

JAFFE/ BRAUNSTEIN

HD REACHES THE
MOW MAINSTREAM

PLUS

DISCOVERING
AMERICA IN HD

an article by
Jim Watt

HIGHDEF 2004:
A Year in Review
by Tom Fletcher

Combining the
look of HD with
**COMPUTER
ANIMATION**
by Ryan Hensley



Alexa Vega stars in Jaffe/Braunstein's *Odd Girl Out*, a compelling drama that illuminates the all-too-common problem of bullying among teenage girls.



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		Front Cover: Alexa Vega stars in <i>Odd Girl Out</i> , a compelling drama that illuminates the all-too-common problem of bullying among teenage girls. This fictional story is based on the book <i>Odd Girl Out: The Hidden Culture of Aggression in Girls</i> by Rachel Simmons. <i>Odd Girl Out</i> premiered Monday, April 4 on LIFETIME Television. Contact: Chandler Spaulding 310/556-7582 spaulding@lifetimetv.com Photo by © Lifetime Entertainment Services 2005.	
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CHROSZIEL MATTEBOX FOR SONY HDV

16x9 Inc and Alfred Chrosziel introduced a new mattebox for shading solutions and filtering effects in HDV. The mattebox was created especially for use with Sony's HVR-Z1U and HDR-FX1 camcorders. Features include a filterstage for 2 filterholders (one 4x4 rotating and one 4x4/4x5.650 fixed), full-size French flag, 16:9 insert mask, and 110-72mm screw-in adapter ring. The mattebox comes equipped with center bracket and lightweight support rods, is compatible with both wide and tele attachments, and dual pivot mechanisms are integrated into the housing.

OUTDOOR CHANNEL SELECTS LEITCH HD

The Outdoor Channel, the national television network that features programming designed to educate and entertain sportsmen of all skill levels, has purchased Leitch's NEXIO™ HD server platform for its new high-definition channel. Due to launch in July, Outdoor Channel 2 HD will offer programming both shared and independent of the existing Outdoor Channel to cable and satellite audiences. Gene Brookhart, The Outdoor Channel's Vice President of Technical Operations says, "The Nexio Platform clearly provides The Outdoor Channel a most robust architecture with which to grow our operations for years to come."

VARICAM FOR AMERICAN IDOL FIELD SHOTS

For its fourth season, FOX's *American Idol* adopted a new video format, 720P Highdef. The program is capturing all its feature electronic news packages in high definition with Panasonic VariCam HD Cinema cameras. FOX, now committed to a full slate of HD productions, encouraged *Idol* to acquire in 720P, the network's preferred HD format.

FUJINON FOR STAR WARS EPISODE III

Lucasfilm Ltd.'s *Star Wars: Episode III Revenge of the Sith* was exclusively shot using Fujinon E Series digital cinema-style lenses. The HAe3x5 (5-15 mm) and HAe10x10 (10-100mm) E Series zooms were used to capture *Revenge of the Sith*, the final installment of the *Star Wars* saga, along with E Series prime lenses (with nine fixed focal length lenses on the set) and C

Series HAe13x4.5B-10 (4.5-59mm) lenses. "We reduced lens changes by more than 50 percent, which made the production tremendously more efficient," says Producer Rick McCallum.

INHD AND MLB TEAM UP

INHD, cable's most widely distributed suite of high-definition networks, and Major League Baseball Productions have teamed again to produce the second season of *Major League Parks: Cathedrals of the Game*. The HD program takes viewers behind the scenes of Major League ballparks and showcases the majesty and history of these grand arenas.

PANASONIC AJ-HDX400 AFFORDABLE HD

Panasonic's AJ-HDX400, a top-production 1080i DVCPRO HD camcorder, makes high definition acquisition more affordable for content creators. The AJ-HDX400 was made available in February at a suggested list price of \$42,500. To dramatically lower the cost of HD postproduction, the AJ-HDX400 teams with the Panasonic AJ-HD1200A IEEE 1394 DVCPRO HD VTR and Apple Final Cut HD software to offer a powerful, affordable acquisition-through-editing system.

QUANTEL "PAY AS YOU GO" HD

Quantel announced the details of its "Pay as you Go" HD facility for the eQ editing/effects/grading/mastering system. Quantel adapted this concept of "Pay as you Go" to meet the needs of the post production industry as it transitions from SD to a multi-resolution, HD world. Hence an eQ purchased with "Pay as you Go" HD is a fully equipped system, but ingest and playout is limited to SD until a password is loaded into the system. Weekly or monthly passwords can be purchased from Quantel.

2006 WINTER GAMES GO PANASONIC

The host broadcaster for the Torino Olympic Games has selected Panasonic as its supplier of standard and high definition recording equipment for the 2006 Olympic Winter Games. Panasonic DVCPRO P2 solid-state memory as well as DVCPRO HD and DVCPRO50 recording equipment will be used for the Torino Games.

ERG HD MONITORS FOR SONY HDV

ERG Ventures has introduced the HDM-EV85 8.4-inch monitor, specifically designed for the HDV camcorders, SONY® HVR-Z1U and HDR-FX1. The 8.4-inch monitor's high resolution will relieve HDV users from using a small on-board LCD monitor to view high quality HD contents.

1 BEYOND NAB HD SOLUTIONS

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MLS 2005 HDNET SCHEDULE

Major League Soccer and HDNet will be broadcasting the 2005 season of "MLS on HDNet," featuring 28 prime-time, high-definition telecasts during the League's 10th Season. The exclusive nationally televised HDTV coverage begins on April 2, 2005 with the Los Angeles Galaxy visiting the Columbus Crew (7:30 p.m. ET) at Crew Stadium.

OMNEON SIMULTANEOUS HD AND SD

Omneon Video Networks launched the latest version of its video server, which features integrated capability for the simultaneous playback of HD and SD content on either the same channel or independent channels. The advance is made possible with the introduction of the MultiPort 4100 series, a new family of interface devices for MPEG2 decoding that can support simultaneous playback of both SD and HD MPEG2 material. The MultiPort 4100 series gives broadcasters the benefit of having SD and HD on the same timeline, mixing SD and HD material to create a single output channel, and also mixing SD and HD material to create two simultaneous output channels one for their SD feed and another one for their HD feed all from one timeline. **HD**

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Jaffe/Braunstein HD Reaches the MOW Mainstream



(L to R) Howard Braunstein and Michael Jaffe, partners in Jaffe/Braunstein Films, Ltd.

Lacy Chabert (left) portrays Brooke and Mary Elizabeth Mastrantonio (right) portrays Brooke's mother, Jean, in the A&E Original Movie *The Brooke Ellison Story*.



Photo by Patti Perret

You know that Highdef has arrived when the real players in Los Angeles begin to embrace it. What we're talking about are the producers who do the majority of the work, who constantly put out a great product and work with some of the best in the business. That's just a little of the description of Jaffe/Braunstein Films, Ltd.

Jaffe/Braunstein was one of the first to experiment with HD for television. Their landmark series *100 Centre Street*, created and directed by the legendary Sidney Lumet, was one of the first hour dramas to use HDCam as the capture medium. They also produced the

Nero Wolfe series in HD for A&E. Since those early efforts, they have recently lensed four movies for television: *The Brooke Ellison Story* for A&E; *Odd Girl Out* for Lifetime; *Evel* for TNT and the just filmed *Faith of My Fathers* for A&E.

Michael Jaffe, partner with Howard Braunstein in the company, says: "We would film every project in HD if the buyers would let us." His experience has been positive from the beginning. Jaffe says that HD saves him an hour to an hour and a half each day so the director can spend more time with the actors – fine tuning performances in a medium (MOW's)



Photo by Andrew Eccles

L to R: Nero Wolfe (played by Maury Chaykin) and Archie Goodwin (played by Timothy Hutton).

that generally can't spend the time because of budgetary restraints. In series work, Jaffe says that HD saved the company about \$50,000 an episode and the director can let the camera roll because he's not worried about the film cost."

Michael was a natural for the Sidney Lumet *100 Centre Street* project. He began his career with his father, Henry Jaffe, in 1971. Together they produced 15 television movies and mini-series. Michael also had experience with his father producing multi-camera television programs like *The Bell Telephone Hour*, and the *Dinah Shore Chevy Show*. So, when Lumet approached him about a multi-cam series, Michael understood what it would take to put together, and with the quality of HD, give it a film look. Michael remembers the first time he saw the dailies projected. He was immediately won over. And with-

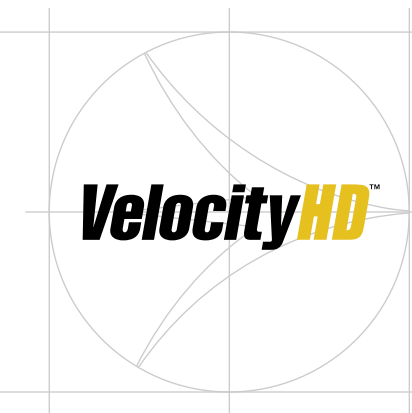
out HD, the series would not have been possible for a network like A&E. The program has not been seen on the air in HD yet, but hopefully we'll see some re-runs in the future.

