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DEFINING HIGH DEFINITION

BOB ENGELMAN, INDEPENDENT IN HD WITH *ALONE WITH HER*

PLUS

HD IN EUROPE

AN ARTICLE BY DAVE BREWIS

LIGHT METER? BUT I'M SHOOTING DIGITAL

BY DAN COPLAN

AND

TOP OF THE ROCK

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c o n t e n t s

8

16

20

30

36

FEATURE

8 **Bob Engelman, Independent in HD**
by Conrad Denke

14 **HDTV Forum: Projector Watch**
by Steve Sechrist

16 **HD in Europe**
by Dave Brewis

18 ***Monster Garage*, a year in HD**
by Tod Mesirow

20 **Light Meter? But I'm Shooting Digital**
by Dan Coplan

22 **Quinault Resort in High Definition**
by Terry J. LaBrue

24 **Aspect Ratios and Screen Size**
by David Naranjo

25 **Production Risks = Viewer Rewards**
by Patrick Younge

26 ***Duran Duran* Live in HD**
by Doug Kluthe

27 **JVC HDV in Madagascar**
by Andrew Young

28 **HD Tips: HD in Low Light**
by B. Sean Fairburn

29 **Breathe!**
by Masha Nordbye

30 **Peace, Love and Understanding**
by Raykhan Avkhadeeva

32 ***The Dukes* – Using New HD inDI™ System**
by Bob Fisher

34 **HDTV, the Consumer Front**
by Dale Cripps

36 **Top of the Rock**
by William 'Cameron' Roberts and Greg S. Jones

38 **Ron Garcia Filming Numb3rs**
by Bob Fisher

Front Cover: Ana Talancon and Colin Hanks, star in *Alone with Her.*

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NEWS

PANASONIC UNVEILS P2 HD CAMCORDER

Panasonic launched the Highdef version of its P2 camera line, the AG-HVX-200. The camcorder, which retails for less than $10,000, began shipping in late December. Announced at NAB2005, the HVX-200 is Panasonic's answer to what the company believes is an emerging consumer market for high definition production in an IT environment. The company is also marketing the camera to the professional market. With two 8 GB cards, the HD-format switchable camcorder records 64 minutes in DV, 40 minutes in 720p, 32 minutes in DVCPRO50 and 16 minutes in 1080/60 and 720/60, as well as capture images in 24P. The camcorder also includes a Mini-DV tape drive for shooting on DV tape in 60i, 30p and 24p.

HD ADVERTISING DVD

HD EXPO has created an interactive DVD featuring commercials acquired on the Panasonic VariCam HD Cinema™ camera. The DVD will serve as a resource for advertising agencies making the transition to HD and seeking examples to demonstrate the capabilities of Highdef and the VariCam camera. The DVD will be distributed in the spring of 2006.

JVC AND SENSIO 3D *MEDIUM*

JVC Professional Products Co. partnered with SENSIO, maker of the S3D-100 stereoscopic video processor, to provide high resolution viewing of *Medium* footage prior to airing. The footage is projected and viewed on an eight-foot rear projection system using JVC's DLA-HD2K projectors. NBC's 3D episode of *Medium* aired in late November.

HDNET FILMS HD *BUBBLE*

HDNet Films produced *Bubble* which was shot in high-definition video. Directed by Steven Soderbergh, *Bubble* centers on a murder mystery in a small, economically depressed Ohio town. The film had its world premiere at the 2005 Venice Film Festival.

HD UNDER THE SEA

A research expedition from the University of Washington will transmit the world's first high-definition footage from the sea floor using encoding technology from Tandberg Television. The University's VISIONS '05 underwater expedition is designed to study geologic activity in the underwater volcanoes in the Juan de Fuca Ridge in the northeast Pacific Ocean. The HD video was compressed and transmitted live from the research vessel over IP satellite to the University of Washington, where it was streamed over the Internet to research facilities across the United States.

SONY HDV CAPTURES *HOUSE ARREST*

Videographer and journalist Jon Alpert used the Sony HVR-Z1U professional HDV camcorder to shoot the HBO reality show, *House Arrest*. The show follows a day in the life of Chris Colombo of the famous New York family, who sports the telltale ankle bracelet after his arrest on federal racketeering charges. Alpert shot a behind-the-scenes "docu-comedy," capturing the details of Colombo's at-home existence.

MIX HDV, VARICAM AND MORE

Version 9.1 of Leitch's VelocityHD non-linear editing (NLE) system is now shipping. It supports direct IEEE-1394 ingest of both 1080i and 720p material from HDV devices. HDV content can be mixed seamlessly with other HD formats on the timeline. New processing for variable frame rate content from the AJ-HDC27 VariCam allows the removal of the material's non-active frames while recording the HD-SDI input stream.

NASA TRANSMITS HD

NASA is using DVEO's DVB Master PCI board to send HD video streams from the International Space Station to the Johnson Space Center (JSC) in Houston. The International Space Station is implementing the Space Video Gateway (SVG) to send HDTV to earth. Video downlinked from space by the SVG will include images of outer space, footage of scientific experiments, communications with the crew and real-time inspections of space station gear.

SEACHANGE BRINGS HD TO CHINA

With the help of SeaChange the first HD service in China is now on air. Broadcaster CCTV is showing sports, movies and other HD programming with SeaChange broadcast digital video systems. The broadcaster deployed SeaChange systems last year to launch its 24-channel SD TV service and plans to produce and originate Olympics coverage for China and the rest of the sports world.

TURNER STANDARDIZES HD MASTERING/ARCHIVING

Turner Entertainment Networks has standardized on the Snell & Wilcox MEMPHIS as the mastering encoder for all content played out on its HD networks. Turner has purchased 22 MEMPHIS systems in its Atlanta facility to provide high-quality, MPEG-2 encoding of HD content prior to playout and archiving. Turner uses MEMPHIS to ingest HD content in a format compatible with its Pinnacle MediaStream servers and online storage infrastructure. By using the MEMPHIS variable bit rate option, Turner maintains robust and clean video pictures while optimizing the bit rate for its distribution and transmission requirements.

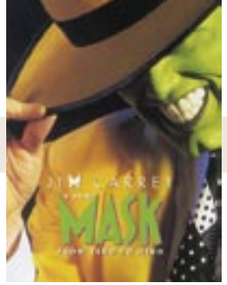
WOODS HOLE OCEANOGRAPHIC AND FUJINON HD

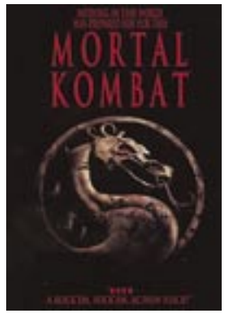
In an effort to research whale behavior in its most natural state and aid entangled marine mammals off the coast of Cape Cod, scientists from the Woods Hole Oceanographic Institution and several government research organizations, took to the skies in the Fujifilm Blimp, complete with an assortment of Fujinon equipment, including an HA25x11.5BERD HD ENG-Style lens with a TS-48A external optical stabilization system, and EPT-5E-10D pan/tilt system. The goal: Capture Highdef images of Right, Humpback and Fin whales to provide researchers data to analyze the animals' behavior. Additionally, when converted to high resolution stills the images provide critical information about injuries from ship strikes or entanglement in fishing lines.

