WELCOME!

Happy May! Dads and grads are on everyone’s minds at this time of year, and with all the latest offerings in Home Theatreland there is sure to be the perfect gift out there for the man, woman, or child in your life. And in case you need a few ideas, we have introduced several new products in the “Coming Soon To A Retailer Near You” column. Stacey Pendry has been very busy with our DVD Giveaways, which are proving to be extremely popular with our readers. In addition to the single-title DVD contests she has arranged, Stacey has also organized a Spectacular Summer DVD Giveaway that you can read all about in “The Studio Scoop.” “They” say that nothing is free, but this is one instance where “they” are wrong. Be sure and enter, and you could be the lucky winner of any number of free DVDs. This month’s archived IMAX® article is from the December 1997 Issue #26, a warm up for an updated article on 3D technologies in the cinema, which begins in Issue 132 June 2008 of WSR.

Gary Reber
Editor-In-Chief, Widescreen Review

NOW AVAILABLE ON NEWSSTANDS

Issue 132, June 2008 of Widescreen Review:
• “Marantz VP-11S2 1080p DLP™ Projector” By Greg Rogers
• “Russound® Complement LCR7 & SUB105 On-Wall Loudspeakers & Powered Subwoofer” By Gary Altunian
• “Samsung BD-UP5000 Duo HD Player” By Mike Marks
• “An HD Optical Disc Timeline: Our Coverage Of The Competing Formats” By Danny Richelieu
• “The Digital Dilemma: Preserving Today’s Films For Tomorrow’s Audiences” By Bob Fisher
• “Deep Impact Part I: The Technology Of 3D Cinema” By Alen Koebel
• Plus the new department “Connecting Dots...” By Amir Majidimehr, “Your Letters,” “One Installer’s Opinion” and 38 Blu-ray Disc and DVD picture and sound quality reviews and more...

ATTRACTIONS

2 New Equipment: Coming Soon To A Retailer Near You
By Tricia Spears

4 The Studio Scoop: Rumors, Reports, & Ramblings
By Stacey Pendry

7 As Wide And As Deep As It Gets— The New 3D Image And 3D Binaural IMAX®
By John Sunier

Sponsored By Triad:
The Infinity Classia Series loudspeakers include a compact bookshelf monitor, the
C205; a wall-mountable center channel, CC225; a floorstanding tower, C336; and a
wall-mountable surround loudspeaker with selectable mono-pole/bipole/dipole/dual-loudspeaker
operation, the C255ES. All the drivers in the Series incorporate CMMD driver
technology and a CMMD tweeter with frequency response that extends to beyond 40 kHz. All the models utilize premium-grade
parts and construction, with well-braced enclosures designed to
minimize cabinet colorations and preserve subtle musical detail.

The loudspeakers are available in high-gloss black and cherry-wood veneer and range in price from $330 to $900 each.

Infinity  www.infinitysystems.com

Jamo’s R 907 loudspeaker is a smaller,
more affordable version of the company’s
flagship dipolar R 909. Featuring 12-inch
woofers, the R 907 is approximately 20
percent shorter and 15 percent slimmer
than its predecessor but with operation
identical in principle. By decoupling and
fully suspending the loudspeaker’s 25-
mm silk-dome tweeters from the rest of
the loudspeaker, vibrations transmitted from the front baffle to the
tweeter are reduced by more than 20 dB. Available in a sleek red
or black finish, the R 907s are available for $9,000 a pair.

Jamo  877 456 JAMO  www.jamo.com

Panasonic’s latest Blu-
ray Disc™ player, the
DMP-BD50, includes
BD-Live capability, which
uses the Internet to fur-
ther enhance the con-
sumer’s entertainment
experience by giving
users the ability to down-
load such data as images and subtitles and to be able to join
in multi-player interactive games that are linked to bonus movie con-
tent contained on Blu-ray Discs. The DMP-BD50 also features the
PHL Reference Chroma processor and P4HD i/p conversion proces-
sor, which combine to create Uniphier™, a precise digital video
processor that produces sharp, crisp, natural colors. The DMP-BD50
employs VIERA Link™, a technology that allows the consumer to
operate VIERA Link-equipped home theatre components with a sin-
gle remote. Also included in the DMP-BD50 is an SD Memory Card
slot for easily transferring images from an HD camcorder or digital
still camera via an SD Memory Card.

Panasonic  800 211 7262  www.panasonic.com
JVC is introducing a new line of super-slim Full HD televisions that weigh less (26.4 pounds) and consume less power (145 watts) than conventional LCD TVs. The slim design was made possible through the use of a new JVC-developed slim panel backlight unit and power supply substrate, or chassis, and is 40 percent smaller in depth and bezel width compared to a conventional LCD backlight. The 42-inch LT-42SL89 and 46-inch LT-46SL89 both offer 1920 x 1080p resolution and feature a cabinet that measures a mere 1.5 inches deep across most of its width, with a maximum depth of only 2.9 inches at the panel’s center. JVC developed the slimmer backlight unit by optimizing the light-diffusing plates and light-reflection sheets. They also included a slimmer yet efficient power-supply substrate and employed a direct-mount configuration for it on the LCD panel backlight unit with a fan-less heat dissipation system to further reduce power consumption. Both models will be VESA compliant for easy wall mounting, but JVC will also offer its own mounting solution—a wall mount designed to position the slim TV closer to the wall than a standard mount does. The LT-42SL89 and LT-46SL89 will be available in early summer 2008.

