjustable on the original lenses. I contacted Panavision Inc. and asked about this. They indicated that the format was originally intended to

be a 1.33 x 1 squeeze factor, but this was found to be unnecessary and excessive and the actual squeeze factor used for all photography was 1.25 x 1. The lenses did not have an adjustable squeeze but instead had a fixed 1.25 x 1 squeeze. This has been confirmed by measurements on a Camera 65 lens which, although marked as having a 1.33 x squeeze, actually has a 1.25 x squeeze. It is possible that the authors have confused the "Ultra Panatar" lens (which used adjustable wedged prisms but was intended only for projection) with the "Apo Panatar" lenses that were the fixed squeeze lenses used for Ultra Panavision 70.

<<Page 173 Paragraph 6 "MGM Camera 65 on 35mm prints">>

The authors point out that "Thirty-five mm anamorphic prints of *Raintree County*, which was advertised in Camera 65, had a 2.55 x 1 aspect ratio instead of the usual 2.35 x 1. This was done in order to retain the 'visual purity'. The same format was not followed on *Ben-Hur*." It should be clarified that the prints used a reduced image with a 0.839" x 0.650" area. This was used instead of the standard 2.55 x 1 CinemaScope aperture since use of that aperture had been virtually discontinued, and to allow use of the aspect ratio with optical and magoptical prints. And the same format was used for *Ben-Hur*. Later prints of both of these features had the standard full-height 2.35 x 1 aspect ratio.

<<Page 174 Paragraph 1 "MGM Camera 65 use of 65mm and 70mm prints">>

The authors state that Camera 65 was to initially use either 65mm or 70mm prints. This was stated in early press releases about the format. However, *Raintree County* was released only in 35mm and *Ben-Hur* was not released with 65mm prints. It should also be noted that Todd-AO also initially used either 65mm or 70mm prints. In fact, the first showings of *Oklahoma!* in Todd-AO used 65mm prints with interlocked full-coated 35mm film for the stereo sound.

<<Page 174 Paragraph 2 "MGM Camera 65 use on *The Big Fisherman*">>

The Big Fisherman used the Camera 65 cameras but used spherical lenses for photography.

<<Page 177 Paragraph 1 "Cinerama & Ultra Panavision 70">>

The authors claim "70mm Super Cinerama projection lenses were spherical and Ultra Panavision 70 prints were projected with the squeeze intact and no optical conversion was used. People and objects appeared thinner than normal in the middle of the screen but approximately normal on the sides due to 'screen stretch'." This is confusing in that there were optically rectified prints used for Ultra Panavision 70 films for Cinerama screens. When these prints were used, people and objects appeared relatively normal over the entire screen. The prints had a graded squeeze factor that canceled the "screen stretch" effect.

<<Page 177 "MGM Camera 65 and Ultra Panavision 70 specifications">>

The compression was fixed at 1.25 x 1 for both Camera 65 and Ultra Panavision 70 as was stated previously. Although wider aspect ratios were considered during development of Camera 65, the final format as utilized on *Ben Hur* used the standard Todd-AO projector aperture size with the 1.25 x 1 squeeze which gave a 2.75 x 1 aspect ratio. However, many theaters used a narrower aperture or screen masking to reduce this to about a 2.59 x 1 or even narrower aspect ratio.

<<Page 178 Paragraph 4 "Super Panavision 70 aspect ratio">>

Super Panavision 70 had a 2.21 x 1 aspect ratio and was not 2.05 x 1.

<<Page 178 Paragraph 5 "Panavision 70">>

The 35mm to 70mm enlargement process was introduced in 1963, not 1964. And it was within four years (in 1967) rather than two that spherical 35mm was given blowup treatment. The authors claim that the term "Panavision 70" refers to enlargements to 70mm prints from 35mm originals. In fact, the term "Panavision 70" was originally used by Panavision Inc. to refer to all of their 70mm processes.

<<Page 178 Paragraph 6 "Panavision 70 blowups">>

There are several reports that the first title to receive the 70mm blowup treatment was for some European showings of *Taras Bulba* rather than *The Cardinal*.

<<Page 179 Paragraph 2 "Todd-70">>

Todd-70 did not use lenses from Panavision. Todd used modified lenses originally intended for still camera use. The authors also claim that Todd-70 release prints "... had framelines at slight variance from Todd-AO – so slight

that the difference was noticeable only when the image hit the screen and had to be reframed or spliced.” There is no specification and no evidence to support this claim. In fact, published frame samples from *Scent of Mystery* show no deviation from normal 70mm printing practice.

<<Page 180 “Caption for *The Horsemen*”>>

The authors state that *The Horsemen* was not shot in Super Panavision 70. In fact, production began using Super Panavision 70 but changed over to anamorphic 35mm Panavision during production. The final film includes footage shot with a mix of both formats. Although it was released only in 35mm in the United States, it was released in 70mm for foreign release.

<<Page 181 “Sovscope 70”>>

The first Soviet 70mm release, *Poema o moyre (Poem of the Sea)*, was apparently photographed on 65mm negative using a Todd-AO camera that was loaned to them by Michael Todd. The second Soviet 70mm release, *Povesti plamennikh let (The Flaming Years)*, also sometimes called *The Story of Flaming Years*, was apparently photographed on 70mm negative using the Soviet 70SK camera. This was reported in the May 1960 issue of the *Journal of the SMPTE* and it includes a photo of the 70SK camera. The lenses available for this camera included 28mm, 40mm, 56mm, 75mm, and 100mm focal lengths.

<<Page 181 “Hi Fi Stereo 70mm”>>

There is no such format as Hi Fi Stereo 70mm, despite the very misleading name of the production organization. *Mark of the Devil* was photographed using conventional spherical 35mm photography.

<<Page 181 “DEFA 70”>>

There is no mention by the authors of this 70mm format that was developed in the German Democratic Republic (East Germany). The format most closely resembled Sovscope 70 including the use of 70mm rather than 65mm film in the camera. Although the films photographed in DEFA 70 received very little distribution in the United States, it is still worth noting the format for historical reasons and special showings. Films made in the format and their original German release dates include: *DEFA 70* (Short subject, 1967); *Hauptmann Florian von der Mühle* (which translates as *Captain Florian of the Mill*) (1968); *Du bist min - Ein deutsches Tagebuch (You are Mine - A German Diary)* (1969); *Signale - Ein Weltraumabenteuer (Signals: A Space Adventure)* (1970); *Goya - oder Der arge Weg der Erkenntnis* (which roughly translates as *Goya - or the Bad Way of the Realization*) (1971); *K.L.K. an P.T.X. - Die Rote Kapelle (KLK Calling PTZ: The Red Orchestra)* (1971); *Eolomea* (1972); *Lützower* (1972); and *Orpheus In Der Unterwelt (Orpheus in the Underworld)* (1974).

<<Page 181 “Footnote for 70mm specifications”>>

The authors state that the camera frame corners of Superpanorama 70 images had rounded corners to be different from Todd-AO images which had squared corners. Photos of negative images from *Oklahoma!* and other Todd-AO films also show rounded corners.

<<Page 182 “Sovscope 70 camera caption”>>

The Sovscope 70SK camera is hard to recognize in the photograph due to the sound absorbing blimp. The blimp on the camera looks quite a bit different from the blimped Ultra Panavision 70 units, and the 70SK camera itself only slightly resembles the Ultra Panavision 70 camera.

<<Page 183 “70mm release print specifications”>>

The given specifications include what is perhaps the major error that occurs the most times throughout the book: The authors claim the projected aspect ratio of 70mm is 2.05 x 1. The projected image dimensions are given in this paragraph as 1.913" x 0.866" which is the original specification recommended for Todd-AO. When Super Technirama 70 came out, the height was slightly increased to 0.868". And then in the mid-1960's, the standard settled at a height of 0.870". There are slight variations on these dimensions depending on whether a nominal or maximum specification is used, which is the case when comparing the SMPTE specification with the ISO specification. The ratio is 2.21 x 1 or 2.20 x 1 with these projectable areas, and the soundtrack does not affect these dimensions since the width available for the picture area between the magnetic stripes is 1.924". (It was originally 1.954" until the stripes were widened in the mid-1980's.) R.M. Hayes has stated elsewhere that the 2.05 x 1 value comes from a maximum image size of 48mm x 23.5mm which was obtained by measuring the images on film samples with a ruler. To call this approximated area the specified “maximum projectable area” to two places beyond the decimal point is in contradiction not only with accepted practice of using a slightly smaller area for projection, but it is also not in keeping with the authors quoting the specified standard apertures for 35mm formats.

Although enlargements from 35mm films can fill this 48mm x 23.5mm area, the size of the projector aperture is limited by the smaller height of images exposed by 65mm cameras and the desire to minimize visibility of film splices on the screen. By the way, the actual size of the image on the projection print (not the "maximum projectable area") for 65mm photography is the width between the inner oxide stripes of 1.924" (48.9mm) and the height of the 65mm camera aperture which is given by the Todd-AO Corporation and the Panavision Corporation as 0.9055" (23mm). This more precise method of measurement gives an aspect ratio of 2.12 x 1 for the image area on the film. Thus the 2.05 x 1 aspect ratio used here and throughout the book is totally without merit. 70mm enlargements which are cropped to have a narrower aspect ratio (using black areas on each side of the image) still use the same projector aperture as was quoted above.

<<Page 183 Paragraph 1 "IMAX feature films">>

At the time the book was published, all IMAX films were under 1 hour. However, this is no longer the case. Feature length films have now been made in IMAX, but so far they have been shown only in IMAX theaters instead of conventional theaters. The first feature-length IMAX film was *Rolling Stones at the Max* in 1991.

<<Page 183 Paragraph 2 "IMAX sound">>

Besides the magnetic interlock sound used with most IMAX films, some films in some theaters have used three compact discs which provide six channels of digital audio. Special circuitry is used to ensure all audio channels are synchronized and in phase with one another. This system is known as the Sonics Digital Disc Playback (DDP) system. Since the book was written, IMAX Corporation has introduced an improved sound system called the Digital Theatre Audio Control (DTAC) system which uses digital audio played back from a hard disk.

<<Page 183 Paragraph 3 "OMNIMAX">>

OMNIMAX premiered on March 10th (not August) of 1973 with a show that was a combination of *Voyage To the Outer Planets* and *Garden Isle*. It should be clarified that the curved screen used with OMNIMAX is a dome screen and not a cylindrical screen. The "optical conversion for the concave" referred to by the authors is just a reduction of the IMAX image to a slightly smaller area so that there is less distortion on the screen. There is (so far) no curvilinear distortion correction introduced to the image on such prints. The OMNIMAX format name has been changed to "IMAX Dome" since the book was written.

<<Page 184 "IMAX cameras caption">>

The statement "The tonque is automatically regulated." should be changed to "The torque is automatically regulated." And despite the implication by the authors that the camera is "an extraordinary special effects unit", it had never been used for special effects on anything other than IMAX films at the time the book was published.

<<Page 185 Paragraph 2 "IMAX equipment wear and feature film use">>

The authors assert that there is substantial wear on both photographic and projection IMAX equipment. In fact, there is very little wear on IMAX projection equipment. The authors also assert that IMAX will never be a general film process, yet since the book was published, IMAX has been used for several feature film releases.

<<Page 185 "IMAX camera negative specification">>

The specification "Frame height – 2.558" " is without meaning (in fact, it is the actual specification for the 65mm width of the film) and should be deleted.

<<Page 185 "IMAX camera negative specification">>

It is stated that the film travels horizontally, but not which direction. Basically, the film travels from the right side of the camera to the left side.

<<Page 187 "IMAX release print specification">>

The "Area" dimension should be 3,382 sq. mm, not 3.3382 sq. mm. The "Pullcross" dimension should be 2.805", not 3.805". The specification "Frame height – 2.754" (69.95mm)" is without meaning (in fact, it is the actual specification for the 70mm width of the film) and should be deleted. Incidentally, the given dimensions are for the IMAX format as originally specified. The current specifications (which were in effect at the time the book was written) are the same except for the following changes: Aspect ratio: 1.435 x 1; Area: 5.233 sq. in. (3,376 sq. mm); Diagonal: 3.340" (84.84mm); Projected image height: 1.91" (48.51mm). The remaining dimensions are the same. The current specifications for OMNIMAX are: Area of ovoid: 4.13 sq. in. (2,665 sq. mm); Projected image height: 1.98" (50.29mm).

<<Page 187 “Todd-AO film list”>>

The short subject listed, *The Thrill of Todd-AO*, is actually called *The Miracle of Todd-AO* and was released in 1956 after *Oklahoma!* had been in roadshow exhibition for a few months. An additional short subject is missing from the list: *The March of Todd-AO* released by Magna in 1959. The feature *Cleopatra* was released in 1963, not 1965. Also, the authors speculate that the Soviets may have used Mitchell Todd-AO cameras for the first two Soviet 70mm films. *Povest plamennikh let (The Story of Flaming Years)* was in fact photographed on 70mm negative with the Soviet 70SK camera used for the Sovscope 70 format. *Poema o morye (Poem of the Sea)* was apparently photographed on 65mm negative using a Todd-AO camera loaned to the Soviets by Michael Todd.

<<Page 187 “IMAX photo caption”>>

The frame sample of IMAX is shown flipped left-right for no particular reason. 16mm uses a 1.33 x 1 aperture, not the 1.37 x 1 aperture claimed by the authors.

<<Page 188 “Todd-AO film list”>>

The film *Airport* was released in 1970, not 1969. Also, missing from the list is the feature film *Hello, Dolly!* released by 20th Century-Fox in 1969 (which is included in the filmography) and the short subject *Man in the 5th Dimension* which was shown in the Billy Graham pavilion at the 1964 New York World’s Fair.

<<Page 188 “Todd-70 film list”>>

The authors neglected to include a listing of the films photographed in the Todd-70 format. The two films in the process are *Scent of Mystery* (Todd, 1960) and the short *The Tale of Old Whiff* (Todd, 1960).