CHRYSLER RUNNING FOOTAGE IN HD

BBDO Detroit called upon Postique to finish the full 2006 Chrysler running footage package in Highdef. This year marked the first time the full line of Chrysler, Dodge and Jeep vehicles were shot on 35mm film and transferred to 24P high definition video. The HD running footage will prove useful to Chrysler in alternative mediums, such as large screen presentations and international auto shows. HD

Bob Engelman Independent in HD





by Conrad Denke

Bob Engelman, (left) and Eric Nicholas, (right) discussing a shot on location for *Alone with Her*

In film production, perhaps the most important change with the coming of the Highdef revolution has been about access – access to high quality imagery for a fraction of the cost previously possible. That access means that talented people can now have a tool to realize dreams at a cost that's reasonable and without most of the bureaucratic encumbrances attached to high quality production.

One of these talented people is Bob Engelman. On his web site, bobengelman.com, it says: "What do *Mask, One Night Stand, Blade, Mortal Kombat, Mystery Men and Little Nicky* have in common? – Bob Engelman, Producer." These are just a few of his many credits in the producing arena. Currently he just completed his first "independent" feature entitled *Alone with Her* produced with his brother Tom and starring Colin Hanks and Ana Talancon.

Bob's path from his youth started out with visions of being a photojournalist, doing work for magazines like *Life* and *Look*. Bob imagined the excitement and fulfillment in portraying stories that change people's lives. Unfortunately when he was ready to enter the field, journalism changed. Those magazines folded and were replaced with poor substitutes.

Bob made a career shift in college to cinematography. At UCLA, his goal was to find a home in film, telling stories that would make a difference in the world. His first success was a short film entitled *Just Like Anyone Else*, about limb deficient children. Bob's approach was different from what most would do. He

HDCam setup in one practical location with (from left to right) Director Eric Nicholas, Producer Tom Engelman, and DP Nathan Wilson

focused on the average child, not the "super kids" that we so often see featured. His effort received an award from the University.

After school, Bob was fortunate to intern with John Alonzo, the legendary cinematographer and strong advocate for HD. Bob worked in various assistant categories on *Bad News Bears, Black Sunday, Rosemary's Baby II* and *Casey's Shadow*. He was given a lot of freedom to learn the trades from the best including being allowed to cut *Casey's Shadow* with master shots for producer Ray Stark. Eventually Bob was admitted into the Director's Guild.

He then became an Assistant Director, first on low budget films and then onto ones with higher budgets like *Steel Magnolias* and *Serpent in the Rainbow*. Bob began Line Producing significant features like *Little Nicky, Blade, Mask and Scooby Doo*. There he perfected the art of Line Producing, keeping the production within the parameters set by the studio, being creative where possible, and most important to not surprise the studio with anything unexpected. He was fortunate to work closely with Mike De Luca on *Mask*, who trusted him to deliver on many difficult aspects of the production. One of Bob's best skills is in creating strong visual imagery as can be seen in the films he's completed.

One of the problems with working on the larger films was that Bob began to feel like he was having less creative input, and that the environment was overly corporate at times.

In 2004, Bob and his brother Tom decided to do something about having more creative involvement. Tom was finding himself spending too much time away from his son and daughter, especially when he was producing epics like *The Last Samurai*. He decided to look at other options and began looking for a project that could be done in the low budget arena, a project that could attract major talent, and that could be done at home in Los Angeles. Tom received a script written by Eric Nicholas, a project entitled *Alone with Her*. It was similar to an idea that Tom had earlier about a voyeur as villain, and it fit the criteria for budget, etc. Eric already had a successful career in LA as a scriptwriter, but he wanted an opportunity to direct, so Tom and Eric worked out the details and set out to make the film.

Tom brought Bob on board to co-produce, and the two decided to raise the money themselves. They contacted friends, collected a lot of favors, and put it together. They were excited when Colin Hanks agreed to star.

The film *Alone with Her* is a horror thriller, a story of a man who becomes obsessed with a young woman, stalks her with surveillance cameras including ones planted in her apartment, uses the knowledge he gains to insert himself into her life and manipulate her to fall for him. Eric, when writing the film, had set out to break some rules of filmmaking – shoot a movie with static cameras, very few fixed angles with the entire film experienced only through those cameras. The look of the film needed to be like video, but with high enough quality to be accepted as a feature film.

Bob and Tom put together a team of professionals including Director of Photography Nathan Wilson, sound mixer Michael Krikorian, and editor Cari Coughlin. Along with the director, they contacted me

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COMMENTS ON HD
from Nathan Wilson, DP on *Alone with Her*

"We arrived at shooting HD because the film called for many small spy cameras to record the story in a voyeuristic fashion, yet the producers planned to make a 35mm print for projection. I felt that if we were going to do a film-out that we should have as much resolution as possible to start with. Bearing that in mind we chose to shoot on a Sony F-900. I found HD to be pretty user friendly. We were concerned about using such a large camera in tight locations, but we were never limited by the size of the camera. We even filmed several scenes in a tight practical bathroom. It was a bit slower than film in terms of the number of cables required and having to wait for power before I could have viewfinder. I was surprised that I could shoot at very low light levels. Having a good DIT allowed me to light very intuitively and mostly by eye. I had heard that HD would be rated at around 320 ASA. We ended up rating it 1000 ASA. I found that I liked how the skin tones looked at about 40 IRE. The conventional wisdom about video has always been to set the brightest part of Caucasian skin tones at 80 IRE. I would light most sets by eye and then set the level for practical using the large HD monitor.

"Because the Sony F-900 does not have a reflexed viewing system I was constantly torn between being on set and being able to run the set more directly and being at the HD monitor and being able to see the frame clearly. The Astro on board monitor was too small to show what was in the darkest parts of the frame. Is that a cable in the corner? A water bottle? We had better go to the tent for a final check of the frame. The best solution that I have heard of is to attach Mehran Salamqatis's Hot Gears remote system to the camera and be able to remotely pan and tilt the camera while looking at the pristine image of the large HD monitor. I would definitely carry Hot Gears on the next HD shoot or use a camera with a reflexed viewing system.

"HD is well suited to Day and Night interior projects where the lighting can be controlled. My lighting approach was very similar to how I would light a film project. However, I was more careful to avoid overexposure. This generation of HD cameras is not able to handle overexposure in an organic way like film. I have seen tests of Panavision's Genesis and Arriflex's D70 that suggest that this problem has been remedied.

"My advice to someone new to HD: Hire a DIT with a film background to help with the transition. Pick a project that has locations that can be controlled. Avoid using HD on a day exterior project. Shoot tests and do a film out and a digital projection of the tests so that you understand what will happen in your digital post pipeline. Make up tests and tests of wardrobe/paint can be very useful."

at Victory Studios in LA for advice on utilizing High Definition. We all met in one of our editing suites along with a representative from E-Film for film transfer later. It was decided that most of the photography would be done with the Sony F900 HDCam with some footage shot on a Panasonic DVX100 at 24fps for some special video looks. The sound would be recorded both on DAT and on the camera. Editing was to be on an Avid and all footage would be downconverted to DVCam with time code windows. A second meeting was set to create the special looks for the various camera angles, to give the cameras a "surveillance" look and create the illusion the director needed. After that meeting, it was decided to shoot the HDCam footage fairly straight without much in-camera correction and add the effects later in post on a DS Nitris.

After the shoot, Eric had only great things to say about HD, but he looks forward to the day when cameras are smaller. Bob's experience with HD has also been positive. "Highdef was a natural choice because of the style of filmmaking. It also allowed us freedom so we could do a lot of experimenting with various looks. I found it easy to make changes which we did after three preview screenings." In addition to these advantages, Bob also said, "Kids today are so familiar with the 'video look' that we had to make sure the picture created the right feeling. It worked well in HD even though we chose 24P for later transfers to film. Most important, I believe that HD helped us stay under budget."