JVC 800 526 5308 www.jvc.com

Toshiba America Consumer Products has introduced a full line of DVD products designed to enhance the video entertainment experience for the consumer. The three portable DVD players—the SD-P71S ($130), SD-P91S ($180), and SD-P101S ($300)—include larger screen sizes, sleek cosmetic designs, extended battery life, and convenient swivel screens. The LCD TV/DVD combination models—the 19LV505 ($480), high-gloss white 19LV506 ($480), and 22LV505 ($600)—are LCD televisions with slot-loading DVD players included in the units. Available in 19-inch and 22-inch diagonal screen sizes, each set features a high-gloss bezel and slim cabinet design. The upconverting single-deck DVD players—SD-4100 ($40) and SD-6100 ($70)—feature digital cinema progressive scan, ColorStream Pro component video output, and JPEG and MP3 playback. The SD-6100 features REGZA® Link (HDMI CEC) for a simplified device control using only one remote and offers upconversion to 720p, 1080i, and 1080p resolution. And Toshiba’s new line of DVD Recorders—D-R410 ($120), D-R560 ($180), D-VR610 ($180), and D-VR660 ($250)—all feature high-definition upconversion capabilities and convenient one-touch recording. The D-R410 and D-R560 are single-deck DVD recorders that offer 1080p unconversion and feature a high-gloss black cosmetic design, while the D-VR610 and D-VR660 are multi-format DVD recorders that offer 720p, 1080i, and 1080p unconversion.
Love You. Congratulations to our April The Boys in Lost Boys: The Tribe.

In a statement, Horn said, “With New Line Alan Horn, COO of Warner Bros., has announced the final decision was “up to Brad Grey, who runs Paramount.”

Be sure to check out our monthly DVD Giveaway contests located on the home page of our Web site. You have until May 29th to enter to win our current title: P.S. I Love You. Congratulations to our April The 11th Hour DVD contest winners.

Executive Producers Peter Jackson and Fran Walsh announced late last month that Guillermo del Toro has been signed to direct the highly anticipated film The Hobbit and its sequel The Hobbit 2. This is seen as a major step forward for the production of the New Line/MGM project that is due in theatres in 2010 and 2011, respectively. Del Toro will be moving to New Zealand after publicly criticizing the actors’ impetuous behavior. Redstone felt that Tom jumping on a couch on The Oprah Winfrey Show proclaiming his love for fiancée Katie Holmes, and having a verbal tussle with Today show host Matt Lauer over prescription anti-depressants was a liability for the studio. However, Cruise is now in talks with Paramount about reprising his role in the fourth Mission: Impossible film. The two were spotted dining out together in Beverly Hills last March. Redstone is quoted as saying, “I consider Tom Cruise a great actor and good friend. And if Paramount decides to move ahead with him, I will not object,” adding the final decision was “up to Brad Grey, who runs Paramount.”

Ice Age Director Chris Wedge is due to adapt Brian Selznick’s children’s novel, The Invention Of Hugo Cabret for Warner Bros. John Logan, who wrote scripts for The Aviator, Sweeney Todd: The Demon Barber Of Fleet Street, and Gladiator has been signed to pen the project. The story revolves around Hugo, an orphaned son of a clockmaker who is taken in by his uncle, who lives in the walls of a busy Paris train station. The uncle is in charge of maintaining the station’s clocks, but one day he too disappears, leaving Hugo alone. Without adult supervision, Hugo must scavenge and steal to survive, all the time maintaining the clocks of the train station so his uncle’s absence will not be discovered.

Current/Future DVD Giveaway Contests

Be sure to check out our monthly DVD Giveaway contests located on the home page of our Web site. You have until May 29th to enter to win our current title: P.S. I Love You. Congratulations to our April The 11th Hour DVD contest winners.

Our Spectacular Summer DVD Giveaway will begin on May 14th with seven fantastic titles from Warner Home Video to choose from. The titles confirmed for this multi-title contest include: The Bucket List with Jack Nicholson and Morgan Freeman; the romantic comedy, Fool’s Gold, starring Matthew McConaughey and Kate Hudson; 30 days and 30 nights of on-the-road behind-the-scenes side-splitting fun with Vince Vaughn’s Wild West Comedy Show; the epic, prehistoric sci-fi spectacle 10,000 B.C.; Be Kind Rewind, the hilarious comedy starring Jack Black and Mos Def; Semi-Pro featuring Will Ferrell with the greatest ‘Fro on Earth; and finally the two Corey’s reprise their roles from the iconic 80’s flick The Lost Boys in Lost Boys: The Tribe.

Our very first Blu-ray™ giveaway contest is here: Weeds: Season Three is up for grabs! Enjoy the antics of drug-dealing soccer mom, Nancy, and the other quirky residents of Agresta, California in the popular Showtime series. The DVD/Blu-ray will be available for purchase on June 3rd.

You may enter any of the above contests either by clicking the images displayed in this newsletter or online via the homepage of our Web site (www.WidescreenReview.com).

The Spectacular Summer DVD Giveaway contest may also be entered by either faxing or mailing the entry form located on page 57 of the June issue of Widescreen Review. With tiles to cater to every taste, and over 100+ winners, this is sure to be not only one of our biggest multi-title giveaways to date, but also one of our most popular. Good luck!

