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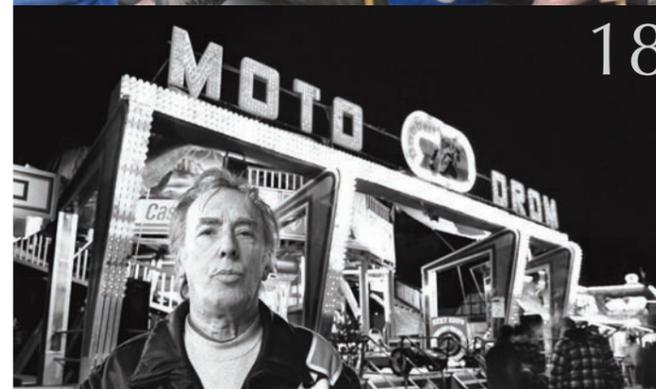
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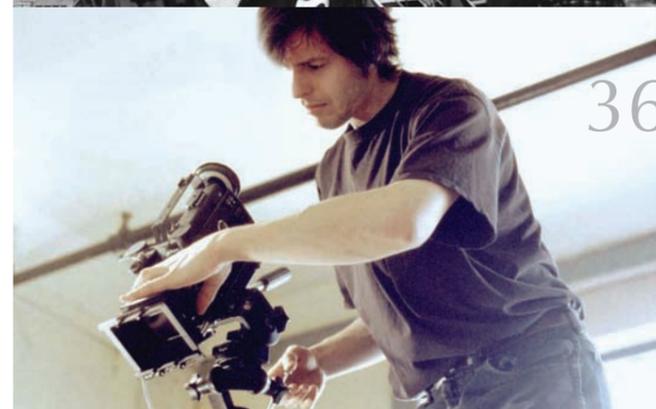
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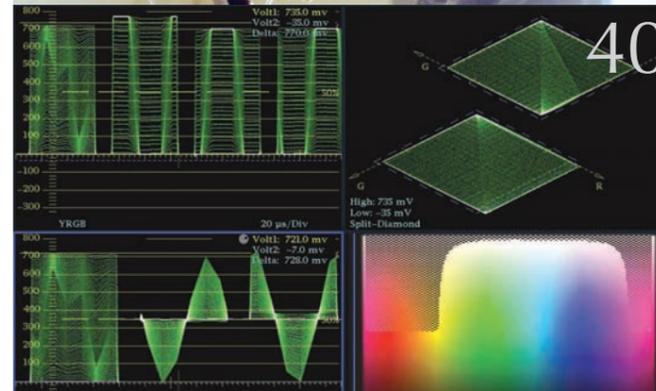
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On the Cover
On the set of *Solstice*. Photo courtesy of Daniel Myrick.



Today is your day, film and video makers. This is your era. Look at the promise in the world of online entertainment. You can reach out to the world from your living room and be heard in the farthest corners of the Globe. The internet has brought us together, and new affordable technologies are making it easier for our story to be heard like never before

in history. The word is we are democratizing the industry. These are truly amazing times we are living in.

Last year at NAB 2006 we presented our very first issue of *StudentFilmmakers Magazine*, with aspiring actor Shane Kennedy (from "Here and There," directed by Jacob Mason) on the Cover.

This year in Las Vegas, Nevada, we celebrated our first birthday with our Anniversary April 2007 Issue, 12 exciting, information-packed back issues, and booths at the back-to-back shows, NAB 2007 and BEA 2007. On Day 1 of NAB, we served birthday cake and coffee to our booth visitors. In case you missed it, you can check out photos taken from the show online at www.studentfilmmakers.com. Some familiar faces who dropped by our booth included Saul Molina from *American Cinematographer Magazine*, M. David Mullen, ASC, *StudentFilmmakers Magazine* Contributing Writer Anthony Q. Artis, Juliane Grosso from Cine Gear, Dana Lee from Ryerson University in Canada, and Bruce Borowsky from Boulder Digital Arts. At the BEA convention, I had the wonderful opportunity to meet professors and program directors from film universities across the US, including Rexford Metz, ASC, who teaches at Florida State University.

I want to thank all of you who visited us at our booths at the shows, and thank all of you who expressed your recognition and appreciation for our editorial team's dedication and hard work. Thank you for sharing your feedback, compliments, and praise.

Enjoy this issue, with excellent articles written by M. David Mullen, ASC, Ira Tiffen, Myrl A. Schreiberman, Chris Cavallari and other talented authors. Join me in welcoming new contributing writers Steve Holmes, Michael Kent, and Vanessa Daniels.

We look forward to meeting you at the next tradeshow, Cine Gear 2007 in Los Angeles, California, on June 22 & 23. Save the dates, and don't forget to register online at www.cinegearexpo.com.