Now that Bob has HD experience under his belt, he's ready to tackle more projects. Right now he and his brother are exploring a series of films under 5 million each that will most likely be shot digitally. He says, "Don't try HD for King Kong. But if you have a personal simple story with an emphasis on script and performances, then this is the right way to go. HD is a natural for what we're doing."

Bob has found his niche. Even though sometimes it means being involved in all aspects of filmmaking, it still represents freedom to do what you want. One thing especially important to Bob is that nobody, except maybe himself, works for free. Everyone working on the film was paid.

The jury is still out on the movie, but at least for now Bob has found his new direction – working in the field he loves with the creative freedom and control he has been looking for. And HD has played a part in making this all possible. HD

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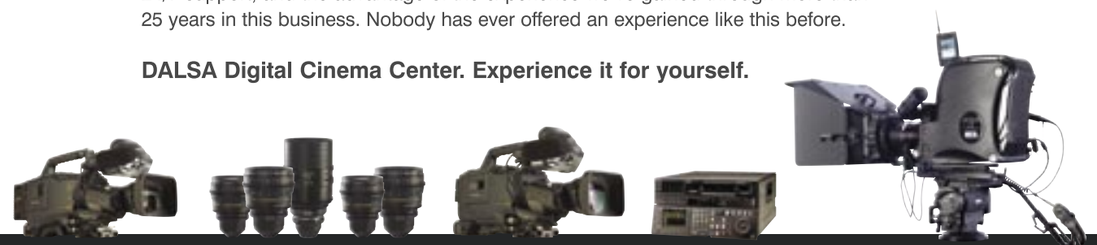

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Forum hdtv

by STEVE SECHRIST

Projector Watch

Steve Sechrist is an editor/analyst at Insight Media, a technology based media firm specializing in large format and micro display and related industries.

Regardless of who wins the flat display wars, Plasma or LCD, conventional wisdom maintains a healthy price delta between the flats and RPTVs in the + 50-inch display size, but that number can't remain constant forever. The fate of RPTVs seems clear: ever-larger flat display systems will continue encroaching on RP's large format space, and the 50 to 60-inch size will surrender to flat screens in the midterm.

Rear projection technology may just be heading for niche super-large displays, but the cabinet - already the size of a midsize Steinway – doesn't have the "class" a flat display offers, and, at some point, will grow too big to fit in the door.

Enter in-wall RPTV systems, which offer all the ambient projection advantages of current RPs, plus super-large size, and not just flat, but downright 2D, with no visible depth whatsoever. Optoma (Milpitas, CA) (www.optoma.com) recently showed a 100-inch 1080p in-wall modular system boasting a mere 30-inch depth requirement. The obvious advantage to this approach is elimination of the "in-home cave" a dedicated home theater room. Just a plain looking wall that happens to display a really big image. The optical engine includes the new xHD4 DLP chip from TI. This is a 1080p smooth picture chip set that when implemented into the projection engine, yields a 10,000:1 contrast ratio. More optic specs will follow, and delivery is set for mid-2006.

Optoma's modular system includes a 100-inch mirror and custom bezel system that allows for front access to the electronics and components — using a unique "garage door-like" spring-loaded mechanism that swings the screen forward. Alternative access through a side door configuration is also an option.

As competition and screen size continue to grow in the flat TV space, there are few places for RP technology to migrate but up and into the 2D space, disappearing behind the wall and morphing into yet a newer, more beautiful iteration of a fantastic display technology. Put mine in the great room please. HD

DP Kris Denton on location in Turkey for National Geographic with his VariCam camera.

Science of the Bible in High Definition

by Brian Cali

The National Geographic Channel's series *Science of the Bible*, airing Wednesdays at 10 p.m. ET/PT, takes viewers back in time on a quest to reveal truths hidden behind some of the greatest stories ever told. The production journeys to the Holy Land with forensic detectives, scientists, historians and archaeologists to discover new insights into such epochal religious events as the crucifixion and burial of Christ, and the performing of miracles.

The series, which uses modern technology and research to explore a wide range of biblical accounts, was shot in high definition with Panasonic's AJ-HDC27 VariCam® HD Cinema camera.

"The first episode in the *Science of the Bible* series, chronicling the crucifixion, was actually shot with Panasonic's AJ-SDX900 24p/30p/60i DVCPRO50 camcorder," series' Director of Photographer Kris Denton recounted. "National Geographic liked the production immensely, committed to the series, and stipulated that it be shot with the VariCam, their HD camera of choice, for the built-in longevity that high-definition affords."

Born and raised in Australia, DP Denton has been working in the film and television industries for 25 years, and has an extensive background in both documentary and production-based cinematography. He is the recipient of 20+ industry awards, many from the Australian Cinematographers Society.

"This was the most substantial HD production I have been involved in to date.... it was like shooting a low-budget feature," Denton continued. "I found the experience much like shooting film. VariCam holds highlights so much better than standard definition. I was able to push overexposure (looking out through a window, for example), yet still retain detail in the foreground and beyond. The range of colors, especially skin tones, right out of the box, is so much more natural-looking than other HD cameras."

After a seven-week shoot in Turkey, shooting recreations for nine episodes, Denton purchased his own VariCam for subsequent work on another National Geographic series, *Hunter and Hunted*, as well as various commercial spots. HD

HD in Europe

by Dave Brewis

Dave Brewis, from Ten80

Without doubt the speed at which broadcasters and production companies have rolled out HD in the US is impressive, and is testimony to the optimism and enthusiasm within the industry. It's over two years ago that my company Ten80 started supplying US based companies with HD production services on their visits to France and the UK, but it's only recently that we've started to do the same for clients on our own doorstep.

I've spent time recently between Paris and London talking to broadcasters and production companies, and I can report that HD enthusiasm is taking hold on this side of the Atlantic, with the imminent launch of a plethora of European HD channels.

The first channel to broadcast HD in Europe was Belgium based HD1 which started broadcasting on 1st January 2004 via satellite throughout Europe. The company launched a second channel in summer 2005, HD2, and has just opened a new state-of-the-art studio and production complex to feed the new service.

UK

Leading the growing revolution in the UK is BSkyB. Beginning in early 2006, the Sky HD service will include a Sky Sports channel, Artsworld, a Sky Box Office channel and two Sky Movies Screens. Sky Sports Channel will offer live and exclusive coverage of the Barclays Premiership football in HD and Dolby Digital 5.1 surround sound. In terms of format, the Sky platform (which carries channels from other broadcasters) will support both 720p and 1080i.

The BBC's attitude towards HD is enthusiastic, but the corporation has a less aggressive roll out strategy, perhaps due to how the BBC is funded, and its obligation to provide services for everyone. The corporation already produces some programmes in high definition for sale to the overseas market. Big budget natural history series, including the forthcoming *Planet Earth* and some sporting events, will also be filmed in the format and the BBC has pledged to move all its production to HD by the end of the decade.

The merger between the two cable operators NTL and Telewest has provided impetus in the cable and DSL HD market. Both companies have an established user base, and the combined entity will have the flexibility to broadcast over cable or IP with ADSL2+. Their combined offering will initially be an on-demand service and not broadcast.

France

In France things have already kicked off. The launch of digital terrestrial television (TNT) occurred in March 2005 in MPEG2 format, among much debate as to whether this should have been delayed to take advantage of the more efficient MPEG4 Part 10 codec.

However, as TNT was to be launched carrying sixteen free-to-air channels, the regulatory body the CSA (Conseil Supérieur de l'Audiovisuel) demanded that digital terrestrial broadcasts should be in MPEG2 for reasons of compatibility and maximum uptake. In October 2005 50% of France was capable of receiving digital terrestrial broadcasts, although TNT will ultimately have to move to MPEG4 transmission in order to support planned HD pay-per-view channels.