Warner Bros.

Alan Horn, COO of Warner Bros., has announced that both Picturehouse and Warner Independent Pictures will close.

In a statement, Horn said, “With New Line now a key part of Warner Bros., we’re able to handle films across the entire spectrum of genres and budgets without overlapping production, marketing, and distribution infrastructures. After much painstaking analysis, this was a difficult decision to make, but it reflects the reality of a changing marketplace and our need to prudently run our business with increased efficiencies. We’re confident that the spirit of independent filmmaking and the opportunity to find and give a voice to new talent will continue to have a presence at Warner Bros.”

However, Cruise is now in talks with Paramount about reprising his role in the fourth Mission: Impossible film. The two were spotted dining out together in Beverly Hills last March. Redstone is quoted as saying, “I consider Tom Cruise a great actor and good friend. And if Paramount decides to move ahead with him, I will not object,” adding the final decision was “up to Brad Grey, who runs Paramount.”
With the high-definition optical disc format war over, Paramount announced late last month they would again enter the Blu-ray arena when the studio released the animated *Bee Movie* on May 20th. Other titles slated for release on the same day are Face/Off and Next. Paramount originally supported both the HD DVD and Blu-ray formats, but switched to HD DVD exclusively last summer after Toshiba offered substantial monetary incentives for them to do so.

The studio has plans to reissue older titles on Blu-ray throughout the year with two more recent titles, *There Will Be Blood* and *Cloverfield*, slated for retailer’s shelves on June 3rd. The first day-and-date release scheduled is the family fantasy film *The Spiderwick Chronicles*, which will be available for purchase in both standard DVD and Blu-ray formats on June 24th.

*Iron Man* looks to be the summer blockbuster to beat as the film netted over $100 million during its opening weekend, according to domestic box office receipts. The hugely popular Marvel Studios-produced film represented the second-biggest opening weekend for a non-sequel feature, after the $114 million record set by *Spider-Man* in May 2002.

*Iron Man* enjoyed almost uniformly positive reviews ahead of its opening weekend, drawing patrons who were willing to stand in line and cough up the ticket price, by the droves. *Iron Man*’s popularity may benefit others beside Paramount and Marvel by jump-starting the summer movie season and creating a buzz and sense of escapism that may drive more would-be cinema goers back to the air-conditioned comfort of the local cineplex.

With the opening of Warner Bros.’ *Speed Racer* the weekend after *Iron Man* debuted, Paramount execs are hoping word-of-mouth will keep *Iron Man* at the top of the box office earners’ list.

**Universal**

Universal has announced its initial slate of film and TV titles to be released on Blu-ray after switching from HD DVD earlier this year.

Starting July 22nd, such catalogue titles as *The Mummy*, *The Mummy Returns*, and *The Scorpion King* will be available on retailer’s shelves. Later this summer the first theatrical release that will be available day-and-date with its DVD counterpart will be the action- adventure flick *Doomsday*. Also to be released day-and-date with the DVD is *Heroes: Season Two*, complimented by the first-time release of *Heroes: Season One* on Blu-ray.

By the holiday season, some of the most highly anticipated summer blockbusters will be available in high-definition along with the DVD. Major releases such as *The Incredible Hulk*, *Hellboy II: The Golden Army*, *Mama Mia*, as Breakthrough Performance, Best Comedic Performance, and Best Movie, the chances are good that the teen comedy will walk away with at least one of the coveted golden bucket of popcorn trophies.

Michael Cera received a nomination for Breakthrough Performance for *Superbad*, while also receiving the nomination for Best Male Performance for his role in the teen pregnancy comedy, *Juno*. Jonah Hill received a nod for Best Comedic Performance for his portrayal of Seth, the chubby, deadpan, horn-ball teenager on the hunt for alcohol in *Superbad*.

Can you feel the McLovin’?

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Can you feel the McLovin’?
Spectacular Summer DVD Giveaway Contest

Just complete the contest form below and mail it or fax it to us. We will draw names at random the first week of August 2008.

7 TITLES—MORE THAN 100 WINNERS!

NAME

ADDRESS
(NO P.O. BOXES)

CITY __________ STATE __________ ZIP CODE __________ COUNTRY __________

DAYTIME PHONE __________ EMAIL __________

DVD PREFERENCES
1) __________
2) __________
3) __________

Mail to: Widescreen Review, 27645 Commerce Center Drive, Temecula, CA 92590. Fax to: 951-693-2960. Enter online at www.WidescreenReview.com. All DVDs are NTSC Region 1. Entries must be received by July 31, 2008. Titles preferred are not guaranteed to be won. One DVD winner per physical address.
As Hollywood blockbuster features have become wider, longer and louder, with special effects never dreamed of just a decade ago, audiences may think they’ve seen and heard it all. The next dimension in filmic storytelling, IMAX® 3D, serves proof that they haven’t.

You enter the New York Sony-IMAX® Theatre at street level off Broadway and 68th. After ticket purchase you ascend a series of escalators that take you higher and higher. As you enter the 500-seat theatre properly an attendant hands you a cumbersome looking but actually lightweight 3D headset, the Personal Sound Environment®. The theatre seating is sharply raked and in front of you is a silvered 80 by 100 foot screen, equal to the height of an eight-story building.