<<Page 188 “Super Panavision 70 film list”>>

The Big Fisherman belongs in the Super Panavision 70 list and not in the Ultra Panavision 70 list since it was filmed with spherical optics. (This has been confirmed by examination of the camera negative.) The films *Tron* and *Brainstorm* only used sequences in Super Panavision 70. Most of the computer graphics in *Tron* were done in VistaVision and most of *Brainstorm* was filmed in 1.66 x 1 35mm. The list is also missing a short subject, *Auto-E-Motion*, which was a BMW promotional film made in 1984.

<<Page 188 “Superpanorama 70 film list”>>

Some films are missing from the list of films photographed in Superpanorama 70 (also known as MCS-70). The missing films include *Motion* (Short subject, 1967); *Sky Over Holland* (Short subject, 1967) which was listed by the authors in the filmography; and *The Loves of Liszt* (1970).

<<Page 188 “Other 65mm originated film list”>>

The feature film *Playtime* (Continental, 1973) was listed by the authors in the 70mm Blowup list, probably because it was hard matted at about a 1.66:1 aspect ratio on the 70mm prints. However, it was actually photographed with a Mitchell 65mm camera. There have been various theories stated as to why the narrow aspect ratio was used for this film. I believe the theory that director Jacques Tati wanted to “play” with the edges of the frame in the composition without worrying about the masking in the theaters. Other films that should be listed include *Magic Journeys* (Disney, Short subject, 1982) which was in Kodak-Disney 3D (dual 65mm cameras at 30 frames per second) and which is listed by the authors in the filmography; *Captain EO* (Disney, Short subject, 1986) which was also in Kodak-Disney 3D; *The Circus* (Short subject, 1973) which was filmed with a Todd-AO camera on its side and projected in 70mm onto a tall narrow screen; *Probes In Space* (Graphic Films, Short subject, 1975) which was photographed with a 5-perforation Todd-AO camera fitted with the fisheye lens used for Cinerama 360; *Symbiosis* (Short subject, 1982) which was apparently filmed with Super Panavision 70 cameras but at 30 frames per second; *Water, The Source of Life* (Short subject, 1984) which was the first film in Stereospace 2000 (3D using dual 65mm cameras at 30 frames per second); and *3D Fantasiuum* (Short subject, 1985) which was also made in Stereospace 2000.

<<Page 194-195 “IMAX and OMNIMAX film list”>>

Standing Up Country was filmed in OMNIMAX, not IMAX. *Voyage to the Outer Planets* was a multimedia presentation with sequences which were filmed in Dynavision (which uses an eight perforation frame, not “double frame”) and then enlarged to OMNIMAX format. The film *Cosmos* is subtitled *The Universe of Loren Eiseley* and was also filmed in Dynavision. This film should not be confused with the film *Cosmos* which was the retitled *To the Moon and Beyond* filmed in Cinerama 360. (This is precisely the mistake made by the authors, and is clarified later in this document.) There are also the missing OMNIMAX films *Rivers of North America* released in 1976,

Universe released in 1977, and *Omni News* released in 1982, and the missing IMAX films *American Years* released in 1976, *Energy! Energy!* released in 1982, and *Heart Land* and *Weaving Ants* released in 1987. IMAX sequences were also projected onto a portion of a dome screen in the *Horizons* pavilion at EPCOT in Walt Disney World in Florida beginning in 1982. OMNIMAX sequences were also used in the 1973 multimedia presentation *Capture the Sun* (which should not be confused with the IMAX film *Catch the Sun* done the same year) but this is not listed on the official IMAX Corp. list of films. The film *Hail Columbia!* is listed out of alphabetical order. Also, the film *Skyward* was released in 1985 (not 1986), and the films *Darwin and the Galapagos* and *Ontario/Summertime* are actually titled *Darwin On the Galapagos* and *Ontario/Summertide* as listed in the filmography section of the book.

SECTION VI. THE 70MM BLOWUPS

<<Page 197 Paragraph 1 “70mm aspect ratio”>>

The authors wonder why 2.35 x 1 35mm anamorphic films weren't enlarged to Ultra Panavision 70 rather than spherical 70mm release since, so they claim, the aspect ratio is closer and it is odd that it seems never before to have been addressed in print. It is odd because the authors are wrong, as indicated in my comments regarding the 70mm print specifications given on page 183 of the book. In addition, cropping of side information is generally less critical than chopping off heads and feet.

<<Page 198 Paragraph 1 “Metroscope”>>

The comment “an astromonical success” should be changed to “an astronomical success”. “Astromonical” is an eyeglass for one eye for observing stars. (Sorry. That is my only attempt at a pun in this document.)

<<Page 199 Paragraph 2 “70mm stereo/screen brightness”>>

The authors claim that “...70mm does always render a brighter screen image...” and that a very few 70mm releases have utilized four-track or five-track audio reproduction. In fact, the recommended screen brightness is the same for both 35mm and 24 frames per second 70mm films, and is determined by the eye's susceptibility to flicker with a wide field of view at higher brightness levels. However, many theaters do not set 35mm at the recommended 16 fL level due to the use of a large screen but do show 70mm at a brighter level than that used for 35mm. (The 16 fL level is measured without film in the projector.) Also, 70mm prints have primarily used five tracks plus boom tracks since 1977, and since that time the full six track capability has been rarely used.

<<Page 200-206 “70mm blowup film list”>>

It should be noted that films included in this film list are not listed in their native format film list. Thus, for example, a comprehensive listing of Panavision films should also include not only those in the Panavision list but also those in the 70mm blowup list. It should also be noted that the release dates given are for the United States release of the 70mm version of a movie, and it may not necessarily coincide with the initial release of a movie. There are many movies listed in the authors' list as having been released in the United States in 70mm for which corroborating evidence has not been found, so the reader should be particularly cautious about the accuracy of this list. The following titles are listed with the wrong United States release dates: *Marooned* (Col, 1967; Panavision) was actually released in 1969; *House of Wax* (StereoVision; reissue; 1972; 1.33 x 1 StereoVision 3D) was actually released in 1971; *Napoleon* (Univ, 1981; Triptych) in 70mm was actually released in 1982; *Absolute Beginners* (Orion, 1985; System 35) was actually released in 1986; *The Entity* (20th-Fox, 1985; Panavision) was actually released in 1983; and *The Adventures of Buckeroo Banzai Across the 8th Dimension* (20th-Fox, 1986; Panavision) was actually released in 1984, and does not appear to have been released in 70mm. The film *Metamorphoses* (Sanrio, 1978; Panavision) was released in 1977, and the film *Winds of Change* (Sanrio, 1979; Panavision) was released in 1978 and is in fact the same film as *Metamorphoses* but with added narration. The film listed as “*We Will Rock You* (Swimmer, 1984; 1.33 x 1 to double from 70mm)” should say “... to double frame 70mm”, and it has been randomly placed among the 1985 releases instead of in the 1984 releases. In fact, it was released in 1983, and the film *We Will Rock You* was actually not 10-perforation “double frame” 70mm but rather used an 8-perforation frame for projection. Since the film *We Will Rock You* was actually a special venue presentation, the listing of the film here is deceptive. The following titles have the wrong photographic format listed: *The Rose* (20th-Fox, 1979; Panavision) was actually spherical; *Twinkle Twinkle Killer Kane* (UFD, 1980; Spherical Panavision) was actually anamorphic Panavision; *City Heat* (WB, 1984; Panavision) was actually spherical; *The Cotton Club* (Orion, 1984; Panavision) was actually spherical; *The River* (Univ, 1984; Panavision) was actually spherical; *A Chorus Line* (Col, 1985; Panavision) was actually Super 35; and *Young Sherlock Homes* (Par, 1985; Panavision) was actually spherical. The following titles should appear in boldface to indicate that they are included in the filmography: *Gone With the Wind* (MGM; reissue, 1967; spherical 1.33 x 1); *Tommy* (Col, 1975; Spherical 1.85 x 1); and *We Will*

Rock You (Swimmer, 1984; 1.33 x 1 to double frame 70mm). The movie *Earthquake* should be deleted from the 70mm blowup list since it was not released in 70mm in the United States (although it was released in 70mm in other countries). The movie *Playtime* (Continental, 1973; spherical 1.66 x 1) should be deleted from this list since it was photographed with Mitchell 65mm cameras but with a hard-matted narrower aspect ratio. It is also questionable if the film had been exhibited in 70mm in the USA at the time the book was published. The following titles are missing from the list: *Born Free* (Col, 1966; Panavision); *Half A Sixpence* (Par, 1968; Panavision); *Darling Lili* (Par, 1970; Panavision); *Scrooge* (Nat Gen, 1970; Panavision); *Woodstock* (WB, 1970; 16mm); *Seven Brides for Seven Brothers* (MGM, reissue, 1970; CinemaScope); *The Poseidon Adventure* (20th-Fox, 1972; Panavision); *Jesus Christ Superstar* (Univ, reissue, 1974; Todd-AO 35); *One By One* (Ellman, 1974; Spherical 1.85 x 1); *Panorama Blue* (Ellman, 1974; Panoramascop); *The Towering Inferno* (20th-Fox, 1974; Panavision); *The Trial of Billy Jack* (Taylor-Laughlin, 1974; Panavision); *Lucky Lady* (20th-Fox, 1975; Spherical 1.85 x 1); *The Wind and the Lion* (MGM, 1975; Panavision); *Comes a Horseman* (UA, 1978; Panavision); *Crossed Swords (The Prince and the Pauper)* (WB, 1978; Panavision); *Brimstone and Treacle* (UA, 1982; Spherical 1.85 x 1); *Hair* (Univ, reissue, 1982; Spherical 1.85 x 1); *The Thing* (Univ, 1982; Panavision); *Brainstorm* (MGM, 1983; Spherical 1.66 x 1 sequences); *Krull* (Col, 1983; Panavision); *Return of the Jedi* (20th-Fox, 1983; J-D-C Scope); *The Star Chamber* (20th-Fox, 1983; Panavision); *Metropolis* (Cinecom, reissue, 1984; Spherical 1.33 x 1); *Bring On the Night* (Samuel Goldwin, 1985; Spherical 1.85 x 1); *Revolution* (WB, 1985; Super 35); *The Color of Money* (Touchstone, 1986; Spherical 1.85 x 1); *Little Shop of Horrors* (Geffen, 1986; Spherical 1.85 x 1); *Manhunter* (DEG, 1986; Super 35); *The Mission* (WB, 1986; J-D-C Scope); *Nutcracker: The Motion Picture* (Atlantic, 1986; Spherical 1.85 x 1); and *Space Camp* (20th-Fox, 1986; Spherical 1.85 x 1).

SECTION VII. OTHER PROCESSES

<<Page 209 “Astrovision description”>>

Astrovision is the name of an aerial camera mounting system as noted by the authors, but it is also a motion picture photographic and projection process offered by the Goto Corporation in Japan. The format uses a 10-perf 70mm frame, and is typically projected onto a dome screen in a similar manner to OMNIMAX (now called IMAX Dome). In fact, many Astrovision films have been optically printed from IMAX or OMNIMAX camera negatives.

<<Page 210 “Dynamation description”>>

Dynamation and Dynarama are not “sandwich matte” techniques but rather names given to the stop motion techniques used by Ray Harryhausen.

<<Page 210 “Electrorama description”>>

Electrorama was black-and-white rather than color and was, in fact, the same equipment that was used for Electronovision Theatrofilm.

<<Page 212 “Futurevision 360 description”>>

First of all, the correct name of the process is FuturVision 360. The process does not use spherical lenses but rather anamorphic lenses with a 1.5 x vertical squeeze with 65mm film using a five perforation frame at 30 frames per second. The aspect ratio is 1.466 x 1. The process has only been used at demonstrations, and the demo film incorporated scenes optically printed from the IMAX film *Flyers* (implying the demo was at 24 frames per second).

<<Page 212 “Garutso Balanced Lenses”>>

These lenses consisted of an annular lens element (somewhat like a split diopter with a circular split) that caused the light rays using the outer part of the lens to focus at a different point than the rest of the lens.

<<Page 212 “Hemispheric and Dome Systems”>>

Vista-Dome (also known as Cinedome) was developed by the Jam Handy organization, not Jim Handy. Septorama was not a hemispheric or dome projection process, but was presented in a dome-shaped auditorium. Septorama was seven projected images on four 1.33 x 1 screens in one row and three more screens below that. The screens were slightly rounded and appeared similar to television screens of the time. Polycran was a name for the multi-image format developed in Czechoslovakia and presented on a flat screen.

<<Page 213 “Holography description”>>

First, there is a spelling error where the text reads “True holography cannot be applied to motion picutres.” But more importantly, they claim that, in addition, “Holography is no more than an optical illusion...” Whereas an

optical illusion is the perception of something that isn't really there, holography is very real and the images produced by the technique can be focused and projected. In fact, holographic motion pictures have been made using 70mm film with a large aperture and a pulsed laser for a light source. The first film using this technique was of some backlit fish swimming in a tank. The observer looks through the moving film that is illuminated by a pulsed laser reference beam and sees the fish as if looking through a small window. This film was exhibited in the Museum of Holography in New York City. However, projected holographic images for large audiences are still not practical and will probably not be practical for the foreseeable future.

<<Page 213 "Ikegami EC-35 description">>

Although the camera was designed to give video a "film look", this simply meant that the quality was very high with little lag and good brightness capabilities. It should be emphasized that the video was still conventional video and not magically processed to give a 24 Hz frame update as was the case with the "Filmlook" process developed later.

<<Page 213 "Illusion-O description">>

The authors try to convince the reader that the Illusion-O process used for the film *13 Ghosts* was a stereoscopic process even though it wasn't meant to be, and "...when viewed through duo-color 3D glasses, the film took on all the characteristics of the stereoscopic process." All the characteristics except for stereopsis, that is, since no 3D camera was used and the audience did not have 3D glasses. Instead, they had viewers where they could look through an orange filter with both eyes to see the ghosts or through the blue filter with both eyes to hide the ghosts. If someone in the audience tried to put a different color filter in front of each eye, there may have been some illusion resembling 3D due to only one eye seeing a ghost, but this was definitely not the way the film was supposed to be viewed. The filters in the viewer were 3.5 inches wide by 1 inch tall with the orange filter about 3/4 of an inch above the blue filter.