Regarding French Satellite broadcasting, there are two main operators, TPS 'Television par satellite' and Canal Plus Satellite. In terms of broadcasting HD, the Canal Plus group are the leaders. A bouquet of 5 HD channels is scheduled for the first half of 2006 including cinema, nature and of course sports, including at least one D1 football game per week from late 2005.

TF1 also have ambitious plans, and as they own 66% of TPS, they have the weight to carry them through. TPS HD anticipates a good takeup during the 2006 Football World Cup which will be broadcast in HD on TF1.

With M6 too making the foray into HD broadcasting, France can claim significant progress.

Germany/Austria

In Germany, Munich based pay-TV operator Premiere started broadcasting three HDTV channels on November 1, 2005. The three channels show sports, film and documentaries and are broadcast via the ASTRA satellite system. Premiere also later intends to introduce its HDTV package on cable networks.

Analysts within the electronics industry have forecast sales of over 15 million HDTV compatible television sets in Western Europe by 2008. Ultimately though, the successful roll out of HDTV in Europe will be based on the building of attractive pay-TV offers. It is interesting that all the leading European pay-TV platforms, BSkyB, Premiere, CanalSat, Sky Italia and TPS, are pointing to the Football World Cup scheduled for June 2006 in Germany. As 'soccer' tournaments go, it's likely to be the biggest ever, and personally I'm delighted that the US team have once again qualified for the finals! 2006 will certainly be the year that Europe adopts HD: I wonder if it will also be the year that the US adopts football, err I mean soccer! HD

Dave Brewis from Ten80 (www.ten80.fr) supplies HD Production Services based in Paris and London. He can be reached at +33 6 76 71 94 81 or brew@ten80.fr.

At left: London, HD on the horizon

Below: Phil from Ten80 shooting at The Moulin Rouge

Photo by Tod Mesirow

Monster Garage, a Year in HD

by Tod Mesirow

Builder Doug Hruska works on chopping the top of a 1929 Model A on the NY Hot Rod build.

Episode 47 of *Monster Garage* was destined for production history – for the first time, the series created by Thom Beers, CEO of Original Productions, would be filmed in high definition.

Monster Garage is the progenitor of an entirely new genre of television – called "gearhead tv" by some – with a spate of imitators. Throughout its history as a hit, *MG* maintained production values not usually associated with the gritty world of automotive transformation.

We start with a car, and turn it in to something else – a fire truck becomes a mobile brewery; a drop tank from an F4 becomes a belly tank race car; a sports car sprouts wings and flies. We've shown the diverse skill level, intelligence and ingenuity present in what are often dismissed as "blue collar' workers from across America.

For this show, our first in HD, we were going to turn a Rolls Royce into a "honeywagon," a vehicle that empties portable bathrooms.

Even before HD, the look of the show, created by Director of Photography Dylan O'Brien, eschewed the "blast it with light" approach common to much of television, opting for a much moodier scheme akin to feature films.

Now, with Sony 900's and 730's, HD Fujinon 4.5-59mm and 7.8-172mm lenses, we were able to elevate the look. The combination of image density, and increased 16:9 aspect ratio, made for an amazing look.

With significant support from Discovery Channel executive David McKillop, we pushed for the show to air in 16:9 on the standard definition Discovery Channel, which meant we could ignore the 4:3 safe version, and maximize the full visual power of HD.

The more time we spend filming in HD, 40 hours of TV in the first year, the more we fall in love with the format. The combination of image density, the format's ability to resolve detail in the shadows, and the 16:9 aspect ratio make it nearly impossible to contemplate ever shooting in any other format. *Monster Garage* is one of those shows MADE for HD. HD

Tod Mesirow is the Co-Executive Producer of Monster Garage, *and despite what some say, he does know how to change the oil in his car. monstergarage@origprod.com, 818-295-6966, X173*

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Light Meter?
But I'm Shooting Digital

by Dan Coplan

There's a common misconception that a light meter is obsolete for today's digital video production. Video monitors provide WYSIWYG feedback of what the camera sees and what is ultimately laid to tape. Waveform monitors take the process a step further by showing the scene's luminance in a form you can use to objectively analyze the entire tonal range. A properly calibrated light meter, however, is an invaluable tool for planning a shoot and maintaining the quality of images throughout production.

The first step in setting up your meter is to determine the ASA, or light sensitivity, of your camera (see end of article how to do this). Dial this number into your light meter. You will also need to set the shutter speed. If shooting 24P, the shutter speed you choose will most likely be 1/48 of a second. This represents the common 180 degree shutter of a film camera. Meters specifically designed for cinematography will allow you to dial in both the frame rate and shutter angle. With meters designed for still photography, you may have to use the closest shutter speed and take the offset into account. With the above values set into the meter, all that's left is to measure the light intensity and determine the aperture. The reading of the meter translates to a properly exposed gray card that falls in the middle of the tonal scale from black to white. This information can then be used to make a variety of informed decisions about the amount of light necessary for your shoot. Note: Due to variations in camera setup, ASA values may differ between indoor and outdoor lighting, so test both!

When scouting locations prior to production, a light meter allows you to determine the amount of light available at any given time. Assuming conditions remain the same, you can decide whether additional light is required to supplement existing illumination or if you'll need to control the light directly, with filters, or other means. As an example, a scene I was shooting involved an actor under a street light at night. To the director's and my eyes, the street lamp appeared sufficiently bright. My meter, however, indicated there was barely enough light for a faint image. Thanks to my meter we saved ourselves wasted time and I saved myself a lot of embarrassment. Our eyes constantly adapt to various conditions and can see much further into shadows and highlights than video or film. Therefore, it's not wise to rely on eyesight alone in judging exposure. That lesson was learned from a previous project... Supplied only with the camera's onboard LCD monitor for reference, I recorded an image that looked perfectly exposed. Back in the edit suite, however, the image revealed itself as greatly underexposed. This taught me lessons both about confirming exposure with my meter and the need for properly calibrated production monitors when judging exposure on screen.

Photo by Dan Coplan

Photo by Krusty Bingham

Consistency is key. As you're shooting, it's a great idea to keep notes about the light values in the scene. If you need to return to the same setup at a later time, your notes will allow you to recreate the scene precisely. I've been caught a couple times coming back to a scene with little recollection of the original set up. Notes are also a life saver for illumination that suddenly changes. Imagine getting halfway through a scene on a sunny day; all of a sudden the clouds roll in, the background gets darker, you lose your nice backlight... With a good set of notes, you can intelligently make camera and lighting adjustments and have a better chance of maintaining the same look.

When shooting blue or green screens, the more consistent the background, the easier it will be for post production to pull a clean matte. Additionally, some post houses like the background to be a particular intensity above or below your key light. A light meter will insure you're exposing all the elements to spec.

Finally, for those interested in the craft of filmmaking, understanding light and how its various qualities affect everything we see contributes to our overall sense of accomplishment. With greater understanding comes greater satisfaction and quality of work. Not to mention, it's cool running around with your mysterious little gadget, sticking it in the face of high paid actors and CEO's. HD

Dan Coplan, SOC is a Los Angeles based cinematographer and digital imaging technician (DIT). Dan can be reached through his website at dancoplan.com

How to Rate a Camera's ASA

Auto Iris

1. Frame up a gray card.
2. Activate the camera's auto iris. It will adjust the iris to provide an exposure that's equivalent to middle gray. Some cameras allow you to add over or under exposure compensation to this function so make sure you normalize this setting first.
3. Set the appropriate shutter speed on your light meter. Hold the meter against the gray card and face the white sphere towards the camera. Read the light level.
4. Adjust the ASA setting on the meter until the iris reading on the meter matches the iris reading on the camera. This is your ASA.