When everyone is seated a host explains some of the points of IMAX 3D and helps you to properly set up your headset. There are no wires to worry about because both the signals to operate the liquid crystal 3D lenses and those bringing the binaural soundtrack to your ears are carried via banks of infra red transmitters on the sides of the theatre.

The show begins and you quickly appreciate how far ahead this is of any other 3D or widescreen film presentation you have ever experienced. First, the screen image is high resolution from edge to edge and top to bottom, without distortion toward the edges. Second, in spite of the dark liquid crystal filters over each of your eyes, the image is nearly as bright as a standard-screen 2D projected film. The depth of the 3D image is natural and completely rounded; no cut-out, cardboard type of images here as with many stereo vision processes. There is no need for the image equivalent of ping-pong stereo demos here—the spear in the eye type of thing. The simplest scene on the giant screen puts you right in the picture, without strain of eyes or brain. And when the camera peers over the edge of a skyscraper rooftop, for example. Wow! Where did your stomach go?

The sound half of the experience seems to come from the multiple speakers behind the huge screen, and much of it does. But in addition, and this is the key to putting you in the sound environment as well as the image environment, there are two small ear speakers in the Personal Sound Environment (PSE® after this). These are nearly full range speakers but with a cutoff at about 100 Hz, at which point the subwoofers behind the giant screen take over. The signals fed to these ear speakers come primarily from true binaural dummy-head original recordings. They put you wherever the original sounds occurred, with a seamless spherical soundfield all around you. In conjunction with the screen speakers they tie you securely to the images on (in) the screen so that there is never a question of whether a particular specific sound is located behind you or in front.

The Latest IMAX 3D Feature

While several of the more recent IMAX/Omnimax features have been shot in 3D and will provide material for the 3D theaters that will be built or converted around the world, the one that opened in New York in November 1995, is the first to make extensive use of the 3D sound capabilities of the new format. It becomes a “You Are There” sound experience rather than a “They Are Here” one.

“Across the Sea of Time” is a 51-minute 3D feature with an involving storyline. Tomas is a 12-year-old Russian stowaway on shipboard, coming to America for a very special purpose. Almost 100 years ago his ancestor emigrated to America to start a new life for himself. The ancestor became an early stereo photographer, creating the commercial black and white stereopticon cards for viewing in the small wooden hand viewers so popular at the time. He sent these back to his old world family—stereo views of his new home in New York City. Now Tomas has come to New York to try to find his long lost relatives, and touching shows many people his treasured few stereopticons while enquiring in sign language if they know where these old places are.

A number of these sites still stand, such as the statue in front of the stock market on Wall Street. The producers of the film scoured a collection of rare stereopticons of New York City to assemble those used in “Across the
The PSE® System

Sonic Associates’ proprietary hardware system and specialized recording technology removes the constraints of two dimensional sound and can place sounds at any point in space around the audience. They explain that in conventional theaters the sound may be localized on a point up on the flat screen or somewhere in the soundfield provided by the surround speakers, but these sounds are never at a specific identifiable point in space. For example a car door sound of closing on the normal screen will be connected by the mind as long as it comes from somewhere in the vicinity of the image on the screen. However, in 3D this becomes a major problem when the car door appears to be located halfway between the viewer and the screen. With conventional speakers at the screen this could result in the visual image appearing to be separated from the sound by more than 50 feet, making it impossible for the mind to connect the two events. The mind will perceive something wrong with the experience. The PSE moves the sound out from the screen and positions the apparent source of the sound as close as possible to the 3D visual image. The mind not only connects the two events but encourages suspension of disbelief in the observer that makes the action come alive.

With the PSEs there are no bad seats anywhere in the theater, as with conventional sound systems. The experience is the same for every seat, regardless of location. The wireless sound source gives the listener complete freedom of movement without the feeling of being tied to the seat. The PSE design permits all ambient sounds outside of the headset to be heard clearly. The headsets are powered by lightweight rechargeable batteries. Without the 3D glasses the PSEs can also perform in a sound-only experience, such as rides.

Sonic chose a modulated infra red carrier for the image sync and sound transmission. This reliable approach was selected to offer almost complete freedom from regulatory encumbrances in every country. Interfaces are provided to feed the signals from a variety of sound sources including digital audio or multi-track analog tape. When used with the Sonics 6 or 8 channel Digital Disc Player system, the ultimate experience is obtained.

FROM The Archives

Abbey Road London scoring session with John Barry on the podium. Note the headphones on all orchestra members.

(Photograph: Brian E. Rybolt)

Sea of Time.” They had to build the world's largest Wheatstone Viewer, patterned on those used around the turn of the last century. Each of the two images was precisely aligned and then filmed individually on a special copy stand with the massive IMAX camera. The special stand allowed for moving around on some of the images, and one of the most affecting is a vertical tilt down a large crowd of the expectant faces of new arrivals at Ellis Island. Another pans across griny workmen eating their lunch in the dark tunnels of the under-construction New York subway. In spite of being monochrome, frozen, and the 3D effect lacking the convincing “round ed realism” of newly-filmed IMAX footage, one feels as though you could walk right over and chat with the workers looking at you across the sea of a century. The binaural realism of the sound environments, taped on the spot where both the black and white stills and the modern scenes were photographed, aids in making the older stereopticons come alive for the viewer. The plot of “Across the Sea of Time” allows for plenty of modern-day New York City touring, too. One of the highlights is the rollercoaster ride, which may bring back memories of the original Cinerama feature for those old enough. If the Cinerama scene made your stomach queasy, better cover your lenses for the IMAX 3D plunge!