At the same time they were producing *100 Centre Street* starring Alan Arkin, Jaffe/Braunstein was also producing the A&E series *Nero Wolfe* with Timothy Hutton in 35mm film. After the success with HD, Michael decided that he'd like to try it on the single camera hour drama. At first Hutton was a little nervous about it, but after Jaffe brought experienced DP John Berrie to the program, Hutton was convinced. The entire second season was shot in HD, with 15 one hour programs and three two-hours. Jaffe says that in addition to saving money, HD also allowed fewer lens changes, no magazine changes, smaller lighting instruments and near instant re-loading of

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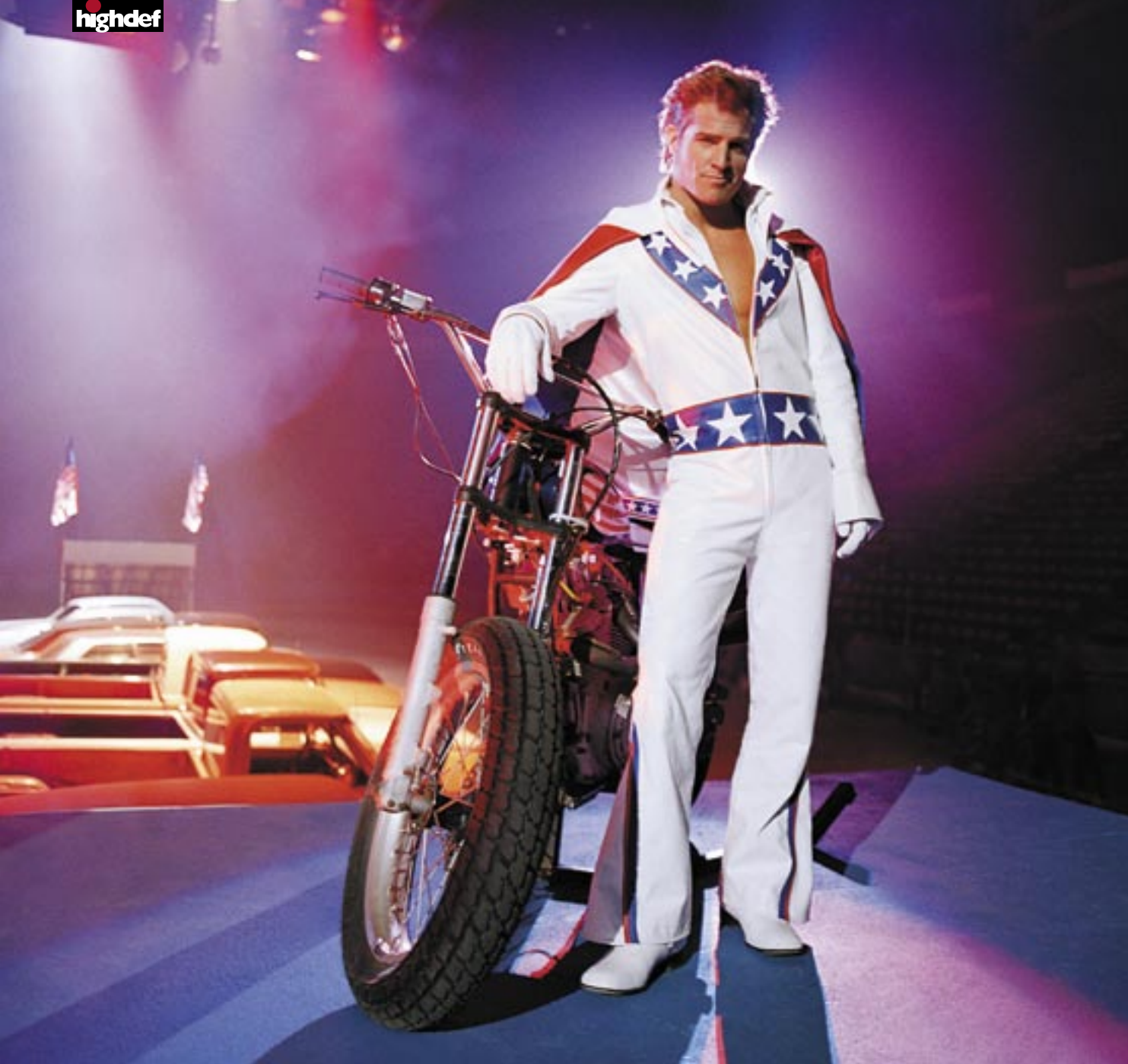


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George Eads portrays
Evel for TNT

stock. All this added to increased time working with the actors.

Michael Jaffe and Howard Braunstein formed their company in 1992. Together they have produced over 70 movies-of-the-week and mini-series. These projects include the three-hour television musical event Rodgers & Hammerstein's *South Pacific*, starring Glenn Close and Harry Connick Jr.; *First Do No Harm*, starring Meryl Streep; and *Gilda Radner: It's Always Something*, all for ABC; a remake of the family classic *Southern*, for ABC's *The Wonderful World of Disney* franchise; *Steve Martin's The Judge*, starring Chris Noth, for NBC; *Deliberate Intent*, starring Timothy Hutton, the first original film

for FX Cable Network; *The Rosa Parks Story*, the recent winner of the NAACP Image Award for outstanding television movie or dramatic special, featuring Angela Bassett in the title role, who earned both an Emmy nomination and an NAACP Image Award for best actress; and *Ice Bound*, starring Susan Sarandon, both for CBS; and *Martha, Inc. – The Martha Stewart Story*, which premiered with record-setting ratings May 19, 2003 on NBC; and an earthquake mini-series for NBC titled *10.5* featuring Kim Delaney, Beau Bridges and Fred Ward. *10.5* was the number 1 and 2 rated TV movie last year. All these projects were shot on film."

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The central character of 100 Centre Street is Judge Joe Rifkind, who was played by Alan Arkin.

and *Nero Wolfe*, the next step was to try one of their movies in HD. 2004 was the year. The first project was *Evel*, the story of daredevil Evel Knievel, produced for TNT starring George Eads from *CSI: Crime Scene Investigation*. The next motion picture opportunity came when a Christopher Reeve - directed project came to them titled *The Brooke Ellison Story*. Again Jaffe received some resistance from the director who was nervous about being an HD pioneer (the kind with arrows in the back). But under the guidance of a great DP and great experience with the format, Christopher Reeve came to love HD. The A&E movie starred Mary Elizabeth Mastrantonio, John Slattery and Lacey Chabert, and was Christopher Reeve's last major work prior to his untimely death in October of 2004.

Another HD Movie-of-the-Week is *Odd Girl Out* for Lifetime starring Alexa Vega, which was scheduled to air April 4 of this year. Currently Jaffe/Braunstein is filming *Faith of My Fathers* in HD. Director Peter Markle also had reservations about Highdef at the beginning but now as Michael Jaffe says: "is having a great time with it and realizes the advantages in cost and efficiency on the set." The movie is based on the book of the same name by Senator John McCain and Mark Salter. The story is about Senator McCain's heritage from his father to grandfathers, and a poignant story of his experience as a POW in North Vietnam. Amazon books reviewer, John J.

Miller says the book is "a complete and compelling memoir of individual heroism – one that will interest both political and military history buffs." Under Jaffe/Braunstein's watchful care, the movie will most certainly live up to the book's reputation.

Although Jaffe/Braunstein Films, Ltd., is not always going to be doing their projects in HD (They're currently filming *Elvis*, a 4-hour mini-series for CBS in super 16mm), the company has clearly placed HD as their preferred production format. NBC just ordered a sequel to the highly successful *10.5* tentatively entitled *Apocalypse* which will be shot in HD. Michael says "One of the convincing arguments, in addition to the obvious, is that it has a huge svfx budget and all the specialists think HD is the best medium for the effects work in post."

Jaffe/Braunstein has shown that HD can save money and give more time to the production to keep the quality high while at the same time balancing demands of budget restraints. One of their biggest obstacles is foreign distribution, still reluctant to take HD delivery. Michael says that they insist on film elements delivered even though television is the only outlet. "As time goes on, this barrier will also come down", says Michael.

Jaffe/Braunstein prides themselves as being a full service production company from financing and production all the way through distribution. HD has found a good home with Michael and Howard and we are grateful for their leadership. **HD**

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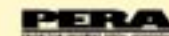
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with the 11th
MEU during HD
Shoot heading to
Afghanistan 2003

The Road Less Traveled

Electronic cinematography offers the promise of seeing exactly what you're getting before you roll the camera. Changes can always be made later to the shot but there is something magic that happens when you trust your monitoring environment to the degree that what you see becomes Fact not merely Suggestion. More accurate information on the set changes what you would do with less information. The digital world means you now have a lot more power to control the image in production than ever before. The question is: What are you going to do with that power?

The promise of uncompressed 4:4:4 10 bit capture to hard drive with on set color correction down both a processed and unprocessed path will soon be possible, but just because you can, don't defer all your professional creative aesthetic decision making to a later time. The age old struggle between Post and Production in the age of Digital Cinema will bring Post tools on to the set to allow you to walk down a road that has not been traveled with legacy formats and old workflows.

Seeing more accurately what you're getting will usually lead you to make decisions that you might not if you didn't trust the elements of the chain.

The DP with the help of the Colorist, Video Controller, DIT, and VFX Super help to maintain the vision, the visuals that support the story. The role each play is very important along the way in creating the final interpretation. Starting with a well-lit, well-exposed, well-filtered shot will always be easier to enhance rather than leaving it to the idea: "Fix it in Post." The DP is either the Babysitter or the Guardian of the image. He or she must be interested



in not allowing it to be hurt and also insure its proper control and development to the end.

The relationship between Light, Subject, Capture medium, Display medium, and the interpretation of the viewer are foundational to the consistent quality of the image. True art is created when the artist has the courage to commit to his or her vision.

Once all is tested and decided, remember to leave room for Serendipity to lead you down a path you might never take if you had not been able to recognize something better down the road less traveled.