Waveform Monitor

1. Frame up a gray card.
2. Adjust the camera's iris until the waveform monitor displays a line going across 50 IRE. This is middle gray.
3. Set the appropriate shutter speed on your light meter. Hold the meter against the gray card and face the white sphere towards the camera. Read the light level.
4. Adjust the ASA setting on the meter until the iris reading on the meter matches the iris reading on the camera. This is your ASA.

Built-in Spot Meter (only available on some cameras)

1. Frame up a gray card.
2. Activate the camera's spot meter. Not all cameras have this function. The Varicam and SDX-900 have a "Y GET" function. The DVX-100 has this as the third option when you toggle the zebra button. Adjust the camera's iris until the spot meter function reads "50". This is middle gray.
3. Set the appropriate shutter speed on your light meter. Hold the meter against the gray card and face the white sphere towards the camera. Read the light level.
4. Adjust the ASA setting on the meter until the iris reading on the meter matches the iris reading on the camera. This is your ASA.

Quinault Resort in High Definition

by Terry J. LaBrue

The thunder of the Pacific Ocean crashing on the beach mixed with the screech of seagulls wheeling overhead as the production team from Victory Studios met in the lobby of the Northwest-styled Quinault Beach Resort. The resort is located at Ocean Shores, Washington State's number one travel destination with more than four million visitors each year. With all that activity, filming commercials in the casino can be a challenge.

"Any time you shoot in a casino, there are significant obstacles," said Kirk Schroeder of KIRK TV. "One is getting into the space, since the tribal casino is closed only between 4:00 and 9:00 a.m. This project was a challenge, but the HD equipment from Victory made it seamless. We needed to carefully match existing footage and orchestrate an ambitious shooting schedule with models, a factory-fresh Jeep, weather and resort guests."

A small window of opportunity dictated a fast set-up of lights, camera, and dolly to capture the six different gaming scenes in less than five hours. That meant staging, wardrobe, makeup and still photography all would happen simultaneously.

A production crew of six was headed by Victory's Director of Photography Geoff Dunlap, shooting the spots with a Sony HDW-F900 camera. Footage was transferred to KIRK TV's Final Cut Pro system in HD for offline and mastered in both HD and SD then distributed to the stations on Beta SP.

"Outdoors, we experienced what the weatherman calls 'cloudy with intermittent sun breaks," said Schroeder. "Our beach and car shots were actually much darker than the afternoon balcony and terrace scenes. HD is so flexible we were able to adjust the color and brightness in post so the difference is negligible."

"The Quinault Indian Nation is pleased with the new commercials," said Bob Southall, QBR&C's CEO and a twenty-year veteran with Hilton Hotels. "The production is first class and appears as if it were shot on film. The restaurant and final grand-suite footage is simply awesome." HD

Terry J. LaBrue, LaBrue Communications, tlabrue@earthlink.net; 425-427-8481

(L-R) Cliff Hollenbeck, still photographer, Kirk Schroeder, producer, Geoff Dunlap, director of photography with cast and crew member near Quinault Beach Resort.

Photo by Hollenbeck Productions

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hdtv Displays

by DAVID NARANJO

Aspect Ratio and Screen Size

David Naranjo is VP of Market Research at DisplaySearch. dnaranjo@displaysearch.com

As more widescreen and HDTV product penetration occurs there is an increasing replacement market for traditional "square" or 4:3 televisions, especially for screen sizes less than 40". As of Q3'05, widescreen television sales represented at least 30% of all units sold, and 78% of dollars spent.

A 4:3 television has an aspect ratio where the width is one-third larger than the height. Another way to describe this is 1.33:1. In a widescreen television, the aspect ratio is 16:9, where the width is 78% larger than the height or 1.78:1.

Since the size of a TV screen is given as a measurement from one corner of the screen diagonally across to the other corner, we can use the Pythagorean Theorem (diagonal length squared is equal to the sum of the squares of the height and width) to determine the width and height.

For a 27" 4:3 television, we know that the width is 4 units, the height is 3 units, and the diagonal is 5 units. So, the width is 4/5 of the diagonal (4/5×27" = 21.6") and the height, is 3/5 of the diagonal (3/5×27" = 16.2"). Therefore, a 27" 4:3 television has a height of 16.2" and a width of 21.6".

For a widescreen 16:9 television, the width is 16 units, the height 9 and the diagonal 18.36 units per the Pythagorean Theorem.

So a 32" widescreen television 's base is 16/18.36×32"=27.89", and the height is 9/18.36×32"=15.69". Therefore, the 32" 16:9 TV has a height of 15.69", while a 27" 4:3 television has a height of 16.2". This is less than half an inch difference in height, even though the widescreen has 25% more screen area. For consumers who may have entertainment media centers or built-in armoires, these height and width limitations do matter.

Since these same consumers probably compare screen sizes more by height than by diagonal measurement they would naturally migrate to a larger diagonal for a widescreen just to have it seem as large as their existing 4:3 television. HD

Figure 1: 4:3 Ratio

Figure 2: 16:9 Ratio

Figure 3: 16:9 Ratio per Pythagorean Theorem

Production Risks = Viewer Rewards

by Patrick Younge

As consumers clamor for more compelling HD content, and networks dash to capture it, many production companies immediately assume the equipment will be too large and bulky for innovation and efficiency. But companies like Essex Television Group have dedicated themselves to bringing extreme content to HD – and nothing says extreme like speed. Through series like *Secret Club of Speed*, Discovery HD Theater is delivering a heart-pumping HD experience to viewers.

In *Secret Club of Speed*, not only are the racers and participants taking huge risks, so is the HD equipment used to capture the remarkable sound and footage. In order to capture the hair-raising footage of a street luge, a $100,000 CineAlta camera is strapped to the chest of a street racer traveling upwards of 70 mph. To illustrate the full NASCAR experience, an Ikegami Box HD camera was side-mounted to the car and flirted with the wall at 160 mph.

"When we pitched the *Secret Club of Speed* series to Discovery HD Theater we knew the biggest hurdle to overcome would be the size of the HD camera and the feasibility of securely mounting it on race cars or fast moving objects," said Jim Astrausky, president of Essex Television Group.

While filming the Baja 1000 off-road race in Mexico, Astrausky became part of the extreme experience. "I thought it would be a great scene to interview the driver while racing, so I hand held the CineAlta, donned a fire suit and helmet, pinned a microphone on the driver, strapped into a million dollar off-road truck, and conducted a half-hour long interview at speeds of 115 miles per hour…all off road. It literally took months for the bruises on my shoulder to heal."

While production teams are busy exploring new HD tools to capture every detail, the viewer at home can casually kick back and enjoy the confluence of incredible imagery and sound quality. As HD programming continues to dazzle consumers, so should the daring production techniques – an ever-expanding balance of risk and reward. HD

Patrick Younge is General Manager, Discovery HD Theater.

Photo by Essex Television

Tom Mason, World Luge Speed Record Holder, with Cine Alta

Simon LeBon at Wembley Arena, courtesy of Coming Home Studios.

Duran Duran
Live in HD

by Doug Kluthe

As more alternative HD content emerges on the market, the challenge now becomes how to get the public to notice your project and appreciate its quality among a vast sea of competitive standard and High Definition content. Music labels and studios can no longer count on just traditional forms of marketing such as print, radio, television, and retail placement to increase their product's visibility. With the emergence of Digital Distribution and DCI compliant theatres Theatrical Releases are becoming some of the most effective methods of targeting your product's demographic for the most cost effective price.