<<Page 214 "MagnaScope description">>

The authors imply that the release print format was a contact print from a two perforation frame height negative. Actually, the recommended release print format was designed to use conventional four perforation advance projectors. It achieved this by interleaving the images from one negative reel with those from a second reel which were rotated 180 degrees. After reel one was shown and the projectionist changed over to the other projector for reel two, the film from the first projector was not rewound but loaded into the projector and shown with the film traveling in the opposite direction. Soundtracks were next to each set of perforation holes to provide the appropriate sound for each pass. One difficulty with the format (which may be why it didn't catch on) was the problems encountered when the running length of a reel did not match that of the footage to be shown with the film traveling in the other direction.

<<Page 215 "Mexiscope description">>

It is stated that films from countries other than Mexico "...more often than not hard-matte a wide frameline on films to be shown cropped." Actually many films (particularly those from the USA) do not have a hard-matted wide frameline. Films with a hard-matted wide frameline were very common with cropped dye-transfer Technicolor prints.

<<Page 215 "Mitchell System 35 description">>

Mitchell System 35 was not just the use of conventional 35mm Mitchell cameras employed in the manner of live video production. The process actually used a S35R blimped reflex camera in conjunction with a video camera. Thus, the director in the booth could see the image from the camera in real time, and the director could guide all of the cameramen during photography. The process was designed to compete with Electronicam which also used a combination film and video camera.

<<Page 217 "Panacam description">>

The Panacam was a video camera designed by Panavision to feel and operate as much as possible like a film camera. It utilized optical thru-the-lens viewing rather than a typical black-and-white electronic viewfinder. It also allowed the use of multiple types of lenses of varying focal lengths as was typical for film cameras. It should be emphasized that the video was still conventional video and not magically processed to give a 24 Hz frame update as was the case with the "Filmlook" process developed later.

<<Page 218 “Odorama card photo caption”>>

Since the time the book was published, the Odorama name and logo was also used for the movie *Rugrats Go Wild* (2003). However, it was used without any involvement by those involved with the movie *Polyester* or in the original use of the technique.

<<Page 218 “Percepto description”>>

The authors state that Percepto was a slight electrical shock or vibration that was sent to selected seats during *The Tinger*. In fact, only vibrating motors were used; rumors of being “shocked” were part of the publicity hype.

<<Page 219 “Polyvision description”>>

As I stated earlier, the name Polyvision was coined by Emile Vuillermoz after the release of *Napoleon* and Gance adopted the name to better describe the particular format used rather than just the triptych technique. Later on, Gance regularly used the name Polyvision to describe the three projector process.

<<Page 220 “Showscan description”>>

The authors claim that the 60 frames per second speed of Showscan was “...decided upon supposedly because it is the highest rate practical without causing extensive wear on photographic and projection equipment.” This is not at all true. In fact, since Showscan projectors use a single-blade shutter, the time available for advancing the film is 1/120th of a second – the same as for 30 frames per second Todd-AO. The process came about because Douglas Trumbull noticed when viewing films on a flat bed editor that when a high frame rate was used the images seemed more “real”. He experimented with frame rates of 24, 36, 48, 60, 66, and 72 frames per second. Observers of these film sequences were measured for physical reactions such as galvanic skin response and other characteristics. Reportedly, there was a definite increase in the response up to 60 frames per second but not much improvement for the higher frame rates. Since 60 frames per second was also a convenient number to use, this was chosen as the standard. The process was originally developed when Trumbull was with Future General Corp. which was part of Paramount Pictures in the mid-1970’s. Around this time, the first Showscan film *Night of Dreams* was made and shown for demonstration purposes. A deal was struck with Paramount where they gave the rights to the Showscan process to Trumbull and soon thereafter Showscan Corp. was established. Four Showbiz Pizza Place theaters were built in Dallas, Texas; Springfield, Missouri; Fairfax, Virginia; and Huntsville, Alabama. Screens for these theaters were standardized at 34 x 17 feet, which permitted, for example, the image of a man in the film *New Magic* to appear to be real since his size on the screen was the same as a real man. By the way, *Big Ball* was the second Showscan film completed, with the third film *New Magic* being released at the same time. (*New Magic* includes a scene from *Night of Dreams* where a boy sees lightning strike a tree.) *Night of Dreams* was commercially released later when there were theaters in which to show it. The Showbiz Pizza Place theaters closed in the late 1980’s, but the format has been used in other theaters with screens as large as the 84 x 36 foot screen used at Expo ’85 in Tsukuba, Japan. The Dynamic Motion Simulator referred to by the authors is a system where entire rows of seats are mounted on hydraulically actuated platforms made by Intamin Corp. (The system is now called “Showmotion”.) The film *Tour of the Universe* used a different system where the entire theater was mounted on a motion base provided by Rediffusion Simulation (which was almost identical to the *Star Tours* exhibit at Disneyland and Disney World). The film *Deep Sea Rescue* as shown at Expo ’86 in Vancouver, Canada did not have moving seats. Instead, the audience stood and looked through windows at the film as projected with a fisheye lens onto a spherically curved screen. An interesting side note is that the film *Discovery* was shown in 1987 at the Reuben H. Fleet Space Theater in San Diego (an OMNIMAX theater) using a Showscan projector in the projection room at the back of the theater and projecting onto an area occupying roughly the front third of the dome. It was accompanied by a three minute Showscan prologue that explained and demonstrated the process. A similar arrangement was installed 1989 at the OMNIMAX theater at Caesar’s Palace in Las Vegas, Nevada. Several of the Showscan films were shown during this installation, and were accompanied by the same three minute Showscan prologue with the audio revised to reference Caesar’s Palace. The projection difficulties at these OMNIMAX installations resulted in presentations that were not as good as those in proper Showscan theaters, but it did allow many additional people to see the process than would have been otherwise possible.

<<Page 221 “Smell-O-Vision! description”>>

The name of the process as used throughout the souvenir book is given as “Smell-O-Vision!” (including the exclamation point.) The original design did not suck back the scents -- this was an improvement added after the premiere of *Scent Of Mystery*. *The Tale of Old Whiff* used 15 aromas (as stated in the filmography) and not 14 as stated in this section.

<<Page 226 “Super PanoramascopE description”>>

There was at least one 70mm print of *Panorama Blue* made which was shown in Hollywood and some other cities. And although the advertisements stated “Filmed in Super 70mm PanoramascopE” only the word PanoramascopE was in a special font. This indicates that the process name was actually just “PanoramascopE” and it was almost certainly a 35mm blowup.

<<Page 226 “Super-Vision description”>>

The authors claim that the lens “...allows Super 8 to be thrown onto a 16mm-size screen (rather pointless since Super 8 lenses are superior to 16mm and fill a larger area on the screen anyway)...” Aside from the fact that there are some good 16mm format lenses (compared to those used for Super 8), the same focal length lens with a larger 16mm film image would obviously fill a larger area on the screen.

<<Page 227 “Thomascolor description”>>

It should be emphasized that Thomascolor was not a wide screen process but rather an additive color process that used three images (later four) on a large 65mm black and white film to give a color image on the screen.

<<Page 227 “Stereovision 70/Stereo 70/70mm Triarama description”>>

This process uses a 65mm camera rather than a 70mm camera as is used by the Soviets for their wide-format process.

<<Page 228 “Tri-Ergon description”>>

This was not a wide screen process but rather used additional area outside of the perforation holes of the 42mm film for the optical soundtrack. The image was still basically 1.33 x 1.

<<Page 228 “UltraVision description”>>

The authors claim that UltraVision was a 70mm Super Cinerama-type projection system, and that it was projected using a mirror in a similar manner to that used in many theaters today. In fact, not all mirrors are the same, nor are all curved screen processes “Cinerama-type”. UltraVision was actually a series of developments to improve the quality of both 35mm and 70mm projection, but it was primarily used for 35mm projection. The mirror for UltraVision (the “Optiverter”) was used instead of projection port glass. The sound padded Optiverter absorbed the projector noise while avoiding light and contrast loss due to the port glass. This was a different concept from the use of mirrors for Cinemiracle or for any Soviet process. The curved screen was not as curved as Cinerama, and was suitable for 70mm and anamorphic 35mm.

<<Page 229 “Variscope”>>

The Soviets used the term Variscope to refer to their variable aspect ratio process and not to a use of cropped wide screen 35mm projection.

<<Page 231 “Widescope”>>

The process was developed by both George W. Bingham and John D. Elms beginning in 1918. The format originally was intended to use three camera mechanisms and three projector mechanisms. The format was then simplified to using a single camera with two lenses stacked above each other and two 35mm films. Projection was done using two conventional 35mm projectors. Demonstrations of this version were presented at a number of theaters in 1922. The format was further simplified to a single camera using 57mm film with five perforation holes per frame. This version, contrary to the authors’ claim, was shown commercially at the Cameo theater in New York City beginning on November 9, 1926 under the title *Natural Vision Pictures*. (This should not be confused with the 63.5mm format developed by Spoor & Berggren at about the same time.)

SECTION VIII. SPECIAL SOUND PROCESSES

<<Page 235 “Cinerama sound description”>>

The movie *Seven Wonders of the World* did not use a Perspecta-type tone shifter as claimed by the authors. It used the same 7-track arrangement as was used with the all of the other Cinerama travelogues.

<<Page 235 “Cinestage sound description”>>

Cinestage did not use magoptical sound but rather just magnetic tracks without the optical track due to the image size. Interlock stereo was also used for some presentations.

<<Page 238 Paragraph 1 “Digital audio at home”>>

The authors state “Audio reproduction on the home level is not digital at all, nor is the actual soundtrack. ...The digital mastering does eliminate all noise, but it also clips consonances, flattens the spatial effect of most music, deadens extreme bass and generally renders a soundtrack that lacks the dramatic scope of normal Hi-Fi.” First of all, LaserVision videodiscs (LaserDiscs) had been using true digital soundtracks for many years at the time the book was published. The audio artifacts referenced by the authors are not directly caused by the use of digital audio. They are typically due to the digital system failing to hide problems in the recording or mixing. For example, digital recording has less chance of clipping than analog recording due to the higher dynamic range. (This assumes that the levels are set correctly – if clipping does occur, there is considerably more distortion with digital recording.) There is also a psychological cause for why some digital recordings seem to sound bad even though test instruments indicate otherwise. For example, when Dolby noise reduction was introduced, the recordings seemed to have more distortion than was actually present. When people are used to hearing sound with limited bandwidth and an audible noise level, the absence of these limitations can seem “wrong” and disturbing to some individuals. After the listener becomes used to the higher quality, these problems usually disappear. This may not be true for familiar recordings where the subconscious still complains that it sounds “different”. It can be argued that digital recording may not have adequate performance, or some may prefer the sound of analog recording, but statistics have shown that the majority of listeners prefer digital audio.

<<Page 238 Paragraph 2 “Digital audio”>>

The text states that converting a cinema to handle true digital sound would require the replacement of all existing speakers and wiring, and that it would be necessary to do all original recording in digital to avoid “clipping”. Although the dynamic range of digital soundtracks does require high quality speakers to fully reproduce the quality, many high quality speakers currently in use are acceptable, and replacing the wiring is only needed in extreme cases. And digital reproduction by itself does not introduce clipping if there was none in the original recording and the levels are set correctly. Incidentally, the referenced short subject made by Glen Glenn Sound and Eastman Kodak is titled *Digital Dream* but was merely digitally recorded for analog reproduction in theaters. The first public showing of a feature film with digital audio was *Fantasia* which was exhibited in Century City, California beginning February 8, 1985 with digital audio as a special showing in only that one theater. The system used digital audio recorded as video content on a video cassette and decoded in the theater. (There had been an earlier demo for the industry on December 6, 1984 using a prototype system.) This was followed a little over a year later with a special showing of *Home of the Brave* at the 57th St. Playhouse theater in New York City in 1986. This system also used digital audio recorded as video content on a video cassette and decoded in the theater, but it was developed separately from the system used by Disney for *Fantasia*. *Robocop* and *Throw Momma from the Train* were the first films widely advertised as being in Dolby Stereo Spectral Recording (Dolby SR) which was promoted by Dolby as “digital quality” but was, in fact, analog. Several digital stereo sound formats have been used for films since publication of the book. (*Star Trek IV: The Voyage Home* and *Innerspace* were given limited release in Dolby SR prior to the release of *Robocop* and *Throw Momma from the Train*.)

<<Page 239 Paragraph 2 “Fantasound/Photophone”>>

Fantasound did not use RCA Photophone format but rather large push-pull tracks. Although these tracks slightly resemble a larger version of Photophone, careful examination of the Fantasound tracks shows that they are not variable area but rather use a fixed-width track with a variable position. Such a format is commonly called a “unilateral push-pull” track. It should also be emphasized that one of the four tracks was just a control track which consisted of control tones of 250, 630 and 1600 Hz used for gain control of the three audio channels. The surround sound was achieved using two sets of surround horns that were manually switched in and out to supplement or replace the side screen horns at selected points during the movie. (An automated patching system using notches on the edge of the film was used only at the Carthay Circle theater in Los Angeles.) The process was not revised after World War II since it was overly complicated, involved many racks of equipment that would not fit into many projection booths, and the expense of using the equipment and process was too great to invite use on later films. The statement by the authors that “the same audio distribution system would be utilized with magnetic stereo in the 1950’s” does not appear to make any sense unless it is only a reference to the use of three channels of stereo for the screen.