An HD "Top o' the Howdy" to you. **HD**

Forum

by CHRIS CHINNOCK

LED Illumination the Next Big Thing?

LEDs, or light emitting diodes, have been around for ages, but their use in many applications is on the rise. With a new emphasis on developing high-brightness LEDs, these components may one day replace the fluorescent backlight in an LCD display and the arc lamp in a projection system. In addition, they may enable new types of products to emerge, like tiny projectors.

High brightness LEDs are already finding uses in products like LED walls, traffic lights, specialty lights, instrument panels, etc. But, as brightness levels of red, green and blue LEDs increase, many other applications open up. Any place a fluorescent, incandescent or low wattage arc lamp is used, LEDs have a shot at replacing them.

Just as the microprocessor industry has "Moore's Law", the LED industry has "Haizt Law," named after retired Agilent scientist, Roland Haizt. This law states that LED luminous flux will double every 24 months.

Evidence of what LEDs can bring to the display arena was clearly demonstrated at the Consumer Electronics Show. Consider the LCD-TV. Both Samsung and Sony showed 46-inch LCD-TV's that used a backlight composed of red, green and blue LEDs instead of the conventional cold cathode fluorescent tube. The result was awesome. The contrast (reportedly 1000:1) was superb, but the color saturation even more spectacular. Typical LCD-TV's offer color saturation that is only about 72% of the NTSC specs, but the LED backlight produced an image that was 105% of the NTSC standards. This is the best-looking LCD-TV you will see anywhere.

The technology can also be used to replace arc lamps, typically used in projection systems.



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One area of keen interest is rear-projection TVs. Here, UHP-type arc lamps are often red light deficient, have a relatively short lifetime (2K to 8K hours) and can explode. An LED backlight provides plenty of red light, is solid state and has a lifetime measured in tens of thousands of hours. Plus, it can eliminate the color wheel in a DLP projection system and color separation optics in a 3LCD projector.

LEDs are also enabling new product types. At CES, no less than five companies showed "pocket projectors." These are tiny projectors that use LEDs instead of UHP-type lamps to create an image. At around 1 pound, these products are still quite dim, but can create a useful 10-15 inch image.

Is there a use for these new products? No one knows yet, but applications include using them for small business meetings or with game consoles or DVD players. And, the technology can allow the creation of spin-off products like even tinier projectors that are accessories for cellphones or PDAs. They might even be embedded into products like cameras or notebooks.

So are LEDs the next big thing in the display world? We say "yes" and we'll keep watching. **HD**

Mitsubishi's new
"Pocket Projector"
weighs about 1 pound
and is powered by LEDs
instead of an arc lamp.



America in HD

Discovering

by Jim Watt

Kelly and I have spent a significant part of the last two years on the road filming the 51 X 60' HD series "Discoveries...America." It's been extremely rewarding personally and professionally.

The project began in April 2002. The goal, produce a one hour program on every state in the U.S., plus Washington, D.C., possibly adding a couple of additional "hours" for Alaska and Hawaii. By the time you read this we'll be up to state 26 or 27, with two more years before the series is finished.

Shooting "Discoveries...America" requires about 10 and a half to 11 months on the road each year. We spend about 14-20 days in each state. At the end of each state, we stop, screen,

log and write each show, then ship it back to our editor Sterling Noren to finish at our office in Issaquah, Washington. At the same time we're writing and organizing the state just finished, we're setting up the first locations in the next state.

We have a full online HD edit system in a 34 foot 5th wheel trailer that we're dragging all over the country. Also satellite internet. FYI, we had the heads replaced in our HDC 150 deck when we came off the road, and the techs at Panasonic informed us we had threaded tapes into the deck 22,800 times. There were about 2800 hours on the heads and it was still working, but a couple of dropouts were showing up

in an hour show, so it was time for replacement. Our camera, incidentally is a Panasonic, HDC20A, 1080i camera. We bought the first HD camera they sold in the U.S.

Aside from the "RV Ghetto" aspect of living in an RV, it's the only way you could do this series. You can often stop for the night where you want to make a sunrise shot. If you like to cook, which we both love, you have far better meals than you can get in 99.9% of the restaurants and it's affordable without a surly waiter wondering why it was only a 20% tip.

When we're shooting we have a crew cab pickup with the back seats replaced by a shelf that divides the compartment into two levels,

where we keep our equipment. We have a minimum compliment of lights, 3 Joker 200's, a couple of 400's and an 800, all with Chimeras; a battery operated 200 HMI; and a couple of little 24 watt Frezzi HMI's; stands; a couple of 6X6 scrim jim sets; and a couple of rolls of ND 1.2 & .9 gels. Oh and a couple of Dedo's with 9 gazillion patterns.

We carry a Micro Dolly with 36 feet of track and a short micro jib; a high hat, a set of short legs plus a two stage 20P Sachtler for the primary tripod. Also in the kit, a wide angle lens, about a dozen filters, a 5" LCD and 9" CRT HD monitor and a dozen IDX lithium NP-1 batteries.

For audio we have a stereo mixer which

Hot air ballooning in the Sonoran Desert, Arizona

Grosvenor Arch
– Escalante National
Monument, Utah



Annual Tucson Mariachi Festival - Tucson, Arizona

almost never gets used...most of the time we have two RF's on the camera with butt plugs for a couple of different directional mics on booms, plus body packs. We carry 6, diversity RF's but mostly for spares, we rarely need more than two.

Topics in the programs are as varied as life itself. In some states, like Arizona, the physical beauty and attractions are so overwhelming, people stories may get shorter shrift, whereas in Delaware, though a beautiful place, human interest subjects get more attention. Specifically, Monument Valley in the former, and horse shoe crab migration and research in Delaware.

In Virginia we found, what we believe is the only high school "string band" that specializes in old time mountain music and bluegrass...talented musicians who make you ashamed you didn't continue with those dreaded music lessons your mom "forced" on you.

Remarkably, each state we've filmed has terrific stories, most of which we find by talking to locals. Sometimes we'll pull into a small town, start talking to the local postmaster/mistress - they occasionally will give us a decent lead that turns into a segment.

Other times, a "gem" just jumps up and screams "take my picture!!" In the little town of

Arthur, Nebraska, a whopping 129 people live there, the entrance to town is lined with cowboy and cowgirl boots on the fence post tops. No one in town can remember why this started, but in addition to this little peculiarity, Arthur has the smallest courthouse in the U.S., now retired, right next to a particularly small jail, also retired, which for its last years ran on an honor system since no one could find the keys. The reason we visited Arthur was to film a custom cowboy hat maker, who indeed was another interesting character. For the short story, "he had a wreck with a bull and had to find another occupation!"

If it's April we're probably moving east from Tennessee to the East coast where we'll be filming most of the year, with 4th of July fireworks in New York. Keep an eye out for our shows. We release a new state/program each month to InDemand and they run frequently on Comcast Cable's INHD and INHD-2 (www.inhd.com) for the next 5 years. The programs are also released on DVD. **HD**

Jim and Kelly Watt have been HD aficionados from the first days it became portable. Their company, Bennett/Watt, has produced numerous programs in HD and other formats.

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2004

Highdef:

A Year in Review

by Tom Fletcher



Tom Fletcher, Vice-President of Marketing for Fletcher Chicago, has been instrumental in developing Fletcher Chicago as one of the nation's leading High Definition equipment resources. Tom is world renowned for his dedication to the advancement of HD acquisition having presented at the International Broadcasting Conference (IBC), National Association of Broadcasters (NAB), Cannes Film Festival, Sundance Film Festival, and National Association of Television Programming Executives (NATPE).

January

At the Sundance Film Festival over 50% of the films were acquired digitally. TrendWatch.com shows that 25% of all non-studio features are now being shot on HD.

Mark Burnett announces he will begin production using High Definition for his reality television show "Casino" using Panasonic's Varicam.

Star Wars Episode III - *Revenge of the Sith* begins miniature and motion control camera production and CG integration of special effect scenes to the principal photography material shot during the previous year by DP David Tattersol, BSC and Principal Digital Engineer Fred Meyers. George Lucas elected to use Plus 8 Digital and Sony's new HDC-F950 recorded to HDCAM SR in conjunction with Fujinon's family of lenses.

AtomFilms launches on-line HD viewing of short films using WM19.

February

First Super Bowl telecast to use "one truck" to feed both the SD (4:3) and HD (16:9) broadcasts. In 2004, this split-feed method becomes the standard practice for most every sporting event broadcast in HD. This economy of scale allows HD broadcasts to rapidly expand into regional sports markets as well.

David Fincher wins Directors Guild of America (DGA) *Outstanding Directorial Achievement in Commercials* for his work on Nike "Gamebreakers" and "Speed Chain" and another for Xelibri Phones entitled "Beauty for Sale." "Gamebreakers" and "Beauty for Sale" were shot using Thomson's Viper and Fujinon E-Series lenses.

March

Pop star Prince's *Musicology* tour was digitally projected to 85 packed Regal Cinema theaters in 43 markets in HD 1080i with 5.1 Dolby Digital. Regal Cinema estimates it will have nearly 5,300 digital screens by year's end.

April

NAB HD product highlights:

- Digital Intermediate workflow innovations from multiple companies including Avid, Discreet and Quantel.
- Weinberger Cine Speed Cam - Digital Cinematography at high speeds up to 4000 fps. Resolution is 1536x1024 at 1000 fps image quality goes down at higher frame rates.

- Panasonic and Apple collaborate to bring HD over FireWire to the desktop and mobile editing.

May

Claudio Miranda wins 2004 Cinematography Clio Award

for Xelibri Phones spot "Beauty for Sale" marking the first time electronic cinematography is honored using a Viper camera for commercial production.