When Jack Gulick, Head of Production at Coming Home Studios, called me to see how their new *Duran Duran Live From London* DVD could be marketed theatrically in its original native HD format, my partner, Evan Saxon and I, through our company D&E Entertainment, created a marketing plan around a One Night Only Event that utilized DLP Cinema Grade Projectors, 5.1 audio systems, and digital delivery from a D5 master. D & E's marketing efforts were supported and intricately coordinated with radio, retail, on-line, the theatre chains, and the fan club. The event itself included an exclusive greeting from the band, 120 minutes of live performance, and a 3D music video. The live concert was originally captured on mostly 28 Thomson HD Cams (1080i 24p) in 2004 during two of their five sold out shows at Wembley Arena in London.

Marketing efforts and the quality of the presentation paid off for *Duran Duran*. Not only did the Premiere sell out theatres in major markets across the US, but also the DVD received visibility valued at tens of thousands of dollars in each market. The theatre chains are now just beginning to realize the value of theatrical releases for alternative content and are rapidly converting SD screens to Digital Cinemas. This, however, is a very new medium for the theatre chains and content distribution entities. Constant supervision and quality control is a must, as well as securing a marketing company that is familiar with the process and has the ability to reach your targeted demographic. HD

Doug Kluthe is Co-President of D & E Entertainment which specializes in theatrical releases and developing marketing campaigns for alternative content. www.DandEentertainment.com

JVC HDV in Madagascar

by Andrew Young

Throughout my 25-year career as a filmmaker, I've done most of my shooting in remote locations and off-the-beaten path. My recent assignment and perhaps most difficult shoot -- as far as abuse of equipment -- was in Madagascar for National Geographic Television and The Bronx Zoo. I followed a team of scientists on a white water rafting expedition into a remote unexplored forest using JVC's Pro HD GY-HD100 camcorder.

I've used many DV cameras in the past where I had to change my way of shooting to accommodate the camera. For this Madagascar shoot, I really wanted a camera that would work the way I was used to working – one that was small and lightweight, but that would sit well on my shoulder. Additionally, I needed greater pixel density than SD because some of the footage will be projected on 15-foot screen exhibits at the Bronx Zoo. Another important feature was lens flexibility – I needed a manual interchangeable lens that I could manipulate for many different shooting situations — from macro to telephoto.

I was also a one-man band –filmmaker, sound technician and assistant all in one – so I needed a camera that was easy to carry and operate in very difficult conditions. We rafted through rough, uncharted rapids, hoisted the camera up trees, and shot in days of endless rain. The camera even broke my fall a few times when I slipped on rocks and was tossed around in the raft.

Who would have thought you could subject an electronic camera to all this abuse, then roast it over an open fire to dry it out, finish the job and come home with clean and beautiful footage? Well, I did it with the HD100. I also did a 35mm filmout of selects from the shoot for a recent JVC event. In spite of the difficult conditions, the footage held up remarkably well.

The GY-HD100U made it possible for me to shoot high quality HD on a mini DV budget – and if by some chance the camera got submerged in water or fell off a cliff I knew, I would be able to sleep better at night knowing that I didn't pay $80k for it! HD

Andrew Young is a Director/DP for Archipelago Films in Croton-on-Hudson, NY

© WCS

Filmmaker Andrew Young on location in Madagascar

Tips hd

by B. SEAN FAIRBURN SOC

B. Sean Fairburn SOC, Director of Photography 818.621.3912 c, Local 600, Agent Steve Jacob 323.460.4767

HD in Low Light: Low light shooting is something that sooner or later most will face. When coverage is incomplete after the sun has set you still may be able to salvage some good usable shots. There must be a point where you gotta say "We don't have enough light and we have to stop shooting," but that time should not be given up without a fight.

A few things can be done to extend your low light capabilities especially when shooting dusk dawn or twilight exterior locations. Obviously adding light should be the first thing you use. Other than that, put the features in the camera to work for you.

1. Turn off the shutter, if your subject is not moving. This will double the exposure time of every frame from 1/48th to 1/24th and is the cleanest way to grow a stop.
2. Increase your Gamma to +30, and Black Gamma RGB to 50% range and +40. Together this will pull out more usable information from the darkness.
3. Increase the gain. Doing this is not as bad as in the old Beta SP days. Each 6db of gain increase will also raise the sensitivity 1 stop. If you need 12db set it in the assignables as this is less noisy than using analog gain.

These methods can be added up together for increasing your camera's ability to get more information out of the darkness. But remember, there is no free lunch. By doing so you are just managing the noise that will come as a byproduct of boosting the sensors in the camera.

As with everything: Test It first before you sell the capability to the director or expect to shoot past twilight. Test the footage in post to see how far they can recover usable info beyond what you think is there. HD

B. Sean Fairburn, Director of Photography, Role Model Productions, LLC. rolemodel@earthlink.net, seanfairburn.com, 818-621-3912

Photo by B. Sean Fairburn

Difficult locations require balancing in the field to bring out maximum information. Hamilton Pool outside of Austin, TX.

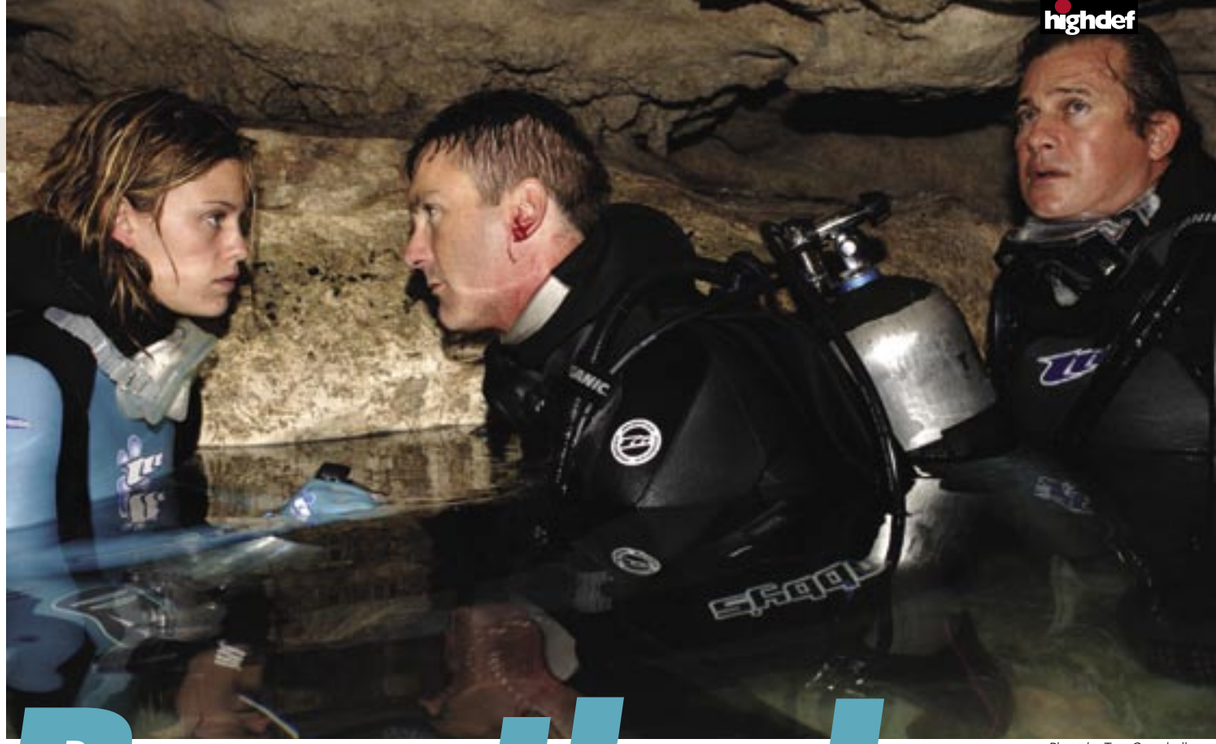

Photo by Tom Campbell

Breathe!

by Masha Nordbye

As a dinner party guest recounted a story of death-defying adventure, director Don Murray immediately sensed the material would make a remarkable feature film. One year later, he had acquired independent financing, and the *Breathe!* HD production was a reality.