<<Page 239 Paragraph 3 “Western Electric stereo system”>>

The authors refer to a stereo sound system developed by Western Electric that was trade-screened in 1940, but that the title and detailed information has been lost. In fact, the demonstration was not by Western Electric but rather by Electrical Research Products, Inc. (which originally had been a subsidiary of Western Electric) in cooperation with

the Bell Telephone Laboratories. The system used three large optical tracks plus one control track on their own 35mm film like Fantasound, but the tracks were bilateral variable area rather than the push-pull tracks used for Fantasound. The demonstration was presented on April 9 and 10, 1940 at Carnegie Hall in New York City, and at the Pantages Theater in Hollywood on June 20, 1940. The demonstration had no title – it was just referred to as “Program of Stereophonic Recordings”. Sequences included *A Night on Bald Mountain* by Moussorgsky and *Tales of the Vienna Woods* by Strauss as played by the Philadelphia Orchestra and conducted by Leopold Stokowski; Scene II of *The Emperor Jones* as played by Paul Robeson; *Allegro from Sixth Organ Symphony* by Widor and played by Frank W. Asper in the Salt Lake City Tabernacle; *Moonlight* by Debussy as played by the Philadelphia Orchestra and conducted by Leopold Stokowski; *Hear My Supplication* by Archaanghelsky and *Come, Come Ye Saints* by Clayton as performed by the Tabernacle Choir of Salt Lake City with Frank W. Asper as organist, and conducted by J. Spencer Cornwall; *The Hut on Fowl’s Legs* and *The Great Gate of Kiev* from *Pictures in an Exhibition* by Moussorgsky as played by the Philadelphia Orchestra and conducted by Leopold Stokowski; Walter Armitage and James Sullivan performing *The Duel Scene* from Act I of *Cyrano de Bergerac*; *Excerpts from Elijah* by Mendelssohn as performed by the Tabernacle Choir of Salt Lake City with Harold Bennet as Soloist and arranged and directed by J. Spencer Cornwall; *Prelude in D Major* by Bach as played on the organ by Alexander Schreiner; and *Excerpts from Die Gotterdammerung* by Wagner as played by the Philadelphia Orchestra and conducted by Leopold Stokowski.

<<Page 239 “Kinopanorama sound description”>>

Kinopanorama used nine discrete 1.6mm audio tracks on a full-coated 35mm film. Seven tracks were positioned 3.15mm apart to be compatible with Cinerama sound reproduction, and the other two tracks were located outside of the perforation holes next to the edge of the film. Thus Perspecta-type encoding wasn’t needed or used.

<<Page 239 “Magnetic and MagOptical stereophonic sound description”>>

As has been stated elsewhere in this document, *This Is Cinerama* had seven discrete tracks rather than six.

<<Page 240 Paragraph 2 “Magoptical”>>

20th Century Fox did not introduce magoptical sound and did not use it for *The Robe*. Fox did introduce magnetic stripes on film with CinemaScope (CS) perforation holes, but no optical track was used at first. Fox originally insisted that CinemaScope be exhibited in stereo and thus originally offered *The Robe* only with magnetic tracks or with a separate interlock soundtrack. MGM introduced anamorphic prints with optical sound with their Perspecta version of *Knights of the Round Table*. In 1954, Fox agreed to provide optical sound versions of CinemaScope films, but strongly urged that the magnetic stereo version be used. The Motion Picture Research Council developed a compromise format called “magoptical” which included a narrow optical track along with the magnetic stereo tracks. Fox strongly objected to the use of magoptical tracks claiming that the quality of the narrow optical track was poor and theaters with monophonic sound should instead use a magnetic head to pick up track #2 instead. Since some stereo films did not sound very good using this technique, Fox made available magnetic monophonic prints with the sound mixed for monophonic sound on track #2. Other studios objected to the need for a triple inventory for films, and so the magoptical print was designed to be for a single inventory release. The first magoptical film was *Kismet* released by MGM in 1955. Fox finally decided to use the magoptical format initially for the movie *Bus Stop* in 1956 and then for all magnetic prints beginning with *The True Story of Jesse James* in 1957. Incidentally, it was originally hoped that the magnetic stripes could be stripped off of magoptical prints to reveal a full size optical track for secondary release, but this proved to be impractical. Ironically, the additional cost of magoptical prints resulted in the use of magoptical and optical prints for most stereo films, until S.V.A. prints brought an end to the use of 35mm magnetic prints.

<<Page 240 Paragraph 3 “70mm surround channel”>>

I have been unable to find confirmation of any use of Perspecta for surround channels on 70mm Todd-AO prints. The authors state that for 70mm prints with the “baby boom” audio layout that track six “...supplies surround information, which may or may not be separate right wall and left wall sound (being so directed by the out-of-phase encoding commonly associated with Dolby Surround).” This statement is without meaning since track six would have to be out-of-phase with respect to something else. In fact, when directional surround is used on magnetic 70mm prints, the left-rear sound is on track two and the right-rear sound is on track four, with the “baby boom” audio added to these tracks. On playback, the low frequency “baby boom” audio below 250 Hz is filtered from channels 2 and 4 and sent to either the extra stage speakers or to dedicated subwoofers; the remainder of these two audio channels are sent to the left-rear and right-rear surround speakers. Such prints often include a monophonic surround channel on track six to be compatible with theaters without stereo surround capabilities. Frequencies

below 500 Hz on track six are typically mixed with the audio sent to the directional surround speakers to give a wider frequency response to these channels.

<<Page 241 Paragraph 2 “Magoptical film titles”>>

The film titled *The Best Little Whore House in Texas* should be titled *The Best Little Whorehouse in Texas*.

<<Page 241 Paragraph 3 “70mm sound”>>

The authors comment “It is a mystery why 70mm has not replaced the extremely expensive, high-maintenance magnetic track with stereo optical.” The reason is actually very simple: Compatibility. When Cinema Digital Sound (CDS) was introduced for 70mm, there were no backup magnetic tracks and it was necessary to offer either two types of 70mm prints or restrict 70mm distribution to a very few theaters. If conventional S.V.A. tracks were used on 70mm, there would be fewer channels and it would not sound as good as magnetic sound.

<<Page 244 “MegaSound”>>

MegaSound used two special techniques to achieve the deep bass sound heard in the theaters. First, during sound mixing, selected parts of the sound spectrum were divided in frequency by typically 2 or 4 to create added low frequency content below 40 Hz which was then recorded as the low frequency channels. The second technique was to use high-powered amplifiers and large subwoofers to produce these frequencies at a sufficient level in the theaters. In fact, many theaters used the same subwoofers that were originally used for Sensurround. Most 70mm films released at the time the book was published did not use the same sound layout as MegaSound. Instead, most 70mm releases used the stereo surround format as described in the “70mm surround channel” correction given for page 240.

<<Page 244 “MTS sound”>>

MTS transmits two channels of sound. These two channels can be encoded with surround sound using a matrix technique like Dolby Surround. However, the number of surround channels available using matrix techniques is dependent upon the specific matrix used. Since virtually all MTS stereo mixed for surround sound uses the Dolby or a compatible matrix, this results in a monophonic surround and not separate right and left surround by “phase shifting” as claimed by the authors.

<<Page 244 Paragraph 2 “Perspecta”>>

The authors state “Without doubt Perspecta Stereophonic Sound was the single most important sound development of the 1950s.” In fact, there is considerable doubt about this. Perspecta was not adopted by most of the studios, had a smaller frequency response and a worse signal-to-noise ratio than magnetic stereo, could not produce different simultaneous sounds from different speakers, could not produce surround sound, and fell into disuse in less than a decade. It is the opinion of many (other than the authors) that the single most important sound development of the 1950s was the use of multitrack and stereo recording on magnetic film.

<<Page 244 Paragraph 3 “Perspecta”>>

The authors state that Perspecta “... utilized subaudible tones (30 cycle for left, 35 cycle for center and 40 cycle for right) to separate into its proper screen speaker locations.” The tones did not “separate” the sound but rather adjusted the loudness of the monophonic soundtrack being fed to each speaker to permit positioning of the apparent source of a sound to match the action on the screen. If done carefully, the position of the apparent source of total sound could be located at the point where the picture concentrated the audience’s attention for the moment, and no one would have been conscious of the fact that the rest of the sound actually moved along with the particular prominent feature of sound to which his attention was pictorially directed. It was also possible to use multiple speakers to achieve an increase in loudness for particular scenes, or just the side speakers for ambient effects. It is claimed that Perspecta could have been improved to render all three channels separately, simultaneously. It is hard to understand technically how separate sounds could be made to come from different speakers simultaneously without a complete replacement with a different system. The authors also describe how the sound for the center channel as controlled by the 35 cycle tone could be split and sent to both side speakers if a center screen speaker was excluded. This was rarely if ever done; virtually all theaters with Perspecta used a center speaker.

<<Page 245 Paragraph 2 “Perspecta”>>

The authors state that a variation of Perspecta was used on at least one Cinerama feature and presumably with the Soviet Kinopanorama process and Belock 8-Channel Sound. A variation of Perspecta was possibly used for *Scnet of Mystery*, but it was not used for Cinerama nor for Kinopanorama.

<<Page 245 Paragraph 3 “Perspecta”>>

The authors claim that the Perspecta system purchased by itself was substantially cheaper than a MagOptical system. In fact, the only cost savings was in the magnetic penthouse and preamps, which was partially offset by the added cost of the “integrator”. It was still necessary to add the additional power amps and speakers, which were a substantial part of the cost of converting to stereo. Of course, the cost savings is only small if the theater did not install the surround sound speakers and amplifiers for the magnetic stereo. This extra channel of amplification and the addition of perhaps dozens of surround speakers was a major part of the cost of magnetic stereo, which is why some theaters compromised on the implementation of the surround channel.

<<Page 245 Paragraph 5 “Perspecta”>>

The authors state the opinion “Why the industry did not go all out with Perspecta can only be chalked up to insanity. ...With the introduction of solid state components it would have been relatively simple to add surround information as well as to make it possible for full, three-channel simultaneous separation.” Despite the opinion of some, not everyone in the industry is insane. Magnetic stereo did sound better than Perspecta (especially with music) and many theaters could not afford or were not willing to invest in installing multichannel sound of any sort. The addition of surround information could have been done without solid state components just by adding a fourth control tone. And with a monophonic source, it is unlikely that any number of control tones would give full, three-channel simultaneous separation. It should also be pointed out that 1953’s *Knights of the Round Table* was originally released only in magnetic stereo. Perspecta was used initially for the foreign releases of this film in 1954.

<<Page 246 Paragraph 1 “Perspecta board for Dolby processor”>>

A Perspecta decoding element was offered for use in the Dolby cinema processor hardware, but it was not manufactured by Dolby.

<<Page 247 Paragraph 1 “Polydimensional Sound”>>

Polydimensional sound did not use Perspecta stereo. In fact, “Polydimensional sound” seems to be only marketing hype.

<<Page 249 Paragraph 1 “Quadrophonic Sound film list”>>

This sound format is more commonly spelled “Quadrasonic”. In addition to the films listed in the book, the feature film *Yessongs* (Ellman, 1973) was advertised as presented in quadrasonic sound. It was shown with the short subject *Death of the Red Planet* (Ellman, 1973) which was also presented in quadrasonic sound.

<<Page 249 “Quintophonic Sound description”>>

The name of the process is actually Quintasonic Sound. The process did not use two optical tracks but rather used a Sansui QS quadrasonic decoder with magnetic tracks one and three to give quadrasonic sound supplemented with track two to give a center screen channel. The confusion by the authors seems to come from the fact that *Tommy* was also the first feature to use the Stereo Variable Area (S.V.A.) Dolby Stereo format for some prints. (*Lisztomania* was the first feature generally available in the Stereo Variable Area Dolby Stereo format.) The Dolby Stereo optical theater format uses a monophonic surround and thus is not “quintophonic” as claimed by the authors.

<<Page 249 “Sensurround description”>>

The description by the authors is missing considerable information and is misleading. Sensurround did not use “subaudible” sound (it was actually very audible) but rather used “sonic and subsonic” bass frequencies down to about 16 Hz. The Sensurround process as originally used for *Earthquake* had a digital “rumble generator” used with variable gain amplifiers controlled by two control tones of 25 and 35 Hz. The presence or absence of each of the control tones formed a two bit binary code and the amplitude of the tones controlled two variable gain amplifiers for the effects (rumble) or the program (soundtrack) audio. The two bit code could provide normal audio, effects with program audio gain, effects with effects gain, or effects with effects gain and program audio gain. Prints of *Earthquake* were available in the formats described by the authors, except that the 70mm prints for overseas use only had control tones on tracks two and four, and not low frequency audio as was the case with MegaSound. For subsequent films the system was revised and simplified. First, the audio soundtrack was encoded using a noise reduction system developed by dbx, Inc. The function of the control tones was revised such that one tone controlled the gain of the front effects speakers and the second controlled the gain of the rear effects speakers. Gain capability of the soundtrack audio was built-in due to the dynamic range allowed by the dbx process. Thus the rumble generator was not needed in the theater and the rumble was part of the soundtrack. Incidentally, *Midway*, *Rollercoaster* and *Battlestar Galactica* were only available with monophonic 35mm optical prints. It also appears

that *Mission Galactica: The Cylon Attack* (Univ, 1979) was presented in Sensurround outside of the United States. Sensurround Plus was the use of the dbx process throughout the film *Zoot Suit* to provide a large dynamic range for all audio. Although Lightsurround was originally to be included with Sensurround Plus, Lightsurround was not used. Universal was going to use Sensurround for a film called *The Legend of King Kong* but Paramount brought suit claiming conflict with their film *King Kong* which was in production. Universal dropped plans to make their film, and Paramount certainly didn't use the Sensurround system for *King Kong*. Evidence indicates that Feelarama and Vibrasound did not use the Sensurround control tones or electronics but rather were variations of the boom formats like "MegaSound". *Volcano* was released in Feelarama in Europe and elsewhere including some showings in the United States. Incidentally, Sensurround was developed only by MCA; RCA just did the theater installations as a subcontractor to MCA.

<<Page 251 Paragraph 3 "Tommy and Dolby Stereo">>

The authors state that *Tommy* "was really MagOptical in format and not totally stereo optical." This confusing statement is apparently intended to mean that a limited number of S.V.A. stereo optical prints were made for *Tommy*, but a large number of magoptical prints were also produced.

<<Page 252 Paragraph 2 "Super SpectraSound">>

The authors describe Super SpectraSound as using four narrow color coded optical tracks. Although an experimental color coded stereo system similar to what was described by the authors was developed by Petro Vlahos, it was never used for a feature film.

<<Page 252 Paragraph 4 "Popeye">>

The authors have somehow believed that *Popeye* was released with a stereo optical color coded sound system, and that this system was actually Super SpectraSound even though no trade name, to the authors' knowledge, was ever applied to it. In fact, the format was called VistaSonic and was a system using four tiny variable area soundtracks (not color coded) in place of the normal optical soundtrack. The system was installed in only a handful of theaters for use on the movies *Popeye* and *Dragonslayer*. There were technical problems with the process at these showings, and the process was abandoned after the experimental use on these movies.