Fahrenheit 9/11 wins top prize at Cannes - the Palm D'Or. DP Michael Desjarlais utilizes Sony HDW-F900 for the majority of his work.

June

ESPN begins broadcasting SportsCenter in High Definition utilizing Thomson HD cameras and Quantel edit, graphics and servers to create a tapeless operation.

Panavision unveils their Genesis Camera at CineGear in Los Angeles.

July

Michael Mann's *Collateral* mixes HD and film together, including footage shot with Thomson's Viper, Sony's HDW-F900, and Panavision film cameras. Chicago native Mann cited how digital technology excelled at capturing LA's night sky, allowing the city to become a "character" in the film.

Digital Kitchen utilize Phantom high speed digital imaging cameras for national Budweiser spots *Fresh Pour & Anticipate*.

August

All four networks broadcast the majority of NFL games in HD. ESPN and ABC covering all of

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their games, FOX carrying as many as six games per week and veteran HD broadcaster CBS offering all of their key matchups in HD. With nationwide coverage, DirecTV offers the HD games as part of their Sunday Ticket.

and scenery. The production shot with HDW-F900 Cameras from Arri Media –London.

Sony and Panavision recognized with a 2004 Primetime Emmy Engineering Award for their joint development of the industry's first 24P digital imaging system, the "Panavised F900."

Sony announces the world's first prosumer three-chip HDV camcorder bringing "HD" to the masses.

Fletcher Chicago adds HD Super Slo systems (Thomson cameras and EVS recorders) for CBS' NFL coverage.

October
ESPN announces ESPN 2 HD will begin broadcasts in January 2005. Europe's HD guru, Milan Krsljanin joins ARRI in UK, after 18 years of developing HD business for Sony Europe.

The digital ARRI D20, with optical viewfinder introduced, delivering highly appreciated film operational functionality and aesthetics to digital HD world.

Dalsa Corporation to open Digital Cinema Center rental facility in Woodland Hills, CA to support their *Origin* 4K digital motion picture camera in January 2005.

November
Sony unveils its first professional HDV camera and VTR at a SMPTE presentation in New York City.

Paramount, Universal, New Line Cinema and Warner Brothers announce agreement to release films on common HD DVD format, the Toshiba based (HD) DVD format.



Photo courtesy Columbia Tri-Star Television/Conterbury Productions

Right: Amber Tambly on CBS's *Joan of Arcadia*

Below: Reality TV show, *Casino*, utilized HD cameras

Fletcher Chicago was appointed Panasonic's Production Reseller for the 12 Midwestern states for the VariCam, SDX-900 and broadcast VTRs.

September

With nearly every scripted Prime Time television show broadcast in HDTV, the number of television shows acquired in HD continued to rise.

Over 50 shows are now shot electronically consisting mostly of sitcoms and a few dramas. **Shows of note include:** *Arrested Development* on Fox wins Emmy for Best Comedy – Shot last season on Panasonic's Varicam by DP James Hawkinson, and *Joan of Arcadia* on CBS shot on a Panavised Sony F900 by Chicago native Charlie Liebermann.

Sky Captain and the World of Tomorrow opens as the number one movie during third week of September. Cinematographer Eric Adkins used HD technology to shoot real actors who were later integrated with spectacular computer-generated effects



Photo by J. Viles ©2004 FOX

December

HD cable channel Bravo HD+ is rebranded as Universal HD as part of NBC's High Definition strategy to offer the best of NBC and Universal extensive libraries in High Definition.

Macie Video in Boston reports that Panasonic Varicam is outselling other brands 8 to 1 in the freelance cameraman market. The opposite is true for rental houses serving the prime-time television production market where the vast majority is Sony's CineAlta.

The Consumer Electronic Association reports 2004 year-end sales of DTV displays reached 5.8 million units, bringing the total to 14.6 million.

2005

January 13th -Sony screens first 4K digital projection of a Major Studio Motion Picture.

April 1st - *Sin City* directed by Robert Rodriguez and Frank Miller (Paramount) using HDC-F950 and HDCAM SR.

May 19th - *Star Wars: Episode III - Revenge of the Sith* opens. **HD**

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Steve MacPherson
Technical Manager
Moving Picture Company

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General Manager, Technical Division
Omnibus Japan

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Rich Torpey
VP of Engineering
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High Definition **Format Guide**

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Common Formats

Format	Resolution Pixels x Lines	Frame Rate Field Rate	Scanning Mode	Common Conversion Issues
1080p 23.98psf often referred to as 24p	1920x1080	23.98	progressive segmented frame	23.98psf to 1080i: some altering of the motion may result when going from 23.98psf to 59.94 interlaced fields per second; generates 3:2 pulldown. 23.98psf to 25p: no problems except running time is 4% shorter.
1080i	1920x1080	29.97 59.94	interlaced	1080i to 23.98psf: can create issues from de-interlacing and changing frame rates such as temporal artifacts, judder or stuttering, if there is significant motion in the shot; can usually be improved by using "time warp" in an Inferno to change frame rates; these are not issues if material was originally shot on film. 1080i to 25p: same as above except that if material was shot on film, running time will be 4% shorter.
25p	1920x1080	25	progressive segmented frame	European and Australian HD standard (PAL).
720p Varicam	1280x720	59.94 w/3:2 pulldown	progressive	Varicam is a Panasonic 24 fps format recorded at 59.97 fps with a 3:2 pulldown added. 720p to 23.98psf: if the 720p is Varicam type, a flawless up-conversion can be achieved.

Scanning Modes

Progressive

Every digital frame is unique and contains a complete image. The frames advance without overlapping or blending in a truly progressive raster and at frame rate. Progressive imaging better imitates film.

Interlaced

The raster has an interlaced structure and objects move at the field rate. Each frame is split into two fields, odd and even, each consisting of half the lines, which are interlaced together forming a complete image.

Progressive Segmented Frame

Progressive segmented frame material has an interlaced raster, but objects move at frame rate. This is the most versatile working mode.

HD to Standard Def Conversions

HD can be easily down-converted to Standard Definition, however, the inherent 16:9 aspect ratio of HD must be reduced to 4:3 using one of the following processes:

Edge Crop (4x3 Center Cut):

Crop the image on the right and left side of the frame so that it fills a 4:3 frame.

Letterbox:

Frame the image with black on the top and bottom of the frame so that the full width of the picture is visible.

Anamorphic:

Squeeze the image so that it can be un-squeezed and cropped manually or delivered on a non-HD 16:9 format.

Less Common Formats

Format	Resolution Pixels x Lines	Frame Rate Field Rate	Scanning Mode	Common Conversion Issues
30i 60i	1920x1080 or 1920x1035	30 60	interlaced	30i to 23.98psf: same as 1080i to 23.98psf. 30i to 1080i: no issues if 30i resolution is 1920x1080; if 1920x1035, aspect ratio and vertical blanking problems may result.
1035i	1920x1035	29.97 59.94	interlaced	1035i to 1080i: possible aspect ratio problems or excess vertical blanking. 1035i to 23.98psf: same as 1080i to 23.98psf but with possible aspect ratio and vertical blanking problems as well.
30p	1920x1080	29.97	progressive segmented frame	30p to 23.98psf: needs "time warp" type process to convert the frame rate with acceptable results. 30p to 25p: same as above 30p to 1080i: no problems.
24p	1920x1080	24	progressive	True 24p exists but is rare; unless going straight to film with no video intermediate, there is no reason to use 24p as other problems will result.
25i 50i	1920x1080	25 50	interlaced	25i to 1080i: if 25i material is film based, output will have a 3:2 pulldown and be 4% longer in duration. 25i to 23.98psf: no conversion issues but running time will be 4% longer. 25i to 25p: de-interlacing artifacts will result; the "repeat and discard field" processing method may be used to avoid these artifacts but the vertical resolution will be one half of the original.
720p	1280x720	59.94	progressive	720p to 23.98psf: this is an up-conversion to a higher resolution; if the 720p material is 59.94 fps, then judder, motion and temporal artifacts may result from the up-conversion, same as from 1080i to 23.98psf. 720p to 25p: same as above.

About the Guide

When FootageBank opened for business in April 2002 as the first stock library to specialize in HD content, we knew our client base, migrating from standard def to high def, would need to be educated. Within the new and non-standardized world of HD formats and conversions, there were many opinions but no definitive source for answers on all the questions being raised. We decided to change that by creating a tool to assist clients in using our product - the High Definition Format Guide.

Crafting the guide required extensive research as well as several rounds of discussions with post houses including The Lab at Moving Images in New York City and The Post Group in Hollywood. We published the first edition in 2003 and distributed thousands of copies at trade shows and conferences, to post houses and studios, to our clients and anyone who asked. Word got around. We received calls for the guide from places as far away as Australia and as unique as the New York Metropolitan Museum of Art. We are now releasing an updated edition with expanded formats and conversion notes.

FootageBank is pleased to provide this guide as a tool for our clients and colleagues in this industry. The guide can also be downloaded from our homepage at www.footagebank.com.

Carol Martin
Director of Sales and Technology
FootageBank HD | 310.822.1400 | info@footagebank.com

THE CONSUMER FRONT

by DALE CRIPPS



Dale Cripps is the publisher of HDTV Magazine, the first publication in the world dedicated to the consumer of High-Definition programming and hardware, and the founder and president of the High Definition Television Association of America. He has been involved with the development of HDTV for 20 years and is a member of the Academy of Digital Television Pioneers. He is the winner of that organization's prestigious Press Leadership Award – the highest honor the industry bestows – for the year 2002.