The story is based on actual events encountered by marine cinematographer, Tom Campbell, who relates that he never expected to survive the ordeal, let alone find himself one day behind the camera as DP reliving the challenging experience.

After a large unexpected wave swept Campbell and his diving party back into a cave, their 16-hour ordeal to find a way out ends with the group realizing that Tom, a military-trained diver, would be their best hope of survival. With the odds stacked against him, he ventures out alone, with one final chance to find the cave exit. On his last breath of air, he makes for what he hopes is the cave opening to the surface…and the adventure doesn't stop there.

Tom convinced the director to film entirely in HD. "Murray not only wanted to create a very realistic look with the picture", emphasized Tom, "but he was also blown away by the quality that HD can provide." Campbell feels that there's no better filming underwater than on a digital format, and he opted to shoot on 1080i/(60) 59.94, which eliminates any ghosting or artifacting with motion underwater. Campbell used Sony HDW CineAlta F-900 cameras with color viewfinders, Amphibico underwater housings and the Canon HJ11 ex4.7B IRSE lens.

Campbell's team utilized Inspiration Closed-Circuit Rebreathers, which let them remain underwater for up to 5 hours at a time. Using pre-set white balances for different water conditions, Campbell was able to establish a near perfect color match for all the sequences. The film is scheduled for a spring first release in digital cinemas. HD

www.Breathethemovie.com, more on Tom Campbell at www.tomcampbell.com

(L-R) Cassidy Freeman, Mick Murray, and Tim Abell, the lead actors in the HD feature film "Breathe," shoot a scene in Devil's Den underwater cavern.

highdef

Peace, Love and Understanding

by Raykhan Avkhadeeva

For the past seven years, musical activist Michael Franti, and his band Spearhead have hosted an annual concert-festival event in San Francisco called "Power to the Peaceful." The event has grown in scope to where this year, 70,000 people came to Speedway Meadow in fabled and beautiful Golden Gate Park to hear music and speeches that implored peace and social justice.

Over the fourth of July this past year, Michael Drumm of Music Link Productions and his entertainment attorney Barry Simons saw Franti's current set at the High Sierra Music Festival. Drumm was amazed by his ability to mesmerize a large crowd. Simons who has maintained good relations with Franti and his manager Catherine Enney of Guerilla Management in San Francisco over the years helped set up a meeting. Soon thereafter the parties struck an agreement to move forward to create an HD film of this year's event. Drumm's company has produced dozens of multi-camera HD music and comedy concert shows for DVD, and airings on HDNet and INHD.

To capture the concert, Drumm turned to Schulman Mobile Video out of Los Angeles, and it's General Manager Malan McCubbin. Schulman's HD truck is a bit smaller and thus a cost effective alternative to the giant 53 expandos that dominate HD remote multi-camera production. The truck easily supported a seven camera, 8 deck HD shoot. The truck utilizes Ikegami cameras, and Sony HDCam decks. To adequately communicate the huge scope of the event, two Jimmy Jib cranes were utilized on platforms hugging the front of both sides of the stage. Three hand-held cameras were utilized up close in front of the stage, and on stage to grab the more intimate shots. Out at the front-of-house sound position, two long lensed tripod mounted cameras could both establish the stage, and zoom in for super tight close ups.

With a line up of other musical acts that started at 11 a.m., Drumm recruited LA Director/Cameraman Kerry Assmusen to handle directing a number of the earlier acts. This freed Drumm up, along with Producer Andrea Allen, to make sure the right interviews were being captured. With the likes of Franti believer Woody Harrelson on site, it was key to secure all the interviews possible. For all of the non-concert footage, two Sony HDR-FX1 HDV cameras proved their worth. Their small size enabled Drumm's team including Amy Weller and Zorab Ovsepyan to secure hours of interesting intimate video from the event.

Photo by Skye Moorhead

Michael Franti, Michael Drumm and Woody Harrelson

Photo by Skye Moorhead

Michael Franti performing at San Francisco's "Power to the Peaceful" concert-festival.

Upon reviewing the footage after the event, Franti's manager, and "Power to the Peaceful" event Producer said "it was amazing to see the powerful scope of the event that the footage captured. I'm always driving around in my golf cart making sure everything is going well, and I miss the event! Now I feel I can re-live the event from the best seat in the park!" Franti himself was gratified. "We put so much time, effort and commitment into this event, and we really wanted to be able to show how important the message and the music are. This taping accomplished our goals. Now we can't wait to see it available for both the initiated, and the uninitiated!"

Woody Harrelson commented, "Michael is the modern day Bob Marley, using music to inspire social change. Getting this show shot so beautifully will help propel Michael's message."

After the shoot was completed, a 5 minute HD demo was produced, and a cut of the Franti/Spearhead set was completed. Copies were sent out to a number of possible DVD distributors, as well as to HDNet. HD

To view Music Link Productions, go to www.musiclink.tv. Contact Michael Drumm at michaeldrumm@msn.com or 303-455-5096.

The Dukes – Using New HD inDI™ System

by Bob Fisher

Call it serendipity or maybe it was fate. Al Ruddy met Michael Goi, ASC, last year when the cinematographer shot *Cloud Nine*. Ruddy was the producer. He introduced Goi to Robert Davi, when the actor was preparing to direct *The Dukes*.

The Dukes is about a couple of 1960's doo-wop singers who have fallen upon hard times. The independent feature was slated for production in Los Angeles with a relatively slim $600,000 budget. The timing was right. Goi had just seen a demonstration of the new inDI™ digital intermediate software developed by LaserPacific, a Los Angeles postproduction facility owned by Kodak. He believed it offered an affordable option.

"I had shot *Red Water*, a television movie, in Super 16 format with the new Kodak Vision2 stocks," Goi says. "I knew that the new films would give us the latitude needed to shoot in virtually any light without compromising the nuanced production values that we envisioned. I suggested shooting in Super 16 with the inDI system."

Goi explains that the inDI system provided an affordable way to generate digital dailies he could trust and also allow for cost-effective digital intermediate timing. The processed negative was scanned with a Spirit DataCine and converted to a non-compressed RGB 4:4:4 HD source master. The software incorporates Kodak color science and Look-Up Tables (LUTs) that enable the dailies timer to emulate the film-look rendered on the negative. The same HD file is used as a master in the DI suite.

"DI is an interactive process," Goi says. "I can tell the colorist to tone down an entire shot filmed on a sunny day, so it matches exterior footage recorded under cloud cover. I can also use windows to isolate and alter any part of any frame."

The timed digital picture files will be recorded onto 35 mm color intermediate film, which will be used to master both 35 mm release prints and subsequent DVDs. HD

Photo by Christel Golden

(L-R) Director-actor Robert Davi along with actors Alphonse Mouzon (also a legendary jazz musician), Chazz Palminteri and Greg London in a scene from *The Dukes* shot by Michael Goi, ASC.

hdtv THE CONSUMER FRONT

by DALE CRIPPS

Digital Tuner Subsidies

HDTV Magazine

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.
hdtvmagazine@ilovehdtv.com

A question concerning the proposed Federal "subsidy" for ATSC tuners (to the needy) was argued. One side said it was another example of inept government giving the store away and the other claimed that it was already paid for out of auction money from the analog spectrum. The argument was the only thing on target with responses being shaded by political persuasions, so I decided to wade into the conflagration with a little historical memory and perspective.