<<Page 253 Paragraph 5 "RCA Photophone and SVA">>

The authors repeatedly refer throughout the book to 35mm dual bilateral optical soundtracks as the RCA Photophone format. RCA Photophone was initially a single unilateral variable-area format. This format became a dual unilateral format in the late 1930's and then changed again to the dual bilateral format in the late 1940's and gained widespread use through the 1950's. By the time the dual bilateral format became commonly used, it was just referred to as "variable area" rather than as "Photophone".

<<Page 254 Paragraph 3 "Sound systems">>

"HSP 4000 Sound" should be "HPS 4000 Sound". The authors also unfortunately mix theater sound systems (THX, HPS 4000) with stereo decoding electronics (Kintek, Ultra-Stereo) which can cause some confusion.

<<Page 254 Paragraph 4 "S.V.A. Stereo">>

S.V.A. uses a monophonic surround and not right and left surround as claimed by the authors. And most of the literature I have seen calls the process SVA rather than S.V.A. In fact, the authors refer to the process as SVA in one place in paragraph 1 on page 244 of the book.

<<Page 255 Paragraph 2 "S.V.A. Stereo">>

As was mentioned before, S.V.A. uses a monophonic surround.

<<Page 255 Paragraph 3 and 4 "Simple surround sound">>

Readers are cautioned that the wiring procedure described in these paragraphs (wiring a speaker output to a line level audio input) can cause substantial damage to some systems unless the levels are set very low. And contrary to the authors' claims, the wiring procedure described is not the same as that used in theaters. Dolby Stereo decoders use active logic decoding for improved separation and a 7 KHz bandwidth limited surround delayed by 30-100 milliseconds. This delay is based upon a principle known as the Haas effect which improves localization.

<<Page 256 "Vitasound description">>

Vitasound used a monophonic Photophone soundtrack with a variable width control track located in the sprocket

hole area next to the soundtrack. Detecting this control track produced a variable intensity 96 Hz waveform produced by the sprocket holes and the opaque area (minus the control track area) between the holes. The system was used just to provide increased loudness for certain scenes by using additional amplifiers and speakers. The soundtrack was monophonic and the music and effects were not separate from the dialog as claimed by the authors. The system was basically for audio what Magnascope was for picture: a method of increased impact for certain scenes. Incidentally, Photophone uses variable area tracks rather than variable density tracks as claimed in the text.

<<Page 257 Paragraph 1“WarnerPhonic Sound”>>

The authors claim that WarnerPhonic sound had only music in the right and left tracks, and the center track had the dialog and effects and was encoded with a Perspecta-type tone shifter. There is no evidence to support this claim, and in fact it was simpler and cheaper to mix the dialog and effects to the appropriate tracks during postproduction. The authors also state that “the fourth WarnerPhonic track was not a surround channel but was meant strictly for rear sound location. When *House of Wax* was reissued in 70mm in 1971 with four-channel magnetic stereo, theaters incorrectly placed the rear information into all surround speakers, ruining the intended effect.” The installation of WarnerPhonic sound in New York for the premiere of *House of Wax* in 1953 utilized over 20 surround speakers spaced throughout the auditorium and not just in the rear of the theater. The 70mm reissue of *House of Wax* was in fact monophonic with a surround track since the stereo sound from the 1953 version could not be found.

FILMOGRAPHY SECTION

<<Page 262 “Airport”>>

Airport was released on March 5, 1970, not May 5, 1970 as claimed by the authors.

<<Page 265 “Alpine Thrills”>>

This film is currently called *Alpine Raceway* by Showscan Corp.

<<Page 276 “Around The World in 80 Days”>>

This film was not filmed in CinemaScope but instead used 30 frames per second and 24 frames per second 65mm Todd-AO. Whereas *Oklahoma!* was also filmed in CinemaScope, it was discovered that the difference in field of view between the Todd-AO lenses and the CinemaScope lenses made it necessary to do alternate setups with different camera positions for the two formats. It was decided for *80 Days* to use one camera for most scenes with the camera speed indicated on the camera slate. This was not only simpler than repositioning cameras and lights, but produced a better quality anamorphic theater print. Production did not begin using the modified Grandeur camera as claimed by the authors. The modified Fearless Super-Film cameras were used instead, particularly for scenes using the wide-angle “bugeye” lens. The 24 frames per second version (as opposed to the “70mm version”) was used for the television and video editions. Production did not begin using modified Grandeur cameras but rather used the modified Thomascolor cameras (which were modified Fearless Super-Film cameras.) The authors assert that Shamus Culhane stated the animated credits were shot in 35mm scope. The credits show no evidence of this, and there would have been no advantage in using 35mm scope for the credits since there were plenty of 65mm cameras and the optical printer lenses for enlarging anamorphic 35mm to 70mm were just experiments at the time. The authors do not state the original running time which was 179 minutes.

<<Page 278 & 279 “The Bat Whispers”>>

The authors state “Most sources claim this was shot in Magnifilm; one source says it was filmed with Ralph G. Fear’s Super Picture camera. They are all wrong. It was photographed with the same cameras used for Grandeur and Realife make by Mitchell Camera Corporation.” The source of the authors’ belief is apparently the reference made on page 7 of the book to a Mitchell Camera ad stating that it was filmed with one of their units. First of all, it was definitely filmed on 65mm negative and had a title card in the movie which said “MAGNIFILM”. An ad by Mitchell Camera in the August 1930 issue of *American Cinematographer* lists the films that have used the 70mm cameras as *Billie the Kid*, *The Fox Follies*, *Happy Days*, *The Big Trail*, and *Song O’ My Heart* but does not list *The Bat Whispers*. It was stated in the press at the time that the 65mm Fearless Super-Film camera (not the horizontal 35mm Super Picture camera) was used on an unnamed feature. The format of the film used for *The Bat Whispers* is identical to that of the Super-Film camera, but then the same format was used by the Warner Vitascope camera and the 65mm camera made for Paramount by Andre Debrie. Mitchell was offering in their ads to adapt their cameras to a smaller format if requested. Thus it is feasible that a Mitchell camera was used, but I feel that it is most likely that the Super-Film camera was used. The film premiered on November 6, 1930 rather than November 13, 1930.

<<Page 284 “*Ben-Hur*”>>

The text states “All current 70mm prints have been converted from anamorphic to spherical format with approximately .57 reduction in width...” This number apparently comes from converting 2.77 x 1 to 2.20 x 1, which is odd considering the authors’ insistence that non-anamorphic 70mm is 2.05 x 1 rather than 2.20 x 1.

<<Page 284 “*The Best of Cinerama*”>>

The Best of Cinerama is listed as released in 1963, when in fact the premiere was on November 13, 1962 at the Palace Theater in Cleveland, Ohio.

<<Page 285 “*Big Ball*”>>

The running time for this film is 22 minutes.

<<Page 285 “*The Big Fisherman*”>>

This was not filmed in Ultra Panavision 70 but rather Super Panavision 70. This has been confirmed by examination of the camera negative. Advertising at the time credited “Panavision 70”.

<<Page 287 “*The Big Trail*”>>

The running time is 125 minutes for the Grandeur version rather than 158 minutes. The film premiered on October 2, 1930 rather than October 24, 1930.

<<Page 288 “*Billy the Kid*”>>

At the very least, the 70mm original of *Billy the Kid* was reduced to a full width 35mm print with less image height for showing in some theaters with separate sound. The film premiered on October 16, 1930 in Detroit rather than October 19, 1930.

<<Page 289 “*The Black Cauldron*”>>

The text states that the film was originally “to have included a 3D sequence involving holography (sic).” This is exceedingly unlikely, at least on a practical level.

<<Page 294 “*Brainstorm*”>>

Principal scenes were in 1.66 x 1 35mm, not 1.85 x 1. And technically, the statement “While it was shot partly in 70mm...” should actually say 65mm.

<<Page 296 “*Buddha*”>>

The authors state that the movie was “Filmed with two modified VistaVision cameras.” In fact, the VistaVision cameras used were non-modified except for possibly the ground glass markings.

<<Page 296 “*Campus Sweethearts*”>>

The best evidence is that *Campus Sweethearts* was never shown to the public in Natural Vision.

<<Page 296 “*Capture the Sun*”>>

There is no listing for this multimedia presentation that incorporated newly created OMNIMAX sequences. The presentation premiered in 1973, and the OMNIMAX sequences were made by Rodger Tilton Films, Inc. OMNIMAX footage included scenes photographed at Stonehenge in England and a solar eclipse in Kenya. The program was initially made for the Reuben H. Fleet Space Theater, San Diego, California and was 8 minutes in length.

<<Page 298 “*The Cardinal*”>>

The authors state that this was the first film in Panavision 70. There are a number of reports that the first film was *Taras Bulba* although it may not have been the first released in the United States in 70mm.

<<Page 299 “*Carousel*”>>

Roadshow and first-run showings used 35mm magnetic prints (not magoptical) with the original 2.55 x 1 aspect ratio CinemaScope aperture. (Fox did not use magoptical prints for any films until about half a year after the premiere of *Carousel*.) The roadshow engagements in New York and Los Angeles (and possibly elsewhere) used interlocked 6-track magnetic sound reproduction. Audry Christie played Mrs. Mullin (not “Mullen”), and Louise (Bigelow) was played by Susan Luckey (not “Lucket”).

<<Page 300 “*Chas neozkhidannykh puteshestvly v polyote na vertolyote*”>>

The authors list the running length of this movie as 100 minutes, when in fact it was 66 minutes. This is particularly evident since the English translation of the title is *One Hour of Unexpected Travels by Helicopter*.

<<Page 301 “*Chetvyortaya programma panoramikh filmov ‘Tsirkovoye predstavleniye’ i ‘Na Krasnoy ploshchadyu’*”>>

The English translation of the title is *Fourth Program of Panorama Films: “Circus Performance” and “On the Red Square”*. The authors list the running length of this movie as 100 minutes, when in fact it was 88 minutes and 6 minutes respectively for the two sequences.

<<Page 303 “*Chronos*”>>

Chronos is generally stated to be filmed in IMAX, not OMNIMAX, although an OMNIMAX-specific version may have been made. The actual film credits just say “1570” since most of the film was photographed by a modified large format still camera.

<<Page 306 “*(Louis de Rochemont’s) Cinerama Holiday*”>>

The authors list this title as having six-track magnetic Cinerama Sound, when in fact it was seven-track for all showings. The running time was not given by the authors but it is 119 minutes.

<<Page 306 “*Cinerama South Seas Adventure*”>>

The premiere date of this movie was July 15, 1958 rather than July 16th.

<<Page 307 “*Cinerama South Seas Adventure*”>>

The authors list this title as having six-track magnetic Cinerama Sound, when in fact it was seven-track for all showings.

<<Page 307 “*Cinerama’s Russian Adventure*”>>

The credit for Homer McCoy doing the “Original prolog and narration” should actually be for “Original narration and prolog” to avoid confusion. The running time of this feature film was 122 minutes plus intermission rather than the 146 minutes claimed by the authors.

<<Page 313 “*Le corsaire*”>>

The authors state that, although the movie was filmed in Super Technirama 70, “Only *Le corsaire* was filmed in 70mm...” of the short subjects listed. It should be clarified that Super Technirama 70 does not use 70mm photography.

<<Page 316 “*Danger Lights*”>>

The premiere date of this movie was November 15, 1930 rather than December 14, 1930.

<<Page 316 “*Dangerous Charter*”>>

Panasound would not have been Perspecta since the use of Perspecta had been discontinued by the release date of 1962.

<<Page 317 “*Deep Sea Rescue*”>>

The Deep Rover Shuttle simulator at Expo ’86 did not use the Dynamic Motion System. People stood and viewed the Showscan film projected with a fisheye lens onto a curved screen. Running time was 5 minutes.

<<Page 317 “*Delifini prikhodyat k lyudyam*”>>

The running time of this film is not listed, but was 20 minutes. The English translation of the title is *Dolphins Come to the People*.

<<Page 317 “*De Luxe Tour*”>>

The best evidence indicates that 55mm theater prints were not used, assuming that the film was shown at all since it was never copyrighted and no reviews or advertisements have been located. Production began in 1957, and CinemaScope 55 footage was shot, but the movie was cancelled because, according to Richard Zanuck, “The picture never got made because the survey trip cost more than the budget of the picture.” I can find no evidence of a release in England in 1966, or if it was in fact the same movie.

<<Page 319 “Discovery”>>

The premiere date of this film was May 2, 1986.

<<Page 322 & 323 “Earthquake”>>

RCA was not a co-developer of Sensurround – they just did the theater installations for Universal. The original television broadcast on NBC used an FM radio monophonic simulcast (not stereo) which did include the rumble. The television audio also included the rumble, but most people could get better sound quality using their FM receiver. It is also interesting to note that the authors contradict themselves by stating that Earthquake was “released in the U.S. in 35mm only”, yet they included the title in the list of 70mm blowups released in the U.S. on page 201 of the book.

<<Page 324 “Energy! Energy!”>>

There is no listing or data for this 27 minute IMAX film released in 1982: Produced by Francis Thompson Inc. Directed by Francis Thompson and Bayley Silleck. Photographed by Timothy Housel. Sponsored by the U.S. Department of Commerce for the United States Pavilion, 1982 World’s Fair, Knoxville, Tennessee. Distributed by Reeves Communications.

<<Page 324 “Escape from Fort Bravo”>>

The authors state that this is the first feature made with Panavision spherical lenses, even though it was released in January 1954. Panavision was just starting up at the time and did not provide any photographic lenses for use in January 1954.

<<Page 331 “Fox Grandeur News”>>

The release date was September 17, 1929, not August 25, 1929.

<<Page 331 “Fox Movietone Follies of 1929”>>

The release date was September 17, 1929, not May 29, 1929.

<<Page 332 “A Freedom to Move”>>

The Executive Producer’s name is spelled Roman Kroitor, not Kreiter.

<<Page 334 “Garden Isle”>>

Spitz Laboratories only provided the dome screen and the starball planetarium projector at the Reuben H. Fleet Space Theater and did not provide the “projection system” for this film. The OMNIMAX projector was provided by Multiscreen Corporation (which was later renamed Imax Corporation.) Running time was 16 minutes, not 44 minutes.