HDTV — A Command Performance

Few industries sporting a government fingerprint have gone through more Federally-led twists and turns than have the American broadcasters with DTV. A misconception appeared as far back as 1988 when it became widely believed that broadcasters actually wanted to enter HDTV telecasting and demonstrated that "fact" by their now-famous 1987 petition to the FCC. That petition merely asked the FCC to freeze further allocation of broadcast spectrum until the HDTV question (driven by NHK in Japan) could be digested and a technical response made.

The government accepted the petition, froze spectrum, and set in motion an industry-led devel-

opment to create the standard. Along the way everyone woke up to an all-digital networked world and the FCC decided that broadcasting had to be a part of that world. "Go digital," they commanded. The industry handed the FCC what became the ATSC broadcast standard late in 1996, which indicated a need of an additional 6MHz of spectrum during the transition. The FCC set the standard, allocated the spectrum (liberated by digital and never usable in analog) and placed a compulsory timetable for transitioning to digital broadcasting. The FCC also commanded to return the analog spectrum in 2006 for re-allocation by auction to the highest bidder.

No one can ever conclude that this transition was market led. The government commanded it every step of the way since it first appeared in Washington demonstrations in 1986. The decrees that followed the petition were designed to eventually coordinate both the introduction of digital television sets with digital television signals (first in the top ten markets) and then hasten the transition to get to the anticipated auction loot that was guaranteed by the return of the analog spectrum. These actions awakened satellite and cable operators that something big was being commanded by the federal government and

they would need to get in it sooner than later to compete. Along the way the FCC/government commanded that over the next few years all TV sets sold in the USA must include a digital tuner/decoder as well as copyright protection technology called the "broadcast flag."

The long eschewed First Amendment related issue of "must carry" by cable in the digital world came to a head just this last week. Must carry is the situation where cable is mandated to carry local broadcast signals. Must carry had always been a contentious bone with broadcasters who believed that cable had a golden deal by their being forced to carry expensively made broadcast programming and local news. That had, until recently, proved to be the best selling feature of cable.

In their "Report and Order" of February 11, 2005 the FCC ruled that nothing prohibits voluntary dual must carry (both analog and digital) but that cable has to only carry the "primary" (vaguely defined as yet) digital channel, be that either a sub-channel or full HDTV.

The NAB was not thrilled by the FCC ruling: "In Washington, there are no final victories and no final defeats. We salute Commissioner Martin (he opposed the ruling) for recognizing the importance of providing additional programming choices for consumers. NAB will be working to overturn today's anti-consumer FCC decision in both the courts and in Congress. We look forward to the fight, because consumers deserve more. And broadcasters will continue to serve our communities, because that is what local stations do best." **HD**

— Dale
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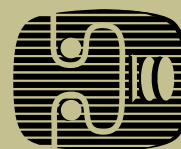


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Highdef

and the Atomic Bomb Movie

by Dan Harary

Big screen technology is being applied to another one of history's most significant icons — the atomic bomb.

Director/producer Peter Kuran recently brought his film, *Trinity and Beyond: The Atomic Bomb Movie*, to Technicolor Creative Services for mastering to HD using Tech's Thomson/Spirit DataCine with DaVinci 2K plus color correction. Gary Barron, Senior Colorist, mastered *Trinity* at 24p, recording to D5 with 4:4:4 color space. The 1995 documentary chronicles the history of US atomic weapons testing and contains previously classified archival film footage, some restored by Kuran's patented and Scientific and Engineering Academy Award-winning RCI™ (Restored Color Image) process.

The challenge of mastering to HD for this 35mm film was getting the best image possible from the archival footage. Some original scans were restored from tape and included opticals and early digital shots. "I am really amazed at how Technicolor's system can sharpen the image," says Kuran, "I thought the scans would hold an advantage over the telecined IP because of the generations you go through, but in a lot of cases, the HD transfer yielded a sharper image than the original."



Some shots were replaced as well. Over the years Kuran has acquired new material and better copies including some atomic bomb footage originally shot in Cinemascope which work well with the HD format. One original which had a super-16 ratio was transferred full frame from 16mm to a 35mm IP, then scanned, retaining the entire image.

Because of the sharpness of the HD transfer, more clean up was needed, so Technicolor supplied Kuran with one

huge uncompressed 10-bit QuickTime movie of the entire film, converted from the D-5 and installed on a 1 Terabyte LaCie hard drive. Kuran is cleaning up the Quicktime movie (around 800 GB in size) using Commotion software and After Effects.

Trinity and Beyond anticipates an HD release on DVD for the upcoming 60th anniversary of the A-bomb, July 2005. **HD**

For more information, contact Dan Harary, Asbury Communications, 310-859-1831 asburypr@aol.com

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Varicam

Rescues Finale of Farrelly Bros. Film

by Brian Cali

Chris Bierlein using his VariCam to shoot Jimmy Fallon and Drew Barrymore

Late in the 2004 baseball season, Bobby and Peter Farrelly (*Something About Mary*) filmed the closing scene of their upcoming film *Fever Pitch* at Busch Stadium, complete with stars Jimmy Fallon and Drew Barrymore and a cameo by Red Sox outfielder Johnny Damon. Unfortunately part of the conclusion of the film included the Red Sox coming up short, which they had done since 1918.

As the Boston Herald reported, the Farrelly brothers were able to reshoot the ending of their movie, complete with an on-field kiss between Fallon and Barrymore with a real, live championship celebration in the background captured by DP Chris Bierlein with a Panasonic VariCam HD Cinema Camera.

Director Peter Farrelly said, "We've got them celebrating on the field. It's the end of the movie. And what an ending it was! This is like the aliens made contact. It's something we've thought about for a long time, but never thought was possible."

Bierlein, a veteran VariCam shooter, was at Fenway for Fox Sports. He recounted, "I was shooting time lapses of the stadium and the crowds at the World Series this past October when, on the evening of the final game, I was called back to the production truck for a last-minute assignment. The Farrellys had Fallon and Barrymore in the stands watching the game. Since the Red Sox were poised to win the Series, the filmmakers needed to shoot some last-minute material of their main characters at the historic game. They also wanted to shoot in HD." Bierlein continued, "When approached for an

appropriate cameraman for the job, Fox sports' Producer/VP Special Projects Gary Lang sent production to me and, armed with a VariCam, I followed the actors throughout the game and onto the field after the Sox won. I'm told the Farrellys plan to use this footage at the very least over the closing credits.

"I was shooting kneeling down in the aisle next to Fallon and Barrymore. I was working with a producer and a sound man, but both of them had to remain up the stairs and out of fans' way. We had unusual cooperation from the stadium security and the baseball people, and it was important not to take advantage of it. Shooting film in this situation would have required a loader and an AC nearby, and constantly changing film. Since we didn't know what was going to happen, I pretty much rolled from the third inning through the on-field celebration."

He added, "My knowledge and comfort level with the VariCam made it the perfect camera for the job. I was quickly able to switch from the Fox setup (lots of color, deep blacks) to a setup more appropriate for printing to film by switching from Video Rec to Film Rec and zeroing out the blacks and black stretch. I explained to production that the image they'd initially see would be flat and low-contrast, allowing them maximum latitude in post to match it with what they'd been shooting already." **HD**

Fever Pitch was slated for an April 8, 2005 release from 20th Century Fox.

Photo by Tara Bricking



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The Ideal HD Editing/Compositing Workstation

by Terry Cullen

Part II



Terry Cullen, a video/
computer industry veteran
is President, Founder and
CEO of 1 Beyond

In Part I of this article, the technical tradeoffs of various types of HD workstations (e.g. compressed vs. uncompressed), were examined. In Part II, peripheral options and their associated tradeoffs are explored.

When designing HD environments, one thing becomes clear: one size does not fit all. Many permutations and combinations have been recently developed – the descriptions below show the variety of options now available and what applications they were designed for:

Shared Storage:

Video editors at all levels are discovering the advantages of shared storage. The efficiencies gained by having one copy of common assets, ease of central data management, speed increases of one acquisition for all stations, no more moving files, etc. are becoming well understood.

The two shared architectures are Network Attached Storage (NAS) and Storage Area Networks (SAN). The main difference is that

NAS requires a computer between the storage and the workstations. The NAS is generally less expensive but the controlling computer can present a central point of failure and a difficult bottleneck that can limit either the level of quality (compression) or the number of workstations or both. With a SAN performance is unrestricted because there is a direct connection between the workstation and the storage and even though it is shared, data appears as a local drive on each workstation. There are also applications where a combination of these two technologies is optimal.

Storage Ergonomics:

A second area in storage technology concerns ergonomics. Early adopters of HD were surprised at the impact of the increased storage requirements, specifically physical size, noise and heat. Even for a single editing suite, it's worth considering remote storage. The connection for remote storage is usually fibre with excellent performance and range (over 600 feet). The per-

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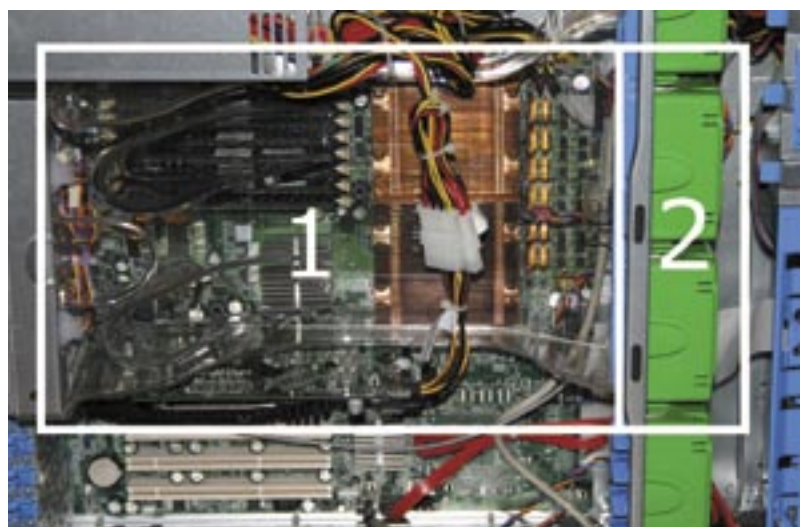


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1 Beyond Whisper Tower™, Air is drawn across CPU's, disks and hotter chips – No external or CPU fans.