3D Then And Now

Sir Charles Wheatstone first used the principle of stereopsis—the ability of our spaced-apart eyes and our brain to give images depth, width and height—to create his Wheatstone Viewer in 1838. His images were hand-drawn geometric shapes. Later the new invention of photography made more realistic 3D possible with a hand-held device using a pair of photos shot by a camera with two lenses about 2.5 inches apart—similar to the human eyes.

The popular ViewMaster, with its small square transparencies mounted on a revolving cardboard disk, will be familiar to most today. From the very beginning of the motion picture industry, experimental 3D films were put on the screen. The first 3D short showed views of New York in 1915, and the first 3D feature film was shown in 1922. One system used a pair of interlocked projectors showing alternating black & white images. Every theater seat had a rotating shutter disk attached to it and synchronized with the projectors to block out alternate images so that the left camera images were seen only by the left eye and the right images only by the right eye.

In the 1950s there was a rebirth of 3D films due to the movie industry hoping to win back audiences from television. Hollywood turned out fifty-four 3D feature films, mostly with the polarized glasses originally developed before the Second World War by Edwin Land, founder of Polaroid. Some of the titles were Bwana Devil, House Of Wax, Creature From The Black Lagoon and The Maze. Many black & white features (such as the last two) used the simpler anaglyph process of red and blue/green lenses instead of more expensive polarized ones. The projectors had matching filters over the left and right projection lenses and the audience wore flimsy cardboard glasses with cellophane lenses that distorted the images on the screen. This process could produce a roaring migraine in the viewer very quickly; more so if the projectionist failed to have the two projectors exactly in sync or lined up properly on the screen. Just a couple frames out of sync and one eye's image 10 percent higher on the screen than the other eye was pure visual torture! (I recall purchasing a fancy pair of custom plastic-frame 3D polarized glasses to avoid the throwaway handouts at the theater, but just after buying them the 3D fad ended and I never used them once. They can’t be used as sunglasses because the polarity angles are wrong.)

The IMAX 3D process is the most advanced filmic 3D technology today. It employs the
world’s biggest motion picture camera, although at 250 pounds the new camera used for this production is a lightweight compared to the previous 2000-pound IMAX behemoth. The smaller camera allowed shooting only a few inches away from some of the actors—never before tried in a 3D film. The camera burns 20 times the film stock of a standard Hollywood model—2000 feet of 70mm every three minutes! And that is when running at the normal 24-frames-per-second speed; there is also a capability for 48-frames-per-second High Definition IMAX, but it has so far not been used due to the doubling again of the already immense film stock requirements.

The first IMAX color 3D film was made for Expo 1986 in Vancouver. (I’ll never forget one shot with flying Canadian goose, where you felt you were one of the goose flying right along with them!) The IMAX film frame, ten times the size of standard 35mm film and the largest film format in the world, allows projection to immense screens which with smaller formats would result in an extremely dark and grainy image. The challenge is to put enough light energy behind each frame; more on that later. The normal projector setup for 2D IMAX presentation—allready much larger and immensely more complex than any 35mm film projector—has to be in effect doubled to project the two huge 90-inch diameter individual film platters of 3D IMAX. The first platter of 70mm film stock holds the film recorded by the left lens of the original IMAX camera, while the second separate platter of film holds the images recorded by the right camera lens. The IMAX projector projects the left and right eye images onto the giant screen at 24 frames per second.

Simultaneously, the liquid crystal shutters in the battery-operated PSE headsets receive continuous signals from wall-mounted transmitters using a modulated infra red carrier and are opening and closing at the rate of 48 times per second. You see first only with your left eye and then only with your right eye as the shutters on the PSE are perfectly synchronized with those on the projectors. There is absolutely no “ghosting” of images common with other 3D formats. Polarizing filters are not required, though they can be if wished. The process is based on the same stereopsis principle that created 3D images for viewers through Wheatstone’s first stereoscope—it’s just speeded up to today’s faster tempo! So in “Across the Sea of Time” you are seeing both the oldest and the newest of 3D techniques.

Other IMAX 3D Current Presentations

At least two other 3D productions are being shown in rotation with “Sea of Time” at the New York Sony IMAX Theatre, and also at the Edwards Theatre in Irvine, CA. They will be seen later in other parts of the world as the 100 IMAX theatres around the globe are converted to 3D image and sound.

“Wings of Courage” is the first IMAX feature with leading stars and directed by a major motion picture director. Jean-Jacques Annaud combines a high adventure tale with a creative use of the 3D technology in this true story about the French air mail service operating out of Buenos Aires in 1930, flying mail over the perilous Andes Mountains. Val Kilmer, Tom Hulce, Craig Sheffer and Elizabeth McGovern have leading roles and the original musical score is by Gabriel Yared. In addition to putting the viewer right in the cockpit with the daredevil pilot soaring the jagged and threatening peaks, it also puts the pilot’s own thoughts into the viewer’s head through the use of the binaural technique. When his plane goes down and he forces himself to walk back to civilization you hear him in your own head repeating to himself the exhortation “I’m walking, I’m walking…”

The other IMAX 3D film has no story but is a journey through some of the amazing plant, animal and geological sights in the mostly unexplored world, including flying over the mostly unexplored...
under-ocean wilderness. “Into the Deep” was
directed by Howard Hall, and with its wide field of
3D view immerses the viewer in the underwater
experience more than any standard screen for-
mat possible could.