<<Page 335 “Genesis”>>

This film premiered in February 1978 rather than in 1979 as claimed by the authors.

<<Page 337 “Gone With the Wind”>>

Part of the fire sequence was filmed with two 3-strip Technicolor cameras placed with their lenses looking into mirrors to produce a side-by-side dual film “panorama” of the fire. The backers of the movie felt that it was not worth the trouble to install the equipment in theaters and the format was not shown in theaters. “Dual Screen” is a term coined by Carr & Hayes and was not used as a trademark for the process.

<<Page 341 “Great Is My Country”>>

This film premiered on February 28, 1958 rather than in 1957 as claimed by the authors.

<<Page 341 “The Great Meadow”>>

The Great Meadow premiered on March 13, 1931 rather than on March 15.

<<Page 341 “The Great Wall”>>

The authors state that the movie was “Filmed with two modified VistaVision cameras.” In fact, the VistaVision cameras used were non-modified except for possibly the ground glass markings.

<<Page 343 “*The Great Waltz*”>>

It is stated that this film was the last film to have been exhibited under the Cinerama logo. The last official new film was *Krakatoa East of Java*. The 70mm reissues of *This Is Cinerama* and *2001* were advertised as being in Cinerama.

<<Page 348 “*Happy Days and Niagara Falls*”>>

Although the short subject *Niagara Falls* was shown with *Happy Days*, it was originally shown at the premiere of the Grandeur showings of *Fox Grandeur News* and *Fox Movietone Follies of 1929*.

<<Page 350 “*Holiday In Spain*”>>

As was stated previously, this film was not presented in “Super Cinerama” since the term refers to a theater design and not a format. In fact, the film image was split into 3 strips and was originally projected in Cinemiracle theaters, and then later in Cinerama theaters. The 125 minute running time of *Scent of Mystery* was edited down to 102 minutes for *Holiday In Spain* in order to fit onto the 8000 ft reels used for Cinemiracle and Cinerama. The seven track magnetic sound format is misspelled as “Cinerema Sound” and of course was actually the “Cinemiracle Sound” prints used for the earlier Cinemiracle showings. The version shown on MTV in the United States was billed as *Scent of Mystery* but had no titles and had a large part of the film missing. The scratch and sniff cards had additional scents that were used by the on-screen host before and after commercial breaks.

<<Page 353 “*How the West Was Won*”>>

The credits list actress Hope Lange as a St. Louis showgirl even though her footage does not appear in the final film. As was stated previously, this was not filmed in “Super Cinerama” since the term refers to a theater design and not a format. The authors state that the footage of modern San Francisco was removed from all prints except the three strip Cinerama version. Then it is odd that the footage including modern San Francisco made it to the video version. The footage appeared in some conventional prints as well.

<<Page 355 “*Indonesian Child*”>>

This film has been retitled *Island Child*.

<<Page 358 “*It’s a Mad, Mad, Mad, Mad World*”>>

The credits indicate that the movie was filmed on location including “... Palm Springs (Palos Verdes Estates)...” The parentheses imply that Palos Verdes Estates is part of Palm Springs, when in fact the two cities are over 100 miles apart.

<<Page 360 “*The King and I*”>>

Original roadshow and first run showings used 35mm magnetic stereo prints (not magoptical) and used the original 2.55 x 1 CinemaScope projector aperture. 55mm theater prints were not used as was stated earlier. The reissue prints of *The King and I* were either magoptical or mono.

<<Page 362 “*Kismet*”>>

The release date was October 30, 1930 in New York City, not January 18, 1931.

<<Page 362 “*Kiwi Experience*”>>

This Showscan film is actually known as *Kiwi Magic* and is 25 minutes long rather than 18 minutes.

<<Page 364 “*Knights of the Round Table*”>>

The authors are incorrect about this being generally accepted as the first film shot with Panavision anamorphics. Panavision had not yet introduced their photographic lenses in 1953. The film was actually photographed with Bausch & Lomb lenses. Although this was the first film to utilize Perspecta, very few theaters had the equipment for the sound format during the initial showings. It was originally released only in magnetic stereo. Perspecta was used initially for the foreign releases of this film in 1954.

<<Page 367 “*Labyrinth*”>>

There is no listing or data for this IMAX film, directed by Roman Kroitor, that was originally a multiscreen presentation using multiple projectors for a pavilion at Expo ‘67. The footage was converted to IMAX and was shown at the Cinesphere IMAX theater in Toronto in 1972.

<<Page 369 “*Lafayette*”>>

This film was reissued in 70mm Cinerama in 1965 and was never shown in 3-panel Cinerama as claimed by the authors.

<<Page 369 “*The Lash*”>>

The release date was December 26, 1930, not January 1, 1931.

<<Page 369 “*The Last Valley*”>>

The movie premiered on January 28, 1971, not in February 1971. *The Last Valley* was not made to be presented in 70mm Cinerama, although it was shown in some Cinerama theaters and advertised as just “70mm”.

<<Page 374 “*Let’s Go*”>>

The last sentence of the summary should read “Originally made for Expo ’85 in Tsukuba, Japan.”

<<Page 378 “*Mackenna’s Gold*”>>

It should be pointed out that some of the special effects in this movie were filmed in spherical 35mm and blown up to 70mm while adding an anamorphic stretch to the image. The distortion due to the anamorphic stretch added to these scenes is easily noticed. A considerable amount of the movie was filmed in 35mm anamorphic Panavision.

<<Page 380 “*Magic Egg*”>>

One of the sponsors of this film, Cray Research, is misspelled as “Gray Research” in the book.

<<Page 380 “*Magic Journeys*”>>

Although this was the first American film shown to the public in dual 70mm widescreen 3D, a demonstration reel in the 3D dual 70mm Stereospace 2000 format was exhibited to industry representatives in December 1980 which was prior to the filming of *Magic Journeys*. It should also be noted that nearly all dual 70mm 3D films including *Magic Journeys* and the Stereospace 2000 3D demonstration were filmed at 30 frames per second.

<<Page 380 “*Magirama*”>>

There is no evidence to support the claim that this film was shown in Cinerama, particularly due to the differences in aspect ratios.

<<Page 381 “*Mark of the Devil*”>>

This was not “Filmed in Hi-Fi Stereo 70mm” as claimed by the authors. It was in fact photographed in conventional spherical 35mm.

<<Page 382 “*Le Merveilleuse vie de Jeanne d’Arc*”>>

The authors mention that this film is “often cited as the first anamorphic feature release, but it was actually predated by *Pour construire un feu* (q.v.) in 1927.” In fact, *Pour construire un feu* (*To Build A Fire*) was not released until 1930.

<<Page 381 “*March of Todd-AO*”>>

There are no credits and no listing anywhere in the book for this Todd-AO short. The main credits are as follows: *Release date* 1959. *Running time* 13 minutes. *Producer* Louis de Rochemont. *Director* Louis de Rochemont III. *Director of photography* Gayne Rescher, ASC. *Film editor* Peter Ratkevich. *Music* Morton Gould. *Music conductor and orchestrations* Jack Shaindlin. *Sound Mixer* Fred Hynes.

<<Page 388 “*My Strange Uncle*”>>

The authors comment that this film “was not the first dramatic film in MAX as claimed by some”. The format name is actually spelled IMAX, and the first dramatic (story-telling) film in IMAX was *Snow Job*.

<<Page 388 “*Na podvodnikh skuterakh*”>>

This film was released in the Soviet Union in 1963, not 1964. The running time of the film was 30 minutes. The English translation of the title is *On Submarine Scooters*.

<<Page 388 “*Na samom bolishom stadione*”>>

This film was photographed in Circular Kinopanorama and not in Kinopanorama 70 as claimed by the authors. The English translation of the title is *At the Biggest Stadium*.

<<Page 390 “*Napoleon*”>>

It should be clarified that the “Perspective Sonore” version of *Napoleon* released in the 1930’s was not true stereophonic sound. Instead, it used a sequencer that switched in different speakers at different points during the film. The same monophonic soundtrack was sent to whatever speakers were activated at the time. The authors also state that the “Coppola Version” was done with a live orchestra and the film “...had been transferred to 70mm and during the Triptych scenes the frame was reduced in height considerably.” The presentations with the live orchestra used three 35mm projectors with selsyn interlock, and the screen did not change in height but rather had the sides of the wide screen covered by black masking that lifted vertically just before the first Triptych scene. The 70mm version did change in height from a 1.33 x 1 image that filled the height of the 70mm frame to a 4.00 x 1 image that filled the width of the frame. In some theaters (such as the Cinerama Dome in Hollywood) a different magnification was used for the Triptych sequence so the screen did not change in height. The 35mm version for general release is a reduction of the 70mm version. Incidentally, the video version slightly squeezes the Triptych scenes into about a 3 x 1 aspect ratio so that they fill more of the video screen. A transition sequence made from alternate takes and other scenes was used just for the video version to try to illustrate the change to the three projector Triptych finale.

<<Page 391 “*New Magic*”>>

Night of Dreams was the first Showscan film made when the process was developed at the Future General Corp. subsidiary of Paramount. (In fact, a scene from the film where a boy sees a tree struck by lightning appears in *New Magic*.) *Big Ball* was the second film completed, and was released with *New Magic* as the films to be shown in the Showbiz Pizza Place theaters. *Night of Dreams* was made available to Showscan theaters at a later date.

<<Page 392 “*Niagara Falls in Grandeur*”>>

The release date was September 17, 1929 in New York City, not February 13, 1930, although it was also shown with the *Grandeur* release of *Happy Days*.

<<Page 392 “*Night of Dreams*”>>

The running length of this film is 12 minutes. It was filmed in 1978, but was not widely shown until there were Showscan theaters in which to show it. Thus it was actually the first commercial Showscan film completed. In fact, a scene from this film appears in the Showscan film *New Magic*.

<<Page 392 “*Night Passage*”>>

This was not the first film in Technirama as claimed by the authors. The first Technirama film released was *The Monte Carlo Story* which premiered in December 1956. However, *Night Passage* was the first Technirama film released in the United States.

<<Page 393 “*Ocean*”>>

This film premiered on March 30, 1977.

<<Page 393 “*Opasnie povoroti*”>>

The title of this film is also sometimes spelled *Oposniye pavoroty*. The English translation of the title is *Joyful Racing Corners*, but it has also been translated as *Mischievous Turns* and *Naughty Curves*. This was the first dramatic (story-telling) feature length film in Kinopanorama. The running time is 119 minutes.

<<Page 397 “*Panorama Blue*”>>

The authors state that this film was advertised “in 70mm Super Panoramascope and Four-Track Stereophonic Sound.” In fact, the advertising for this film said it was “Filmed in Super 70mm Panoramascope” but only the word Panoramascope was given a distinctive font. Thus, the format name is actually just “Panoramascope”. This X-rated film was shown in and advertised as 70mm and six channel stereo at the Paramount theater in Hollywood. It was also shown in 70mm in several other cities. The main reason for the lack of 70mm bookings was the difficulty in finding theaters with 70mm projection that were willing to show an X-rated film. It is strongly suspected that this film was not photographed in 65mm but rather was probably blown up from anamorphic 35mm, but I have not been able to confirm this. The authors also state that the rollercoaster scene was a sexual encounter done in front of a transparency. In fact, the rollercoaster scene was at the end of the film, and was a “wild mouse” type of rollercoaster with an individual car, and was done in front of an obvious rear-projection screen. This movie is a soft-core sex film that parodies *This Is Cinerama*, which makes it have one of the most limited demographic audiences of any film ever made!

<<Page 401 “*Poem of the Sea*”>>

The title of this film is listed as *Poem of a Sea* rather than *Poem of the Sea*. One report gives the running length of the film as 111 minutes rather than 92 minutes.

<<Page 403 “*Pour construire un feu*”>>

The authors state that although the film was made in 1927, it may not have actually been exhibited until 1929. In fact, *Pour construire un feu (To Build A Fire)* appears to have premiered in 1930. The delay in release may have been due to it being a silent film.

<<Page 405 “*Raintree County*”>>

35mm prints of this film use a reduced height image so that a 2.6 x 1 aspect ratio image would be obtained by using standard 2.35 x 1 aperture. This was done to preserve more of the Camera 65 image than would be the case with 2.35 x 1 prints. The same technique was also used for the other Camera 65 film, *Ben-Hur*. Later prints of both of these features had the standard full-height 2.35 x 1 aspect ratio.

<<Page 407 “*Renault Dauphin*”>>

This film is 4 1/2 minutes long rather than 3 minutes as claimed by the authors. It was released in 1959, not 1962. It was not filmed in “Super Cinerama” since Super Cinerama is just a presentation technique. It may be noted that the authors claim a 1962 release in Super Cinerama in the filmography, yet they claim a 1960 release in regular Cinerama in the film list on page 55 of the book.

<<Page 407 “*Rivers of North America*”>>

There are no credits and no listing anywhere in the book for this OMNIMAX film. The main credits are as follows: (1976). Filmed in OMNIMAX. *Producer and Director* Roger Tilton. A Roger Tilton Films, Inc. production. Eastman Color. Six-track magnetic stereophonic sound. 24 minutes. Initially made for the Reuben H. Fleet Space Theater, San Diego, California.

<<Page 408 “*Rollercoaster*”>>

This Showscan short subject is actually called *Colossus* which is the name of the rollercoaster at Magic Mountain in Valencia, California that is seen in the film.

<<Page 411 “*SSSR s otkritim serddem*”>>

The running time of this film is not listed, but was 90 minutes. The English translation of the title is *U.S.S.R. With an Open Heart*.

<<Page 411 “*Il sacco di Roma*”>>

As was indicated previously, Panoramico Alberini is not a 70mm format identical to that used today. The perforation holes were closer to the sides of the film, there was no soundtrack, and the aspect ratio was approximately 2.52 x 1.

<<Page 411 “*Sacred Site*”>>

This film has been retitled *Night of the Comet*.

<<Page 413 “*Scent of Mystery*”>>

This film premiered on January 19, 1960. Panavision did not have any involvement in this movie; the photographic lenses were still camera lenses modified to mount on the Mitchell 65mm camera.