Far right: **1 Beyond HD Pro™** standard tower with internal storage for uncompressed HD

formance including protocol overhead is roughly 3 times Ethernet (>180 MBs) and for additional bandwidth dual fibre can support real-time uncompressed HD.

Cabinet Configurations:

Experience with HD environments shows one size cabinet configuration does not fit all. Systems consisting of multiple boxes tied together with endless cables mean difficult setup and diagnostic problems. Fortunately, the days of having a "rack of equipment" in your edit suite are over. Customer requests for large self-contained systems have led to a new generation of options. An example is the 1 Beyond HD Pro™ double-wide system. These second generation systems are completely self-contained and made of heavy aluminum and steel with external doors specifically to contain the noise. They also have externally removable drives for both on-line and near-line storage.

Portability:

An on-going request is for portability. Production needs include presenting event highlights each evening or looking at dailies in the field. There are now two options, mobiles and even high-powered laptops. Many have found portability so compelling for their applications that they have forgone desktops or purchased both.

Financial Considerations:

Whether the priority is cost, time to completion, shared storage, portability and/or quality, there are now affordable solutions. Instead of

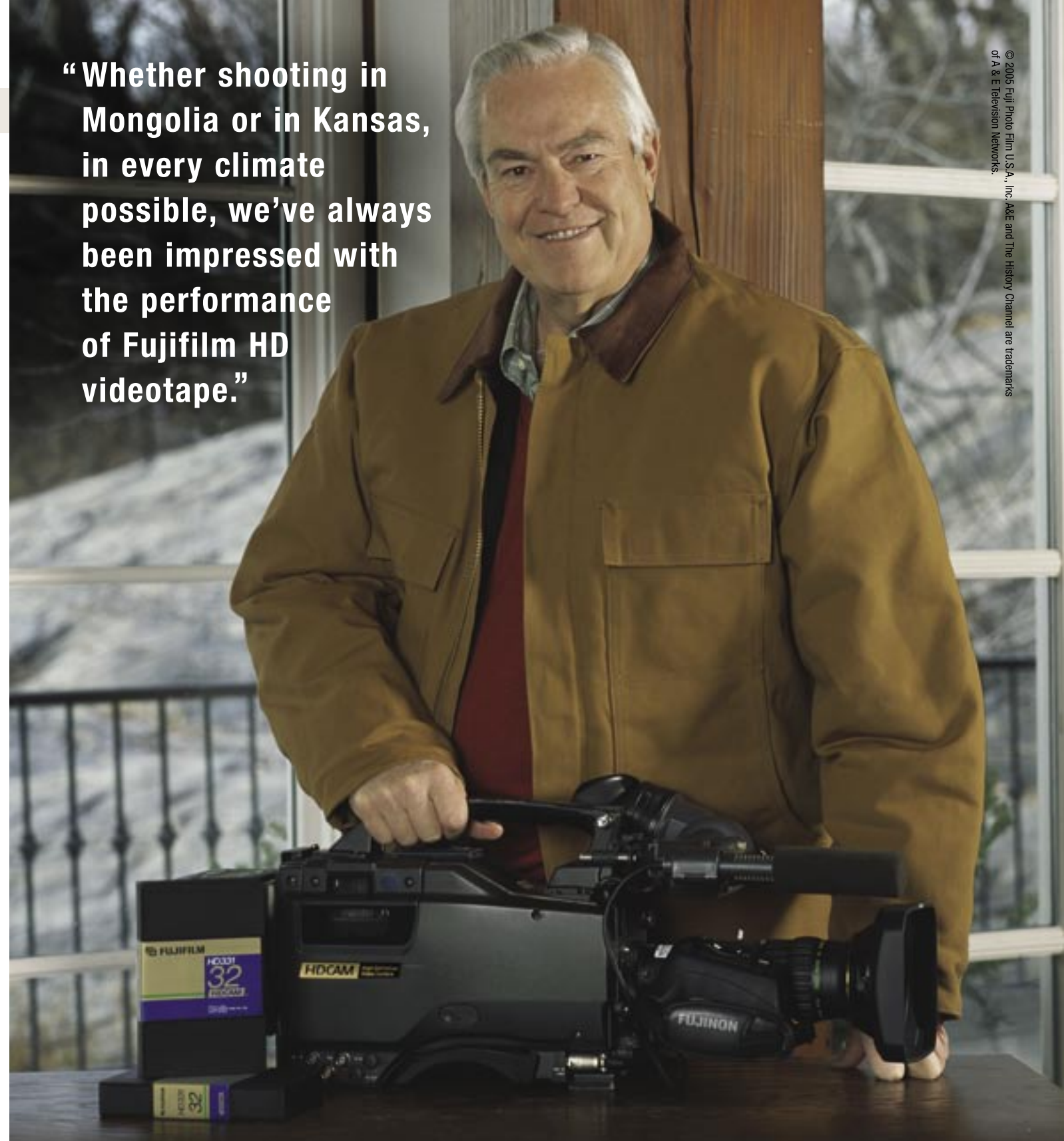
\$800 an hour for on-line finish, it is now possible to edit the highest quality on-line all the time for as little as \$800 a month, leasing. Or, editing HD compressed Real-Time for less than \$15,000 or \$400 per month. Or completely portable editing and displaying HD for \$5,995 or \$160 per month.

A final consideration: Over the coming year there will be many advances in video boards including uncompressed HD in real-time. Technology is moving rapidly; therefore time to technical obsolescence is being reduced. Insist on non-proprietary systems to protect your future and keep your options open.

1 Beyond HD Pro™ editing systems are available in every variation discussed in this article including all levels of shared storage. For additional details consult www.1Beyond.com and read the White Paper "Design Considerations of HD Workstations." **HD**



“Whether shooting in Mongolia or in Kansas, in every climate possible, we’ve always been impressed with the performance of Fujifilm HD videotape.”



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Bill Kurtis is a world-renown filmmaker and broadcast journalist whose face and voice are both immediately recognizable. His company, Kurtis Productions, develops and produces programming that is seen on A&E, The History Channel and many other television networks. Whether following the trail of Genghis Kahn or recreating a Civil War battle here at home, Bill works with the camera, not just behind or in front of it. And though he faces a lot of challenges with every HD shoot, one decision is easily made – which brand of videotape to use.

For more information on Fujifilm HD videotape, see us on the web at www.fujifilm.com/proav. For information on Kurtis Productions, call 312-951-5700.



Super 16/HD Trend Accelerating

by Bob Fisher

Dramatic advances in film and digital intermediate technologies have made the Super 16 mm film format an enticing option for producing dramatic content destined for airing on HDTV. Episodic series include *One Tree Hill*, *Malcolm in the Middle*, *Gilmore Girls*, *Third Watch*, *The West Wing* and *The O.C.* Recent telefilms include *The Dale Earnhardt Story* (ESPN), *Revenge of the Middle-Aged Woman* (CBS) and *Surrender Dorothy* (CBS).

Revenge of the Middle-Aged Woman aired on CBS. The telefilm was produced on a 20-day schedule in and around Los Angeles. Cinematographer Kees Van Oostrum, ASC, covered the action with two ARRI 16SR-3 cameras mounted with Russian-made Elite lenses. "We were able to shoot in the tightest spaces with two side-by-side cameras," he says. "The new lenses are phenomenal with a great choice of 12 focal lengths." Van Oostrum used the new (Kodak Vision2) 7217 film for about 90 percent of the shots. He explains that the 200-speed fine grain film offers an expanded dynamic range for recording subtle details in shadows and highlights. He estimates that the decision to shoot in Super 16 trimmed about \$50,000 in film and lab costs with no aesthetic compromises. Van Oostrum timed the film in HD format at Modern VideoFilm.



Photo by Robert Veets/CBS ©2004 CBS Broadcasting Inc. All Rights Reserved

Surrender, Dorothy features Diane Keaton as a grieving mother who is searching for answers after her 23-year-old daughter is killed in a car accident. It's slated to air in May 2005. The telefilm was produced on an ambitious 21-day schedule at practical locations in and

around San Diego. The cinematographer was Vilmos Zsigmond, ASC, who has compiled some 70 credits during his career. He earned an Oscar for *Close Encounters of the Third Kind* and other nominations for *The Deer Hunter* and *The River*. *Stalin* and *The Mists of Avalon* were his only



Photo by Bill Inoshita/ CBS ©2004 CBS BROADCASTING INC. ALL RIGHTS RESERVED.

previous telefilms, which resulted in Emmy nominations. Zsigmond won for *Stalin*.

"Charles (McDougall) is a gutsy director who approached this film as though it was for the cinema," Zsigmond says. "He wanted a visceral look you only get with film." Zsigmond decided to shoot almost all of *Surrender, Dorothy* with two side-by-side Panavision Elaine cameras with 4:1 and 10:1 zoom lenses used for variable focus. He used the full frame composing in 16:9 format. One camera covered master shots while the other one zeroed in on close-ups. Zsigmond recorded the entire movie on Kodak Vision2 7218 film. The nega-

tive is rated for an exposure index (E.I.) of 500 in 3200 degree tungsten light. By choosing to work with one emulsion, McDougall could keep shooting without stopping to reload when scenes moved from brightly lit areas into near darkness.