The HDTV initiative of 1987 wound up freeing from non-use a large chunk of prime broadcast spectrum. Prior to that the unusable "taboo" or separation channels were essential to protect analog TV transmission from otherwise unavoidable adjacent channel interference. The taboo channels acted as buffers between most of the VHF channels and contained no other useful content, though they did consume a significant part of the broadcast spectrum.

The way to make use of the buffer spectrum along with many unused UHF channels was to transition from analog to digital broadcasting by both broadcasters and the public alike. The analog spectrum could then be shut off when all were broadcasting in digital and most (at least 85%) of the public was equipped to receive digital signals.

Considering that all media was abandoning analog for digital, the view by technology developers and entrepreneurs was unalterably that broadcasting would profit by going digital. The spectrum was reorganized and the once unusable taboo frequencies, now factored back in along side unused UHF channels, provided broadcasters with two 6 MHz channels, one being the transition channel broadcasters would finally return to the FCC for sale and reassignment to other digital services. The revenue from the sale or auction will go to the government almost as a gift (estimated in value between 10 and 70 billion dollars)from HDTV.

While no one disputes that the transition to HDTV has been a government managed affair, public cooperation has always been needed for its completion. Since 100% public cooperation can never be expected an incentive plan for those least-likely to act (acquire digital reception devices on their own) was proposed. This plan adopts a form of subsidy as "the greater good" in service to the transition. In this view an incentive (subsidy) is arranged and paid for by borrowing from the future spectrum auction proceeds.

While many see the subsidy in pejorative terms (another damn giveaway!) an alternative view is that the subsidy is a "cost-of-doing-business" and not a federal screwing. The fact that abuse may occur from the hands of our wealthier citizens seeking something for nothing is a deep shame upon those citizens but not the result of a flawed policy. A recent Internal Revenue Service study reminds us that "the vast majority of Americans are honest people who pay their taxes timely and accurately". There is no reason to predict any different behavior with an open administration of this ATSC tuner subsidy. The incorporation of a "means test" for calculating who is 'qualified and who is not' is higher than the cost associated with abuse. Neither approach would compare in scale to the catastrophic cost of not seeing the transition completed.

Some 25% of the recovered analog spectrum has now been set aside for Homeland Security to provide spectrum for critical communications (especially needed during emergencies). HD

Photo by Tina M. Jones

Top of the Rock

by William 'Cameron' Roberts and Greg S. Jones

At right: On Top of Rockefeller Center Taping New York Skyline for *Top of The Rock* Project, William 'Cameron' Roberts, D.P. (operating Varicam)

Top of The Rock is the new exhibit area at Rockefeller Center in New York City. To create four short doc-style pieces for the project, Bob Weis, head of Bob Weis Design Island Associates, Inc., approached D 7, Inc., an Orlando, Florida based HD production company, consisting of myself, William 'Cameron' Roberts, and my business partner, Greg S. Jones.

What Bob had in mind was to produce three shows that would be seen inside the main exhibit area on three, side-by-side, 10 foot by 6 foot HD Screens. The subjects were to include a heritage section about the construction of Rockefeller Center, a "day in the life of a Rockette," and a piece hosted by Tom Brokaw about the iconic status of the Center. Our job was to create these three short HD films in a manner that allowed them to play seamlessly, on a continuous loop while guests waited in a queue area, to ride the elevator up to the observation deck.

In addition to these three vignettes, Bob also wanted a show that could be viewed inside the elevator. It would play on the ceiling as you rode up to the Observation Platform. He wanted a "time tunnel" effect with media highlighting the decades of radio and television news from the 1930's, when the Center opened, to present day. A light show would also illuminate the elevator shaft.

The initial "research and test" phase involved shooting various interior and exterior shots of Rockefeller Center, along with point-of-view angles from inside the elevator as it moved through each floor to the top of the building. We also did a 360-degree view of New York City from atop the Rockefeller Center Observation Deck.

My previous experience as a Cinematographer on several High Definition projects such as *Walt Disney World's Storybook*, the *London Power Station*, and D 7's own award-winning independent short films *The Cleaner Connection* and *Twist Brand Sausage*, helped decide that the Panasonic Varicam 720p would be the way to go.

Once all the actual footage was acquired, my partner Greg, along with assistant Editor Bryan May, started piecing together the three queue show videos. Editing three screens was an interesting challenge. The rough cuts were done using Final Cut Pro 5. Then, we exported the uncompressed 720p media into Adobe After Effects using the Automatic Duck AE Import Tool. Working in Adobe After Effects we could then treat the media as one big screen rather than 3 separate screens. This gave us the flexibility to make it seamless. All we had to do after the final pieces were assembled was to cut the single image into three, separate, 1280x720 images.

The Elevator "time tunnel" effect was created by using a special transparent glass that becomes opaque when electrically charged. We were able to create media that a person riding in the elevator could see through the ceiling and into the elevator shaft. So, while the highlights of news events from the '30s on is seen on the ceiling, a light show in the shaft is added to help create the experience of traveling through time as you head for the Observation Deck. The piece itself was edited in Final Cut Pro and then exported into Adobe After Effects in a 1440x960 space. We then cut this up into four separate pieces that could play in standard definition on four different quadrants of the elevator's ceiling.

The next time you're in New York, make sure you see the *Top of The Rock* exhibit at the Rockefeller Center. And the next time you're in Orlando, drop in and see us at D 7, Inc., located at the Chapman-Leonard Studios in Florida. HD

Crew shooting on location at Prometheus Fountain, Rockefeller Center

Photo by Cliff Lipson/CBS ©2005 CBS Broadcasting Inc. All Rights Reserved.

Scorched — Colby (Dylan Bruno), Megan (Diane Farr) and Don (Rob Morrow, right) on *Numb3rs*, Fridays, (10:00-11:00 PM, ET/PT) on the CBS Television Network.

Ron Garcia Filming *Numb3rs*

by Bob Fisher

Ron Garcia, ASC, is pioneering the first application of the Kodak Vision2 HD System on the CBS-TV series *Numb3rs*. The hybrid system couples a scan only film designed for television with an HD digital processor, enabling Garcia to use a single negative to emulate colors, tones and other imaging characteristics of all current, and some discontinued color emulsions. The standard HD film designed for the system is in Super 16 format. Garcia asked Kodak to provide the negative in three-perf 35 mm.

"Cinematographers use a visual language the same way writers use words," he explains. "You can affect the emotional context of stories by manipulating colors, tones, light and darkness as well as by how you frame images and move the camera."

Numb3rs is composed in HD-ready 16:9 format. Garcia notes that the wider screen format provides more creative latitude for composing shots with multiple characters in their environments. He uses the camera report to indicate which stock to mimic, whether he rated the film for an exposure index of 320 or 500, and if he wants to emulate having a number 85 color correction filter on the camera lens.

Garcia can also instruct the system to emulate the effects of under or over-exposing the emulsion by one or two stops, and he can opt to use a highlight enhancer. Garcia cites a shot with bright sunlight glaring on a window of a downtown building. He instructed the system to reduce the glare and show details in the highlights.

"Today's films provide an extended range of exposure latitude," he says. "We filmed a scene with an eight-stop difference between the skin tones of a face in the foreground, and glaring reflected sunlight in the background. The negative recorded details in both the darkest shadows and bright highlights, and we manipulated the images to set the right emotional tone for the scene."

The dailies timer at The Post Group uses the camera report as a guideline for pushing buttons on the processor box, which converts the data to the red, green, blue centrimetric curve of that particular stock. The series is posted in HD format. HD

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