“Across the Sea of Time” is obviously in-
tended as the ultimate New York Experience mul-
timedia show, and it is. Although the story it tells
is universal enough that it could be shown with
interest almost anywhere, the plans are also to
eventually produce similar features in some of
the major cities where 3D IMAX theatres will be
located.

The 3D Soundtrack
For “Across the Sea
Of Time”

Director Stephen Low has coupled creativi-
ty and a fascination with film technology for the
production of six previous IMAX films, beginning
with one of the format’s all-time most popular
ones, “Beavers.” He has already begun shooting
on another IMAX feature, “The Art and Science
of the Racing Car,” and is developing “Mark
Twain’s America.”

Low wanted to give “Across the Sea of
Time” the sound texture of the past, and he
wanted it to have a sense of depth in every ele-
ment of the mix, so that he could take the audi-
ence “through the looking glass” into the world of
New York’s colorful past as well as present. The
three-dimensional sound experience had to
match to amazing giant images, both historic and
modern, up on the 3D screen. This meant the
only basic process that can do that—binaural
via headphones.

IMAX subsidiary Sonics Associates of
Alabama is in charge of the technology of the
IMAX presentations. They geared up for the 3D
project with five years of tests and development
at both their Birmingham offices and at Sound
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Dome Audio Video in Toronto, Canada. Tests
were made both with and without the accompa-
yning 3D images.

Most of the original recordings began with an
artificial recording head developed by Head
Acoustics of Aachen Germany. The unit is
designed to replicate the features and even the
different consistencies of an average human head
with two small omnidirectional mikes at the
entrance of the ear canals. The recording chan-
nel for the left ear is kept entirely separate from
the channel for the right ear, and thus when the
listener wears a stereo head set for playback, he or
she will experience all the sounds in the original
environment as though they were really present
there.

The Aachen Head is a rather awkward
assembly weighing in at 50 pounds prior to
mounting on a supporting tripod. This rig had to
be transported on everything from subways to
roller blades and to locations varying from sky-
scraper roofs to storm sewers. The sound team
put the head in acoustic settings to match the
depictions of both the past and present in the
film.

Another sound person put binaural mikes on
his own ears hooked to a portable recorder, and
set out to capture the special vocal and audio
characteristics of dialogue around the city. The
purpose was to pick up background accents
typifying the neighborhoods seen on the screen.
Next, back in the studio a five-person foley team
discovered an entirely new approach that was
needed for creating their sound effects to match
screen action. The actors on the screen moved
in real time and space, and to sound believable
both the dialog and foley had to have similar room
reflections and acoustics to match what was seen
on screen. Special walls and other surfaces had
to be constructed to achieve the desired ambi-
ence around the sounds. Both binaural and
mono recordings were made simultaneously.

The painstaking effort to match all sound move-
ments extended even to a Broadway tap dancing
scene in the film.

The musical score for “Across the Sea of
Time” was composed and conducted by Oscar-
winning film music composer John Barry. He
was identified with the scores for the James
Bond spectaculars, and his most recent credit
was “Dances With Wolves.” The Aachen binau-
ral head was placed behind Barry while he con-
ducted the orchestra. This was intended to trans-
port the audience into the heart of the music, mak-
ing each of them the conductor aurally speaking.
The instruments of the orchestra are thus given
palpable locations across the soundstage with
an accuracy impossible with even three or four-
channel stereo.

The IMAX camera puts out a loud roar dur-
ing operation, and two of them roar twice as
much. So as with most Hollywood productions, the
original soundtrack taped during filming can
only be used as a reference for the creation of a
new clean track in post production. Also, since
the camera has a great deal of bulk, even if it
were silent in operation the binaural recording
head couldn’t possibly be placed where the
lenses were—that is what would be required to
have a reasonable match between the sound
and image that the viewer will eventually expe-
rience. Thus dialogue replacement had to be
done, and it wasn’t as automatic as with
Hollywood films. The dialogue had to play to the
proper screen depth. The narrator was espe-
cially recorded with the artificial head for the
intimacy of playback on the PSE headset.

During editing of the film, all of these soundtracks
were matched to the images and tested in the same
environment of the PSE headset plus speakers at
the screen that would be used when it was pre-
sented. The sound team spent many hours wear-
ing the PSEs.

There were a few older recordings for the mix

Left: Mixing room scene in Toronto for Across the Sea of Time. Frame sync
information at the top of the video projection and audio data displayed
on the left and right video monitors on top of the mixing console.