About 80 percent of the story takes place in one house. The cinematographer used minimalist lighting that took maximum advantage of practical illumination. For dark scenes, Zsigmond rated the film at E.I. 1000 to gain an extra stop. In bright, sunny exterior scenes, he used neutral density filters to cut the intensity of light coming through lenses. In one sunlit scene, he had an ND 9 filter

on the lens and was still pulling T-stop 8. "It works because our pupils close down in bright daylight, and we see deeper into the background; so it is very natural looking," he explains.

Zsigmond filmed a color chart before every scene as a reference for the dailies timer at FotoKem Labs in Burbank. The edited negative was scanned at 2K resolution and timed by colorist Randy. "I was amazed how good Super 16 film looked on the HD monitors," Zsigmond concludes. "It has wonderful latitude. You can see details in both the highlights and shadows, and there's no grain, even at E.I. 1000." **HD**



Photo by Douglas Kirkland

Above: Cinematographer Kees Van Oostrum, ASC

Right: Christine Lahti and Brian Kerwin star in *Revenge of the Middle-aged Woman*, shot by DP Kees Van Oostrum, ASC

L to R:
Lauren German,
Josh Hopkins,
Diane Keaton,
Tom Everett Scott
and Chris Pine (in
pool) in a scene from
Surrender Dorothy,
shot by DP Vilmos
Zsigmond, ASC.

Combining The Look Of HD With Computer Animation

by Ryan Hensley

How do you capture your audience's attention within a reasonable budget? That's the question Subway asked production experts at DNP, Inc., Orlando, Florida. The answer was to combine High Definition technology and computer animation to produce a special effect commercial for a fraction of what it would have cost just two years ago. The concept for Subway's slow roast barbeque sandwich called for one guy to ask the other for a bite of his sandwich, and then he proceeds to eat nearly the entire sandwich in one bite, handing back the smallest of pieces to the rightful owner of the sandwich. The first step was to create the look of 35mm film using HD technology. Though an advocate for High Definition, Director David Nixon cautions that just shooting with a Highdef camera doesn't always translate into a 35mm look. "I've seen a lot of shows shot on Highdef that still look like video," states David Nixon. "To get that 35 look you still need the right combination of equipment and excellent technicians." DNP combined a Panasonic Varicam HD Camera with a Pro 35 and Panavision Prime lenses to give the commercial a look very close to 35mm film. HD proved to be a great format to work with for special effects according to President of Wavelight Digital Images Inc., Art David. DNP and Wavelight realized that the comedy for the Subway effect would be better played on a two shot. Due to distance from the camera, the call was made to morph the actors jaw, rather than create it in the computer.

Wavelight's morphing technique now dictated that a blue screen be used extensively. "DNP's Panasonic HD



camera proved to be a great asset in pulling off the effects for "Big Bite," commented Art David. "The picture is gorgeous. The clarity and color reproduction of the camera worked wonders in bringing out the "Ultimatte" blue color used for pulling the keys we needed."

The resolution of the image also afforded some advantages, both expected and unexpected. What was known, since the spot was not airing in HD, and would be finished at standard definition, was to pull keys, morph and comp at high resolution, if needed to, to minimize the common artifacts that happen through the normal execution of those processes. Ringing edges on keys, jumpy morph lines and the like are all helped greatly with increased resolution.

According to Art David, "One of the unexpected pleasures of the HD facet of the "Big Bite" job came at the very end of the comp session. As the final elements were all going together, it dawned on me that the "extra" reso-

lution of the camera would allow me to "pan" the background layer of the shot just by using the footage at a 1 to 1 pixel ratio. This is a trick I had used in the past, but then I had to blow up the footage (past its native resolution) to make the room to pan or zoom. The process was so simple that we delivered 4 versions of the finished shot to the final edit session (pan left, pan right, zoom in and static). The version in the spot is the pan left."

In the end, the action and expression of the actors, the great lighting and picture quality, and the execution of our morphing, shadow creation and blending processes, all came together to make a great comedic moment in the commercial for Subway. **HD**

Ryan Hensley is Post Production Supervisor of DNP, Inc, a New Media Productions company based in Orlando, Fl. 407-345-8110, www.dnp.tv

Art David is President of Wavelight Digital Images, Inc. 407-877-2091, www.wavelight.com

Originally shot in HD, this Subway spot was finished in SD to add the necessary morph sequence.



Photo credit: www.hdaerials.com

Aerial Las Vegas

by Louis Simmons

Shot in 24p, *Aerial Las Vegas* is a 30-60 minute Highdef flight of dynamic nighttime aerials of the city that never sleeps. The awesome team involved was National Helicopters with pilot David Gibbs of Crossbow Helicopters, Aerial Tech, Tyler Mount - Rob Rubin, Assistant Greg Yanez and myself, Director of Photography Louis H. Simmons. Additions to the shoot were Tyler Camera Systems and Plus 8 Digital's Anna La Rochelle, client liaison, who made this production complete.

The day of filming was scheduled for Tuesday, January 25, 2005. My pilot suggested that I try shooting with a nose

mount. This would add to the opening scene and to the shots I would normally get with Tyler Systems' side middle mount. The only problem encountered was the interference from micro-waves, which were affecting the RC Servos on the nose mount. As soon as we lifted off from McCarran International, the camera would start to focus in and out of its own. The solution was to detach the servo motors for focus. After that adjustment was made, our production team encountered no other problems for the rest of the shoot.

City of Angels Productions is currently in talks with music composer Paul Schwartz about

scoring *Aerial Las Vegas*. Paul was awarded Best Neo-Classical Album by New Age Reporter Magazine.

In addition to filming *Aerial Las Vegas* for the program, City of Angels will also make the high definition aerial footage available in their HD Stock Library for television and motion picture openings and transitions. City of Angels Productions previously completed, *Aerial San Francisco* and has sold HD stock footage from the program to Aaron Spelling's hit *Charmed* and CBS's drama *Without A Trace* for their 2004-2005 seasons. **HD**

For more information:
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HD Great, If Shot Like Film

by Jeanne Kopeck

About three years ago the calls started coming. We all remember them, they start like this: 'I have a spot I'd like you to direct, and I was thinking we should do it in HD for cost.' This elicited my same response... 'Why?' The conversation would be an uphill battle from there, my cringing, trying to explain the differences between the two media without sounding like a Luddite or a dinosaur. Back then a lot of my response was emotional—I didn't want to let go of the level of quality we had attained, and film just plain "looked" better.

Since that time I've directed enough spots, shorts and image pieces on HD to appreciate what it was that made me cringe. What these clients were unwittingly saying was: 'Let's do HD as if it were a video shoot.' In effect, they had been led to believe that HD was going to be a cheaper alternative to film, while delivering the same results. The thinking went: 'We can just let the camera roll, we won't need so much in the

way of crew, lenses, etc, and best of all we can walk from the shoot with the tapes in hand.'

I've since realized that there is an inherent tendency to compare film to HD, as filet mignon to hamburger instead of filet to filet. To look its best, HD has to be treated the same way we treat film. HD, after all, is just the origination medium. There has to be a real DP, with a real Assistant Camera for focus pulls, camera operation and settings. The camera package should have the same lenses, filters and camera support that are spec'd for a film shoot. Lighting and grip equipment must be on par as well. Locations and set pieces need to be dressed and art directed, talent must be talented, and color correction must be executed by professionals, just like film.

But there's more. One of the main characteristics that distinguish most film shoots from video shoots is in the approach. Because of the inherent cost of shooting film, there is a need to perfect all the details before ever hear-

HD still from title sequence of *Killing Kevin* a short film by Jeanne Kopeck



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Citizen Pictures brands Dish Network's HD presentation for the Consumer Electronic Show.

ing the pricey 'wrrrrr' which follows 'roll film.' Performances are polished and blocked, shot compositions are carefully thought out, and lighting is examined, measured and artistically designed. There is a level of craftsmanship and care inherent to a film set, which has developed over time, partly out of necessity, and partly out of pride. In contrast, I have found that the scariest part of working with a tape format (HD) is the tendency to think, 'we can just let it roll.' I fear this thinking can easily lead to a dangerous laziness most terrifyingly summarized by the words 'we'll fix it in post'.

I know that with all the advances in HD technology, most of the caveats that I used to throw out as reasons not to originate on HD are evaporating -- even as I write this. I know that I can now get true high-speed capture on HD. I know that the dynamic range of HD is now approaching that of film. I know that with prime lenses, control over depth of field in HD is improving. I must admit that it's great to actually review a shot at full resolution, and not have to wait until Telecine to see results.

And, yes, I happily shoot HD at this point. It's a great format for certain things. For extended interviews or testimonial-based shoots, tape can save you tons of money compared to film. Our content division has long since convinced me that for wide-open scenics, cityscapes or architecture, HD is the way to go. And, if we educate our clients and ourselves to treat HD with the same respect, craftsmanship and care that we do with film, it can even look great for spots and features.