<<Page 415 “*Search For Paradise*”>>

The date of the premiere was September 24, 1957, not September 25th.

<<Page 416 “*Search For Paradise*”>>

The authors list this title as having six-track magnetic Cinerama Sound, when in fact it was seven-track for all showings.

<<Page 422 “*Sleeping Beauty*”>>

This was the first completely animated film released in 70mm. The animated credits to *Around the World in 80 Days* was the first animation released in 70mm (if you don't count the blinking marquee at the end of *The Miracle of Todd-AO*).

<<Page 423 “*A Soldier’s Plaything*”>>

The date of the premiere was October 30, 1930, not November 1st. There was no mention of Vitascope at the premiere showings, and it appears that this film was not released in Vitascope.

<<Page 425 “*Song of Norway*”>>

Although it was announced as being made “In Cinerama” when filming started, it was advertised as “On the Cinerama Screen” rather than “In Cinerama” when presented at most Cinerama theaters.

<<Page 429 “*South Pacific*”>>

The text states that 35mm prints did not carry the “Produced in Todd-AO” credit yet it does appear in the letterboxed video version. The movie was not filmed with Panavision lenses as indicated but rather with Todd-AO lenses. Panavision made the optical printer lenses that were used to make the 35mm reduction version.

<<Page 431 “*Standing Up Country*”>>

This film was made in OMNIMAX, not IMAX. And it was not a Canadian production, but rather a Roger Tilton Films, Inc. production initially made for the Reuben H. Fleet Space Theater, San Diego, California.

<<Page 432 “*The Story of Flaming Years*”>>

The souvenir program for this movie gives the title as just *The Flaming Years*. The authors list this title as having been filmed in Todd-AO, but acknowledged that it was unclear whether a Mitchell Todd-AO camera was employed. In fact, the film was photographed with a Soviet 70mm camera, and there are several Soviet references that confirm this. In fact, a photo of the camera appears in the May 1960 issue of the *Journal of the SMPTE*.

<<Page 433 “*Strategic Air Command*”>>

The last sentence comments that *White Christmas* was probably shown with horizontal prints only in “experimental” engagements in Los Angeles. In fact, the premiere engagement of *White Christmas* at Radio City Music Hall in New York and the Beverly Hills Theater in California used horizontal projection with hastily-built prototype projectors. Standard horizontal projectors were not available until April of 1955.

<<Page 434 “*The Tale of Old Whiff*”>>

The authors state that this film “was not the first 70mm animation film as claimed by some.” In fact, it was the first completely animated film photographed in 65mm. The first completely animated film released in 70mm was *Sleeping Beauty*, and the first animation presented in 70mm was the end credits of *Around the World in 80 Days* (if you don’t count the blinking marquees at the end of *The Miracle of Todd-AO*).

<<Page 437 “*This Is Cinerama*”>>

Louis B. Mayer was not an executive producer of *This Is Cinerama*. He joined the Cinerama organization a few weeks after the premiere. Max Steiner was also a contributor to the music for this movie even though he is uncredited. The scenes with the choir were photographed at the Cinerama studio in Oyster Bay on Long Island in New York, and the scenes with Lowell Thomas in his “library” were photographed in a small studio on Lowell Thomas’ farm near Pawling, N.Y. Seven track stereo was the standard for Cinerama ever since the premiere of this film. The 70mm rerelease premiered on February 15, 1973, not in 1971 as claimed by the authors. It is also claimed that “...there never was an actual title on release prints...” In fact, the closing credits to the film say “You have just seen *This Is Cinerama*” and the program book also clearly gives the title as *This Is Cinerama*.

<<Page 439 “*The Thrill of Todd-AO*”>>

The authors have nearly everything wrong about this short subject, including the title. The correct title is *The Miracle of Todd-AO* and it says so in advertisements and at the beginning of the film. The film was in 30 frames per second Todd-AO and was added to showings of *Oklahoma!* in 1956, not 1955 as claimed by the authors. The film was actually produced by Louis de Rochemont and directed by Capt. Juan C. Hutchison. Additional credits are as follows: *Directors of Photography* Haskell Boggs, ASC, Ray Fernstrom, ASC, William Mellor, ASC, and Gayne Rescher, ASC; *Film Editor* Peter Ratkevich; *Music* Morton Gould; *Music Conductor and Orchestrations* Jack Shaindlin; *Sound mixer* Fred Hynes. Incidentally, there is a roller coaster sequence in the film, and the program book for *Around the World in 80 Days* shows a photo using the Todd-AO camera on the “Atom Smasher” roller coaster which was the roller coaster used for *This Is Cinerama*. This had led some people to believe that the “Atom Smasher” roller coaster was used in this short subject as well. In fact, the roller coaster sequence shows a sign which reads “Ocean Park Amusement Park” and it was photographed on the “Hi-Boy” roller coaster at this park in

Santa Monica, California. The photo of the Todd-AO camera on the “Atom Smasher” roller coaster was taken when demonstration sequences were being made. The running time of *The Miracle of Todd-AO* is 12 minutes.

<<Page 439 “*To Fly*”>>

Tom McGrath did the narration for the film but the film was written by Jim Freeman, Greg MacGillivray, Tom McGrath, Francis Thompson, Robert M. Young, and Arthur Zegart.

<<Page 439 “*To the Moon and Beyond*”>>

This listing is the most messed up part of the book and I will attempt to try to sort it out. *To the Moon and Beyond* was actually a film made for the 1964 New York World’s Fair. It used a process called “Cinerama Spacearium 360” (or Cinerama 360 as the authors and others have called it) using a circular image on a frame occupying 10 perforation holes and was projected at 18 frames per second for an 18 minute show. After the fair, the film was retitled *Cosmos* and exhibited in a traveling inflatable theater. (Incidentally, two of the people who worked on this film were Douglas Trumbull and Con Pederson. Stanley Kubrick liked the work they did on the film and hired them to do some of the effects for *2001: A Space Odyssey*. The rest is history...) The credits given in this listing are for the film *Cosmos: The Universe of Loren Eiseley* which is usually just called *Cosmos*. The latter film was filmed in Dynavision (which uses an 8-perforation 65mm frame and not a “double frame” format) and enlarged to the OMNIMAX format. It premiered on June 17, 1974 and was never advertised or labeled as being in Cinerama 360.

<<Page 439 “*To the Moon and Beyond*”>>

Here are the actual credits for the film *To the Moon and Beyond* as they should appear in the book: (April, 1964). Filmed and presented in Cinerama 360 (Second Version). *Producer* Les Novros. *Writer and director* Con Pederson. *Cameraman* Douglas Trumbull. *Editor and special effects music composer* Pieter Van Deusen. *Camera* Mitchell Camera Corporation. *Lens* Fairchild. *Projector* Century Projector Corporation. A Graphic Films Corporation production. Eastman Color. Six-track magnetic stereophonic sound. 18 minutes. *Narrator* Rod Serling. Originally made for the Transportation and Travel pavilion at the 1964 New York World’s Fair. Sponsored by KLM Royal Dutch Airlines. Reduced to 35mm after the fair and shown in various cities retitled as *Cosmos*.

<<Page 440 & 441 “*Tommy*”>>

The “Quintophonic Sound” process is actually spelled “Quintaphonic”. And Quintaphonic Sound was not “MagOptical five track” stereo as claimed by the authors, but rather used a quadraphonic matrix with tracks one and three to produce separate left surround and right surround channels. The quadraphonic sound was supplemented by track two to provide a center screen channel. And contrary to the authors’ claim that *Tommy* was released in more sound formats than any other feature with five formats, *A Star Is Born* was released in six formats: 70mm six track, 70mm six track with Dolby, 35mm four track, 35mm four track with Dolby, 35mm Dolby Stereo (SVA) optical, and 35mm mono. As a side note, the record changed after the book was written: *Fantasia* has now been released in Fantasound (optical), 35mm mono, 35mm four track, 35mm Dolby Stereo (SVA) optical, interlock digital sound with newly recorded digital soundtrack, 35mm Dolby Stereo (SVA) optical with newly recorded digital soundtrack, 35mm Dolby Stereo (SVA) optical for 1990 “restored” edition, and 70mm six track Dolby for 1990 “restored” edition. If you want to include *Fantasia 2000* in the list (since it is mostly the original *Fantasia*), there are 35mm Dolby Stereo SR (SVA) optical/Dolby Digital/DTS/SDDS “quad” prints (with all four formats), IMAX 6-track mag sound system for IMAX prints, and IMAX DDP sound system for IMAX prints using CD-ROMs.

<<Page 441 “*Transitions*”>>

Although the film was the only 3D IMAX film at the time the book was published, there have been others since then including *The Last Buffalo*.

<<Page 444 “*Tron*”>>

All live action was filmed in 65mm but all of the “computer world” scenes were printed as Kodalith cells and colorized and rephotographed in VistaVision. Most of the computer graphics were done in VistaVision.

<<Page 445 “*2001: A Space Odyssey*”>>

Primary photography used Super Panavision 70 cameras and lenses. For some special effects shots and some other shots, Todd-AO cameras were used. In particular, several shots utilized the same ultra-wide angle lens made by Fairchild that was used for Cinerama 360.

<<Page 446 “*Udivitelinaya okhota*”>>

The English translation of the title is *Amazing Hunting*.

<<Page 447 “*The Velvet Underground and Nico*”>>

There is nothing wrong with the listing other than it is misplaced alphabetically. You might want to pencil in a remark on page 448 to look on page 447 for the listing.

<<Page 446 “*V Antarktiku za kitami*”>>

The English translation of the title is *To The Antarctic For the Wales*.

<<Page 452 “*The Volga Flows On*”>>

The Soviet version premiered in 1962 instead of 1963, and it was 129 minutes long. *Volga Volga* was the 80 minute edited version that was shown outside the U.S.S.R. The first dramatic feature in Kinopanorama was actually *Opasnie pavoroti* (also sometimes spelled *Opasniye pavoroty* and also sometimes called *Joyful Racing Corners*) in 1961.

<<Page 450 “*Voyage to the Outer Planets*”>>

This multimedia presentation used OMNIMAX (not IMAX) sequences which were filmed in the Dynavision eight perforation 65mm format and enlarged to OMNIMAX. The 28 minute running time is for the entire program which also used a starball planetarium projector and effects projectors and a five perforation 70mm projector at the rear of the dome. The OMNIMAX projector would start and stop during the show for the sequences that used OMNIMAX. An updated version of this presentation was released in 1976.

<<Page 450 “*Vozimite nas s soboy, turisti*”>>

This film was presented in “Roundframe” at Expo '67 in Canada, but it was a round image on a flat screen and not a spherical (hemispheric) screen.

<<Page 452 “*Water, the Source of Life*”>>

No, there isn't a listing for a film called *Water, the Source of Life* but there should be. It was the first publicly exhibited film which was made in the Stereospace 2000 format. It was a 3D format using twin 65mm cameras at 30 frames per second for photography and twin 70mm projectors for projection. This 20 minute film was made by Guggenheim Productions of Washington D.C. for the United States Pavilion at the 1984 World's Fair at New Orleans. A second Stereospace 2000 film *3D Fantasiom* was made for the Sumitomo pavilion at Expo '85 in Tsukuba, Japan.

<<Page 452 “*We Are Born of Stars*”>>

The credit for “Computer animation” should be for Dr. Nelson Max. The film was designed for viewing on a OMNIMAX dome and the 3D does not work very well on a IMAX screen.

<<Page 455 “*White Christmas*”>>

The film premiered on October 14, 1955 at the Radio City Music Hall in New York City. The horizontal projection as used there utilized a separate sound film that was interlocked to the picture projectors. The projector aspect ratio of the horizontal format was 1.96 x 1.

<<Page 456 “*Windjammer*”>>

The film premiered on April 8, 1958 at the Chinese theater in Hollywood. Dubray-Howell did not do the color prints. Color prints were made by Tri Art which was a subsidiary of Du Art Film Labs. Dubray-Howell refers to the type of perforation hole used on the film. The stated running time of 142 minutes would be impossible with 8000-foot reels on the projectors unless a ridiculously long prologue on the conventional projector was used. In fact, the correct running time is 128 minutes. Filming took place aboard the S.S. Christian Radich (not Radish as stated in the text). 35mm scope prints were later shown in some European locations without 3-strip projection.

<<Page 463 “*You're in the Army Now*”>>

The correct spelling of the process is Magnafilm, not Magnifilm (which was the 65mm process used for *The Bat Whispers*). This confusion in names has occurred many times in writings by different authors on the subject. The authors state “...the only known frames from the film are of a ship at anchor. This has led all previous writers and researchers to believe – with some justification! – that the title must have been *We're in the Navy*...” In fact, the

frames of the ship at anchor were identified in a reference as being in the 62.5mm Natural Vision format. Photos of several scenes from the film (mostly showing soldiers singing with a band) clearly indicate that the 56mm format had an aspect ratio on the film of about 2.18 x 1 and the film was shown on a 2 x 1 aspect ratio screen (not 1.85 x 1 as the authors claim). And contrary to the authors' claim to fame as being the first researchers to get the title right, virtually all references by others to the title got it correct except for the book *Four Aspects of the Film* by James L. Limbacher. Since the Limbacher book is widely used by researchers and authors on the subject, those authors who did not check beyond Limbacher's book thought the title was *We're in the Navy Now*, or *We're in the Navy* which was a different film released about the same time.

<<Page 464 "Zimnie ztyutsi">>

The title is sometimes also spelled *Zymnie Etudiye*. The film was produced by the Tsentraliniy dokumentaliniy film studiya. The running time of this film is not listed, but was 28 minutes. The English translation of the title is *Winter Studies*.

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ADDENDUM

This section covers items that appear to have been overlooked but probably should have been included in the book. There have been a number of special venue formats introduced since 1988 when the book was published. They have not been included here since I am addressing omissions to the book.