Right: Recording binaural foley. Sound person eats apple in front of Aachen artifi-
cial head and attempts to match distance from camera and room acoustics
with shot in 3D film being projected on video in background.
that were available only in mono. These were "re- 
steered" into stereo versions using software 
applications from Crystal River Engineering 
which are often used in speaker-only applications 
for computer multimedia. Even some original 
binaural recordings were processed with the 3D 
software. For example, the sounds of sea gulls 
from the boat bringing the young Russian immigrant to New York. The perspective 
of the original recording didn't match the 3D 
images and the gull sounds were moving in a 
different direction than the gull images at some 
points. So the binaural tracks were folded into 
mono and then processed with the software to 
give the correct panning of the sounds to fit the 

The preparation for the sound mix was prob-

In The Theatre: Much 

aural soundfield that soon makes one forget any

before possible. It is played on an 18,000 watt, ten 
channel system, sourced from four separate 
CDs in caddys, synchronized by computer with 
one another and the film projector using a system 
roughly similar to that used by DTS for their 
image and sound connection.

Eight channels feed the speakers in the au-
ditorium. There are three full range speakers in a 
row at the screen center and a fourth at the top of the screen. Two more discrete speakers are in the 
rear of the theatre and two subwoofers are also 
behind the screen. The remaining two channels 
are specifically for the PSE headsets. With an 
even more sophisticated configuration, the head-
sets are capable of receiving up to four different 
channels of transmissions, so that a film could be 
shown in four different languages simultane-
ously; perfect for theme park use around the world.

The combination of the screen speakers, the 
subwoofers, and the PSEs produce a very nat-
ural soundfield that soon makes one forget any special apparatus is being worn. The viewer is 
placed wherever the sounds occur. As you 
travel around New York City, you're right in the 
middle of the action. Helicopters move in front, 
around and behind you. A train whistle moves 
across screen in perfect sync with the 3D 
image up there. When you're riding the subway in 
one scene, the sounds provide an uncanny feel-
ing of actually being aboard the subway car.

The most sophisticated multi-channel sound-
speaker surround system could not duplicate the 
accuracy of sound location in every direction in a 
360-degree sphere the way two-channel bina-
ural can. The key to the "depth audio" provided 
for in the new IMAX format is the PSE head-
set.

This innovative advancement in sound 
imaging creates a fully-controllable 3D sound 
image which can accurately track any 3D image on the screen. Sound positioning can be 
used to create drama and suspense. It can 
take sounds and noises off the screen in the 
distance or behind and place them anywhere 

New IMAX Film 

Developments

In addition to the three 3D films 
mentioned in this article, there are five 
more in the IMAX vaults, including one 
produced on 1985 in anaglyph format — 
meaning the viewer must wear red and 
blue glasses a la the old-fashioned regular 
format 3D movies (and usually get a roar-
ing headache in the process). Most of the 
new IMAX film projectors are of course 
being produced in 3D and as filmmakers 
become more skilled with the immense 
possibilities, even more thrilling use of 
both the image and sonic capabilities 
should be in evidence in the future.

The next IMAX feature with PSE bina-
ural sound will be released this spring, 
titled "Four Million Houseguests." It 
explores the world within an enchanting 
summer home visit by an 11-year-old and 
her parents. Her eccentric grandfather who 
is away on a trip, has left a series of whims-
ical clues leading to three magical 
journeys into newly unseen worlds. The 
first is the observable world around us, 
the second thru the microscope lens and 
the third an infinite, richly detailed universe 
accessed thru her grandfathers invention, 
the illuminator. An eye-opening adventure.

The Luxor in Las Vegas is now showing 
the 3D feature "L5" plus two other 2D IMAX 
films. (I suggest visitors to this venue avoid 
the top two rows of seating in the ex-
tremely-angled raked theatre — the safety 
lining in front of you obscures the bottom 
1/3 of the giant screen!) The former IMAX 
threatre at Ceaser's palace in LV is now an 
IMAX "RideFilm" attraction rather than a 
thatre. The Sony IMAX 3D in Yerba Buena 
Center in San Francisco won't be in 
operation until early 1998.
the producers wish. A sound can be made to appear directly behind your seat, over your shoulder, or anywhere else in any direction and at any distance—from a sexy or threatening whisper in one ear to a rumble of thunder or a sonic boom miles away.

The additional pair of sound sources on the PSE expands the capabilities of the existing six-channel digital speaker sound system mounted in the theatre. This use of headsets to expand the theatre's existing sound system is another world first for IMAX. The Sonics Associates developers had to equip the PSE with sound transducers fitted in such a fashion that they did not interfere with the sounds coming from the main sound system speaker array. They also wanted to minimize possible end user discomfort and adjustment requirements with normal headphone drivers that rest directly on the pinna or outer ears. And if contact with the ears were avoided it would be more sanitary.

In personal research into commercial head-phones for binaural listening, I discovered that those with their drivers positioned somewhat away from the pinna were the most successful in helping to locate the sounds outside of the head rather than inside as with ordinary stereo, (i.e. the AKG K-1000 and the various Jecklin models). Sonics took this approach further in the PSE by locating the small headphone drivers on the temples of the headset, above and in front of the pinna. The frontal location helps to pull the sounds more securely to the screen to eliminate any possibility of sound image reversal. Allowing the pinna to be completely free also reduces any claustrophobic feeling that some users might have when donning the PSE headset, and it leaves the ears unblocked to receive the full below-100 Hz sound waves from the subwoofers in the theatre.