All this said I have to admit that I still have a little bit of bias left...more emotional, and more difficult to articulate. I'm not sure what it is, but I love the 'feel of film.' I love how film not only captures my subjects and backgrounds, but how it can show me the atmosphere in between. I don't know when HD will match the magic of film, but I think we owe it to the format to push it to the limits and help it achieve it's own unique voice...a voice defined by quality and craftsmanship, not by price. **HD**

Reprint courtesy of SHOOT Magazine (October 29, 2004)



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Photo by B. Sean Fairburn

A New Day with Sony's Z1U

by Jody Eldred

Eric Norris, stuntman and Jody Eldred, director/cameraman on location for the JAG shoot north of Ventura, CA

There have been very few new cameras with as much buzz and anticipation as Sony's new HDV cameras, particularly the professional model, the HVR-Z1U. Is HD finally affordable for everyone?

As an owner of an HDW-F900/3 CineAlta, a BVW-D600 Betacam and an assortment of smaller cameras, and as a director/cameraman for 30 years in everything from network news to commercials and music videos, I know what attributes to look for in a camera, both in image quality and user-friendliness. After shooting three hours with the Z1U, I told the Sony Marketing Manager, "As an owner of the F900 to the tune of \$165,000, I am none too happy with

the image quality of this \$5,000 camera..." He smiled knowingly.

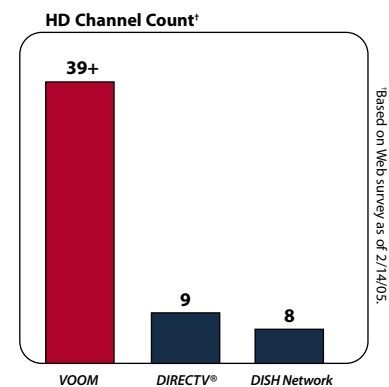
It's an amazing little camera. Almost any camera can look good under beautiful lighting conditions (like in the booths at NAB, for example). I wanted to know what this camera would do in challenging conditions: back light, high contrast, lots of reds, low light requiring a lot of gain. Would it hold detail in highlights and in the blacks, etc? So I took it to Las Vegas: the fountains at The Bellagio backlit in the day, Red Rock Park at and after sunset, back to The Bellagio fountains at night (bright white against black sky), the fire in the volcano at The Mirage, cars on the strip at night.



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Photo by B. Sean Fairburn

Jody Eldred, director/
cameraman holding the
Sony HDV camera, while on
location, shooting for JAG.

Amazing. Incredible. I was stunned.

It was as advertised, right out of the box. I didn't need to go deep into the menus to work on gamma and try esoteric setups. I just went to a preprogrammed preset that gives a film look to the picture and let it go. Detail in the highlights, detail in the shadows, practically no visible grain even at 12 db (!)—and still holding detail in the bright areas that would bloom into oblivion in a Betacam SP or Digital Betacam. Rich color; no bleeding in the reds, great 24 frame motion anti-flickering (when selected). And all this at 1080i and for under 5 grand.

I recently shot some 2nd unit for CBS' J.A.G. with the Z1U in a Huey helicopter gunship. There was no room for a larger camera (film or F900) to shoot over the door gunner's shoulder. The camera was a dream to use, the large flip-out screen and Steadycam both coming in really handy. We dubbed it to HDCAM for post. It looked excellent and the producers felt it inter-cut beautifully with their 35mm footage.

I strongly recommend the follow-focus and mattebox system from 16x9, Inc. You will definitely need both, especially as focusing is tricky. Their focus control knob makes it far more controllable—which in HD is essential.

Does it replace the F900? Definitely not! That camcorder gives you twice as sharp an image, much deeper color and detail, and far more control over gamma and other setups (not to mention critical lens control that you desperately need in HD—when you're out of focus, EVERYBODY knows). But as a second camera or for times when you do not want to lug the hefty F900 around (or it's too risky)—and for doing car, motorcycle or bicycle mounts, low-light work, in cramped quarters, it's a Godsend.

Is the Z1U the future of High Definition? No, it's part of the present. Every camera and format has its limitations—size, weight, price, ease of use, image quality, editing workflow—but this camera system is one whose benefits far outweigh its few limitations. You won't replace your F900 with it, but I guarantee that the first time you get to work with one, you'll want one. **HD**

Jody Eldred is an Emmy-winning and DGA nominated director/cameraman with 30 years of experience. He's shot HD for CBS' J.A.G. and NCIS, as well covered the Persian Gulf war for ABC News. His most recent project was the acclaimed documentary shot with his F900 CineAlta, Changed Lives: Miracles of The Passion. email: Ejody@aol.com website www.MiraclesOfThePassion.com

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Uncompressed on the Desktop

by Scott Bryant, Founder, STEAM

Because of its exceptional resolution – and low cost when compared with a medium like film – High Definition (HD) editing on the desktop is among the hottest topics in film and television. While quality was previously synonymous with systems costing hundreds of thousands of dollars, that's no longer the case. Desktop HD solutions are removing barriers to entry and opening the market for everyone in the worlds of media and entertainment.

At STEAM, a studio that provides everything from creative services to post-production, HD allows us to offer our clients the best quality results for HD projects as well as "future-proofed" HD versions for their standard def projects. HD lets us work more precisely (keying, rotoscoping, color correction), and faster than before. We edit in uncompressed HD using the Adobe Video Collection running on Boxx workstations with HD cards from Blackmagic Design. Working with 10-bit uncompressed HD footage is just as fast as working in DV, but the amazing

thing is that it is full-resolution HD footage, with quality so good that it could be projected straight onto a movie screen.

During production, we often use desktop software with an HD capture system to digitize uncompressed HD from Sony F900 HDCams. We then use the captured footage to test keys, compare shots, and line up FX plates. By routing multiple HD video streams to different locations on the set, clients, everyone can view and approve FX shots during production.

Desktop HD solutions are key to the success of our full-service, creative services-to-post-production business model. New desktop HD editing systems are removing the technical and creative barriers to HD editing for smaller, full-service shops and, overall, democratizing our business. **HD**

Scott Bryant is the founder of STEAM, a full-service creative workshop in Santa Monica, California. They will be featured at the Adobe booth at NAB.

During production, STEAM routed multiple HD video streams to different locations on the set, helping clients pre-visualize many of the shots. This saved time and money, and helped STEAM avoid late-stage changes.



Client: Discovery HD Theater
Title: "HD Reality"



12B

Camera pulls back to reveal a couple from *Trading Spaces* painting a wall.

(shot continues)

"...TO SEE REAL-WORLD ENTERTAINMENT..."



12C

Our camera sweeps around clock-wise behind the woman to reveal she is watching an episode of *Trading Spaces*.

"...IN STUNNING HIGH DEFINITION."



13

A little boy and girl are captivated by something in front of them. As the boy begins to reach forward...

(shot continues)

"IMAGES SO REAL..."

STEAM takes HD projects from storyboard to final production. Integration among Adobe applications lets STEAM leverage everything – graphics, footage, artwork, and logos throughout the workflow.

August 12, 2004

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The Virtual Magician

by Richard Lee

Marco Tempest combines the old traditions of magic with new technology. Here, Tempest performs one of his trademark magic tricks, the "Magic Touch," on the Mojave Desert of Las Vegas.

Ever wish you could just reach into the TV screen and pull out that product you wanted? It's not a problem for Marco Tempest, creator and star of Newmagic Communications Inc's *The Virtual Magician*. Tempest performs his famous "magic-touch" in which he can pull objects out of a monitor at will as part of his HD magic series.

The Virtual Magician is the first magic series to be shot in High Definition. Taking advantage of the superb quality the format provides, the series promises to immerse the audience into the world of magic as if they were actually there. The program follows Tempest as he performs magic for spectators in locations like New York's Grand Central Terminal and the Monte Carlo in Las Vegas.

The Virtual Magician is shot in a reality TV style, but this type of production can lead to lower video quality and art. To battle this, Tempest chose to shoot in HD on the SONY HDW-700A. "We took HD cameras on the

street and we tried to give it a cinematic look," said Tempest, "working with people who have a true understanding of cinematography and how something should look aesthetically."

Newmagic Communications is an independent HD production company that handles *The Virtual Magician* completely in house. The production department has produced six half hour episodes and two one-hour specials with more on the way. Equipped with a full HD editing studio, Newmagic masters the series in the native HDCam format for delivery to the unprecedented 45+ international stations to which the distribution department sold the series. Recently joined by CDC Film and TV & Video Distribution, Newmagic has further extended the reach of the HD series into more territories as interest continues to grow. Who knows where you'll find *The Virtual Magician* next? **HD**

For more information, visit www.virtualmagician.com

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When Cablecam approached us with their plan to film the kings of the football jungle in natural habitat, we knew it would be no easy feat. Quarterbacks are known for their quickness, agility, and unpredictability. Sometimes, they run to the left. Sometimes, they run to the right. And sometimes, they fall down for no apparent reason. Cablecam knew only one camera system would have all the right moves to tackle a job like this: the Cineflex HD. Not only is it the lightest, most maneuverable, gyro-stabilized HiDef camera system in the world, it's more compact, more versatile,

better performing, and is nearly half the weight of anything like it.



Designed around Sony's HDC-950 and HDC-F950 cameras, the Cineflex uses a variety of superior lenses, like Canon's line of HD zooms, Zeiss' new Digi Primes, and Fujinon's HD zooms. And thanks to the Cineflex's cutting-edge engineering, you can pan 360 degrees, tilt +25 to -140

degrees, and perform silky zooms from 560mm to 1120mm.

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approximately 50 feet above football's 100-yard Serengeti, getting as close to the action as possible, without becoming part the action. And in the end, we not only helped Cablecam capture dramatic footage of many different species of quarterback, but other spectacular sports life, too. Like the ferocious halfback. The sprightly tight end. And even, revealing close-ups of the magnificent cheerleader. Hey. Every job has its perks.

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