<<Early multitrack audio>>

The first feature film to use more than one audio track wasn't *This Is Cinerama* or *Fantasia* or *Napoleon* or even *The Big Trail*. It was *Hell's Angels* which was presented in May 1930 using two separate audio tracks at the premiere engagement at the Chinese Theater in Hollywood. The movie included Magnascope sequences using a larger screen, and Howard Hughes wanted a "larger sound" as well as a larger picture. A second film was interlocked with the picture film and was used to drive additional amplifiers and speakers behind the screen during these sequences. However, this was not stereo but rather just used for louder sound for particular effects, similar to what was done with Sensurround about 40 years later.

<<Magnachrome>>

There were press reports at the time that Universal joined the 65mm group that was competing with the 70mm format used by Fox and MGM in 1930. Universal supposedly photographed the short *We-We Marie* (1930) in a 65mm format they called Magnachrome. However, there is no evidence that Universal released such a short in widescreen.

<<Other Cinerama information>>

There are several additional items of interest that were not included in the description of Cinerama. Itinerama (also sometimes called "Interama") was a mobile Cinerama theater in a tent. It was designed to bring the process to cities that did not have a Cinerama theater. It premiered at Angers, France in the Summer of 1961 and opened in Richmond, England on April 27th, 1964. ... The Century Drive-in in Inglewood, California was the first drive-in configured for Cinerama in April 1964. ... A technique had been developed and built in prototype form that eliminated the jiggle between the panels. Registration markers were placed outside the image area on the film and projected onto sensors next to the screen. The sensors detected any movement and sent electronic correction signals to the projectors which could slightly move the image in response to these signals. ... Development of a single-film Cinerama took place in the early 1960's. The experimental format used a 16 perforation pull-across 35mm camera, but the development was abandoned and Ultra Panavision 70 was used instead. ... The final theatrical use of the three projector format at the time the book was written (1987) was in July 1972 in Paris, France.

<<Vection>>

Carr and Hayes make reference on page 13 paragraph 3 to the experiments by Fred Waller on how peripheral vision gives us a sense of depth and space. Other authors include the sense of balance in their descriptions of these peripheral vision sensations. Some authors have even called it the "Cinerama effect". The field of human factors involving flight simulation has formal names for these two sensations. The sense of depth and forward movement so obvious in the roller coaster sequence from *This Is Cinerama* is formally known as "linearvection". The sense of balance and rotation, noticeable with the point of view shot of Russ Tamblyn rolling down the hillside in *The*

Wonderful World of the Brothers Grimm or docking with the rotating space station in *2001*, is formally known as “circularvection”. Since these are similar but different sensations, they are sometimes informally referred to as “vection.” However, the proper terms are “linearvection” and “circularvection”.

<<Hypergonar film list>>

The authors did not include a listing of films that used the Hypergonar process. The films are *La femme et le rossignol* (sequences, 1929), *La merveilleuse vie de Jeanne d'Arc* (sequences, 1929) *Pour contruire un feu* (1930), *L'Exposition coloniale* (1931), and *Panorama au fil de l'eau* (dual projector, 1937).

<<Four track magnetic stereo effects track switching>>

An important aspect of the four track magnetic stereo format that was introduced with CinemaScope was not mentioned in the book. The format uses a narrower track for the effects (surround) channel which has a resulting poorer signal to noise ratio. The noise from the surround speakers would be particularly noticeable by the audience due to their proximity. Therefore, Fox prescribed the use of a 12 KHz control tone at 18 dB below 100% modulation on the effects track to turn on the effects speakers. The speakers would be switched off automatically with a relay when the control tone was absent. The sound system in the theater is supposed to have a low pass filter in the effects channel which removes the tone, but some theaters neglect to include this filter. So if you ever heard a high-pitched whine from the effects speakers just before and during the effects audio, this is the reason.

<<Soviet 10 perforation anamorphic format>>

The Soviets experimented with a 10 perforation per frame anamorphic format that would permit the use of a very large wide screen. The specifications were as follows: Perforations per frame: 10; Projectable image area: 1.890" x 1.811"; Projected aspect ratio: 2.09 x 1.

<<Soviet Vario-70 Varioscopic format>>

This format uses a 10 perforation frame on 70mm film with seven different standardized aspect ratios possible during a performance. Release prints are made by first printing from the picture negative and then from a film which has the masks needed for each scene exposed on the film. The size of a typical screen for the format is 65 x 60 feet. The specifications for the format are as follows: Perforations per frame: 10; Projectable image area: 1.890" x 1.811"; Standard image areas (and aspect ratios): 1.890" x 0.803" (2.35 x 1), 1.673" x 0.906" (1.85 x 1), 1.441" x 1.051" (1.37 x 1), 1.232" x 1.232" (1.00 x 1), 1.063" x 1.429" (0.75 x 1), 0.945" x 1.604" (0.59 x 1), and 0.839" x 1.811" (0.46 x 1).

<<Soviet Vario-35 Varioscopic format>>

This format is similar to the Vario-70 format except that standard 35mm cameras and projectors are used. The specifications for the format are as follows: Projectable image area: 0.835" x 0.713"; Standard image areas (and aspect ratios): 0.835" x 0.453" (1.85 x 1), 0.709" x 0.524" (1.37 x 1), 0.614" x 0.614" (1.00 x 1), 0.535" x 0.713" (0.75 x 1).

<<Soviet Vario-35A Varioscopic format>>

This format is similar to the Vario-35 format except that the entire projectable image area is used with a lens with adjustable anamorphic factors. The format has the advantage of a larger image area than Vario-35 with the resulting relative increase in brightness and lack of grain. The disadvantages to the system are the time needed to change from one aspect ratio to the next and the added complexity of the automated lens changing mechanism. Changes in the anamorphic factor are triggered by darkened areas between the perforation holes which are adjacent to the soundtrack. The darkened areas produce a three bit code which trigger the six different lens settings. The specifications for the format are as follows: Projectable image area: 0.835" x 0.713"; Standard aspect ratios: 2.35 x 1, 1.85 x 1, 1.37 x 1, 1.00 x 1, 0.75 x 1 and 0.59 x 1; Corresponding anamorphic factors: 2 x 1, 1.57 x 1, 1.17 x 1, 0.85 x 1, 0.64 x 1 and 0.5 x 1.

<<Dynamic Frame>>

Used for the short subject *The Door in the Wall* produced and directed by Glenn Alvey in 1957. VistaVision cameras were used with a variable aperture plate to give three standard ratios: 1.3 x 1, 1.6 x 1, and 2.5 x 1. The film also included scenes where the aspect ratio changed during the scene.

<<7012 System>>

A process offered by Geo-Odyssey that uses 35mm film with a 12 perforation pull-across frame. With an aperture of 2.040" x 0.980" it provides an area nearly equivalent to that obtained with 65mm cameras but with 35mm film stock.

<<8 perforation 65/70mm formats>>

Several companies offer formats that use 65mm cameras and 70mm projectors with a frame eight perforations tall. Some of these formats also use a 30 frames per second rate for smoother motion and less flicker on the screen. The format has also been used for films photographed in IMAX and printed down to the eight perforation size. Companies offering the format include Iwerks Entertainment, Omni Films International (now part of Iwerks), Vistascope and Super 70 Entertainment. In addition, cameras are available from MSM and projectors from Pioneer Technology and Kintone. There are no official standards for this format, but the following specifications are commonly used: Camera aperture: 2.031" x 1.484"; Camera aspect ratio: 1.37 x 1; Maximum projectable area: 1.913" x 1.431"; Projector aspect ratio: 1.34 x 1.

<<Imagine 360 / Swissarama>>

This format was developed as Swissarama by Swiss filmmaker Ernst Heiniger. In 1986 he collaborated with Iwerks Entertainment to refine the process and the final format was renamed Imagine 360. The process is similar to the Circarama and Circle-Vision 360 formats except that one 65mm camera and one 70mm projector are used. The camera uses a fisheye lens with a 204 degree field of view and is mounted facing downward on top of a plexiglass cylinder that supports the camera. The projector is mounted in the center of the ceiling and projects downward through a similar lens. The center of the field of view is masked to produce an image suited for the 360 degree cylindrical screen. The first theater opened at the Verkehrshaus (Museum of Transportation) in Lucerne, Switzerland in 1984 and showed the film *Impressionen der Schweiz (Impressions of Switzerland)*. A second theater opened at the Shikoku Bridge Expo in Kagawa, Japan in 1988 and showed the film *Rhapsody of Shikoku*. A third theater opened in Berlin also in 1988 which showed the film *Destination Berlin*. The specifications for the process are as follows: Perforations per frame: 10; Approximate diameter of outer edge of image: 1.91"; Approximate diameter of inner edge of image: 1.20"; Field of view: 360 degrees x 34 degrees (12 degrees above horizon, 22 degrees below horizon).

<<Smith-Carney system>>

This was a format that allowed a very wide image on 35mm film with a four perforation height frame. It was designed to fill a screen with a 180 degree arc. The process was developed by Tom F. Smith and Rowe E. Carney of Rolla, Missouri in 1958. A demonstration screen was installed in the Rollamo theater in Urbana, Missouri that was 74 feet wide by 16 feet tall. The process worked by dividing the area filled by a full aperture into three sections: If the film is oriented so that the image is upright, the lower half of the frame (an area of 21.3mm x 9.4mm) subtends a 90 degree field of view and fills the middle of the screen. The upper right quadrant fills the left side of the screen, and the upper left quadrant fills the right side of the screen. These two quadrants occupy an area on the film of 11.4mm x 9.4mm each. A travelogue was shown for very limited runs at the Rollamo theater in Urbana and at the Lyric theater in Springfield, Missouri. The film included a tour of the Missouri School of Mines at Rolla, an airplane flight, a Mississippi River excursion, views of the Missouri Capitol building at Jefferson City, and a roller coaster ride in the St. Louis Forest Park Highlands. The inventors chose the somewhat confusing name of "Rotoscope" for the process.

<<Fox/SMPE 50mm system>>

In 1930, Fox Studios and the Society of Motion Picture Engineers (SMPE) experimented with a 50mm film width which was chosen to allow regular 35mm projectors to be modified for the wider film. The format was never used commercially. The specifications for the format were as follows: Camera aperture: 1.325" x 0.735"; Maximum projector aperture: 1.305" x 0.725"; Soundtrack width: 0.200"; Projected aspect ratio: 1.80 x 1.

<<Super 16mm>>

This format is a modification of the standard 16mm format and is designed for making enlargements to masked 35mm prints. The specifications for the format are as follows: Camera aperture: 0.488" x 0.295"; Camera aspect ratio: 1.66 x 1. Some of the films made with Super 16mm cameras are: *She's Gotta Have It* (Island Pictures, 1986); *Hard Choices* (Lorimar, 1986); *Working Girls* (Miramax, 1986); *Partisans of Vilna* (European Classics, 1986); *Mother Teresa* (Independent, 1986); *Positive I.D.* (Universal, 1987); *North Shore* (Universal, 1987); *Hail! Hail! Rock 'n' Roll* (Universal, 1987). There are many other films, but I do not have a complete listing.

<<Panaphonic sound>>

The Panaphonic system was developed by Dorsett Laboratories, Inc. of Norman, Oklahoma in 1953 as a method of easily introducing directional sound to any film. The directional cueing used a binary signal derived from darkened inter-sprocket areas on both sides of the film. Photocells for each control track were used to create four different modes of operation: Center speaker only, right speaker only, left speaker only, and all speakers including surround speakers. Films could be printed with the control tracks, or projectionists could make their own tracks using a special marking pen. The ink could withstand over a hundred screenings, yet it could be wiped off with a damp cloth and a solvent. The system was installed in 14 theaters in the Texas area, but the system was effectively replaced by the Perspecta system.

<<Interactive movies>>

The first interactive film was the feature *Mr. Sardonicus* directed by William Castle and released in 1961. It included a "Punishment Poll" where the audience voted on which conclusion they wanted. Actually, it wasn't really interactive since the same ending would be shown for either vote. ...Czechoslovakia provided an actual interactive film technique called Kino-Automat which was used at Expo '67 in Montreal and Hemisfair '68 in San Antonio, Texas. The film *One Man and His World* was presented and the audience pressed a red button or a green button to choose at a few points during the film which path the story would take. The appropriate projector would then show the chosen path. ... The NEC pavilion at Expo '85 in Japan used a videowall driven by multiple videodisc players. A touch-sensitive video display located at each seat in the theater permitting branching choices for the presentation. The videowall was composed of three rows of nine 133-inch rear projection monitors.

<<Sensorama>>

Developed by Morton Heilig in 1961, Sensorama was a multi-sensory nickelodeon for a single observer. Using 35mm film with magnetic stripes, it used two 35mm cameras with 16mm wide angle lenses in photography and a viewing hood to give a wide angle stereoscopic view. The magnetic stripes provided binaural stereo sound via speakers placed next to each ear and used cues from another track to trigger other effects including seat vibration, heat, wind, and even scents!

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EPILOGUE

I could have included many other formats such as those used at fairs and expositions, museums, planetariums, video projection, flight simulation, and other special venue formats. These are beyond the scope of the Carr and Hayes book, and so I have not included them in this document. The book *Wide Screen Movies* was not completely comprehensive even for feature motion pictures (despite their claims). Their focus was on how technology was used to advance the art of feature films. My interest focuses on how technology from other fields of study advanced entertainment and vice versa. For example, television caused movies to have a wide screen, and now television monitors are becoming wide screen. As William Shaw of IMAX Corporation likes to remind people, it is the field of view of the screen as seen by the audience that makes a presentation impressive, not the size of the screen. Large screens were used because auditoriums held 500-3000 or more people. The wide screen experience can return for smaller theaters if the screen presents a wide field of view. Showscan has done this with 34 foot screens. The path is clear if people want to follow it.

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ABOUT THE AUTHOR

Daniel J. Sherlock is a systems engineer and a film format historian. He has researched the subject of film formats for over 30 years. He was born and raised in Southern California, and thus has had the opportunity to personally see and experience many of the formats and technologies described in the book *Wide Screen Movies*. He is also interested in other media technologies, having made his own 3-D movie camera adapter, quadraphonic decoder, binaural stereo "dummy head" microphone, and "adaptable" 3-D glasses. He is a long-term member of the Society of Motion Picture and Television Engineers (SMPTE) and the British Kinematograph Sound & Television Society (BKSTS), and can be found occasionally posting to the rec.arts.movies.tech newsgroup on Usenet.