Though it may appear somewhat clumsy, the PSE is in fact quite comfortable to wear. A simple plastic strap at the back is easily adjusted so that the front section, with the electronic 3D filters, sits comfortably on the bridge of your nose. Very large filters are required so that the eyes have an unimpeded view of the entire screen area; this proves much less distracting than peering through the small lenses of other glasses. The sound portion of the PSE works so well that Sonics also offers it without the 3D glasses section, for use in specialty attractions, exhibits and rides. It may even eventually be offered in this form as a consumer stereo headphones, which would probably be perfect for listening to binaural music and drama recordings.

Projection Of the 3D IMAX Films

In addition to the greater complexities and costs of shooting and producing both 2D and 3D IMAX films, the final projection situation is light years from the straightforward exhibition sit-

FROM The Archives

The Sonics DDP Digital Playback System

The Sonics DDP Digital Playback System uses technology again developed by Sonics Associates specially for IMAX theatres. DDP is capable of reproducing up to eight channels of CD quality digital sound. Patented Sample-Lock® technology maintains synchronization between all channels with a tolerance of .00144 of a second. The result is perfect reproduction of the original soundtrack. Widest frequency response (ten octaves), widest dynamic range, and maintenance of time relationships are hallmarks of the system.

With SampleLock the DDP can take advantage of the compact disc media to provide soundtracks which never degrade no matter how many times they are played. (On this point it is similar to one of the selling points for conventional movie exhibitors of the DTS system.) Even when the projection equipment is kept in perfect adjustment, due to continued showing both magnetic and optical soundtracks on film suffer wear with each successive pass through the machine. In time the original high quality is literally worn off the film (Typical life of a magnetic track is only about 500 passes). With CD sources there is no physical contact and hence no wear. With the DDP every audience going through the IMAX theatre has the same premium quality sonic experience that was enjoyed on the opening night of the particular film.

of Time,” got into IMAX production because his father was the director of the first 3D IMAX presentation. In making several IMAX productions the many technical challenges have become second nature to him. These include the camera size and weight, the difficulty in lighting due to the extremely wide angle lenses, and the fact that every three minutes of shooting the camera has to be reloaded and that process takes 20 minutes!

In spite of this, Low minimizes the difficulties and exults the virtues of the technology, feeling that it is the future of film. “IMAX 3D is very much like your own senses,” explains Low. “Visually, it is like your eyesight. And the sound is as good as your ears. It offers a completely new way of experiencing a movie. And now that we are going beyond making demonstration pieces for the technology, we can offer people a good narrative too.”

While he points out that due to film stock, lighting and setup costs being much higher than standard films it is possible for the budget of a fe-

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IMAX 3D Growing Around The World

The IMAX 3D has made the Sony Theatre in New York city the most profitable movie house in the country, and other 3D theatres have been opening around the U.S.—"taking it to the IMAX" for enthralled capacity crowds. [The Sony IMAX Theatre's Internet address is http://www.sony.com (go to THEATRES)]

The Edwards 21 Cinema in Irvine opened in March to rave notices. This theatre chain is California's largest, and already plans to build more IMAX 3D theatres. Known as The Big One, the theatre is the largest movie megaplex in the world.

There are currently 129 IMAX theatres around the world, and many of these will be converted to 3D theatres. Some already under development are in Ft. Lauderdale, FL; Costa Mesa, CA; Los Angeles, CA; Seattle, WA; Munich, Germany; and Sydney, Australia. Other new theatres are underway for San Francisco (in the Yerba Buena complex, scheduled for 1998), Indianapolis; Santa Barbara, CA; Toronto; Brossard; Quebec; Madrid; Sinsheim, Germany; Poitiers, France; Majorca, Spain; Kaohsuing, Taiwan; Leipzig and Berlin. All of these theatres will not necessarily use the expensive liquid-crystal projection system and PSE headsets of the first three theatres. Some will use a simpler method with polarization glasses which may or may not allow for the binaural sound portion of the experience.

In addition to the normal IMAX theatres (where the seats are securely fastened to the floor) IMAX has another growing sideline called "Ridefilm." This is a process for theme parks and other attractions which uses the IMAX 3D PSE headsets for large-scale multi-sensory motion simulated rides. An 18 passenger module is moved up and down, side to side, and tilted forward and back by a giant powered assembly, yet in such a way as not to cause inner ear damage to the riders. The seats can be put as close as 18 inches away from the movie screen, which is hemispherical and covering all of the riders' fields of vision. Systems are already up in London and Japan, and the former Omnimax theatre at Caesar's Palace in Las Vegas is being converted to Ridefilm. It will have an 82-foot-diameter silvered screen under the existing white dome, and a multi-sensory 3D film is being developed especially for the venue located on the grounds of Caesar's Palace. The big plus for venues that build these rides is even shorter length of the presentations compared to the original IMAX theatres—they can charge $5 for a four minute "ride" and then run another group of people through. The Caesar's project must have more than a single 18-passenger module since they anticipate entertaining crowds of more than one thousand viewers per hour! It is scheduled for a mid-1997 opening.

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John Sunier hosts AUDIOPHILE AUDITION, a weekly program including Soundtracks and Surround Sound Specials—heard on 245 public radio stations nationally. He is a contributing editor to AUDIO, BOUND FOR SOUND, and SECRETS OF HOME THEATER AND HI FI (on line) [www.sdinfo.com/]. He is also an authority on binaural reproduction and operates THE BINAURAL SOURCE mail order service offering headphone-related CDs & cassettes; Box 1727, Ross, CA 94957, or [www.btown.com/binaural.html].

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