Truly,
Kim E. Welch
Publisher/Editor-in-Chief

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Focus on... Focus

How Lens Settings Affect Filter Effects

by Ira Tiffen

The lens is conceptually the part of your camera that dates back the farthest in time. Before lenses, even pinholes, no one was capturing image-forming light on photosensitive surfaces in a box. Lenses being what they are, regardless of how new it is your lens has some basic characteristics that function consistently enough among all lenses to make some general practical assumptions.

I won't get into the issue here of whether depth-of-field increases with decreasing focal length (it doesn't necessarily, but we can go into this another time). Instead, let's look at certain types of filters that use discrete pattern elements to create their effect and how lens opening and focal length enter into the picture.

Diffusion nets and star effect filters are the types most of concern here. Nets involve placing a mesh pattern over the lens to produce what I call selective diffusion. As with some other types of softening effects, fine details are diminished while retaining an overall in-focus appearance. Nets date back to the early days of cinematography where they were responsible for many a glamorous star's pristine screen image. They are still popular for certain situations and are available as fabric or glass.

Star filters create bright 'points' of light, actually long thin lines of light emanating

from highlights in the scene. The effect is created by thin lines hollowed out into the filter surface by chemical etching. Sets of parallel lines run in different directions; for each direction there will be two points, one line running straight through the light. A four point star will have line sets in two perpendicular directions.

Creating stronger effects for both types of filters is accomplished by making the patterns finer - smaller openings in the diffusion mesh and closer spacing between the lines on the star filter. In each case the stronger effect has more 'pattern' on it, making it more of concern as we shall soon see.



So what are we concerned about? Well, at some lens settings, it is possible to actually see the filter pattern in the image, if you are not careful. This may be very obvious, or be completely missed until later, when the image is more properly displayed. The pattern will be most apparent when against a background with little detail, and when the camera is panning. Lighting can also have its effect. The lines of the star filter light up when bright sunlight hits them. Shooting reflective points of light off water waves may have you peering through a 'waffle-iron grid' caused by this.

How to minimize this happening has to do with understanding what is causing it in the first place. Simply, the lens is being set so that it is coming closer to focusing on the filter than it should be. This is going to be more likely when using either a shorter focal length or a smaller lens opening, but especially, both.

Depth-of-field also increases with decreasing size of the recorded image for an equivalent angle of view. This is a matter of physics. It means that as you move from a larger recording format to a smaller, for the same angle of view you will have increasing depth-of-field. So, for the smaller chips

used in video, focusing on a patterned filter will be more likely than on, say 16mm film; and on 16mm it will be more likely than on 35mm.

Larger-chip cameras like those from Arri and Dalsa will accordingly have less of an issue with filter patterns than other smaller-chip cameras. It isn't whether it's film or digital, just the size of the recorded image.

The general rule when using patterned filters would be to make focusing on the pattern as unlikely as you can by shooting with a wider opening and using longer focal lengths.

You may find that a neutral density filter, either on the lens along with the effect filter or behind the lens as with a filter wheel, will reduce incoming light to allow you to use a larger lens opening than you might otherwise. You can also use a polarizer, even if you don't need a polarization effect, as a stand-in for the neutral density, as it typically has a 1-2/3 stop compensation requirement. Just be sure that the polarization doesn't cause some other problem at the same time.

Another issue to remember is that you are also more likely to focus on the filter

when the subject you are focusing on is closer to the camera.

Filter wheels and filters mounted on the rear of the lens, are other options for using patterned filters - either makes it less likely, but still not impossible, to see the filter pattern appear unwanted in the image. These will be available only if your equipment provides for them.

There are a number of filters that may seem safe from this standpoint, but virtually any filter with a pattern may cause a problem, so, especially for critical events, test in advance and evaluate the result on a proper display. What you see in the viewfinder may not be enough to signal that there's a problem while there is still time to correct it.

There is another focus issue that lens accessories can assist with. In particular, I refer to the "split-field" lens, a close-up lens that has been cut in half. This provides the ability to have part of the image focusing normally, usually on an object in the background, while retaining focus on another part of the image in the foreground, especially when the distance between the two and the proximity to the camera

prevents normal depth-of-field from keeping both in focus.

Mount the split-field lens on the camera lens, and position the lens-half to cover the near-field. Focus on the background object normally, and then move the camera forward and back until you obtain simultaneous focus on the foreground. You can properly control the frame and focus of your shot by choosing both the lens focal length and the diopter strength of the split-field lens accordingly.

You will usually have an out-of-focus line between the two fields of focus - this is best handled by placing it in an area with little sharp detail to minimize drawing attention to it. This line will be larger and softer at larger lens openings and smaller and finer at smaller openings. That depth-of-field issue again.

There are many focus issues that you will master as you go along. Focusing on the subject and not on the filter will also keep your audience focused on what's most important - your story.



In over 30 years of making optical filters, Ira Tiffen created the Pro-Mist, Soft/FX, Ultra Contrast, GlimmerGlass, and others, netting him both a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences and a Prime-Time Emmy Award. Elected a Fellow of the SMPTE in 2002, he is also an Associate member of the ASC, and the author of the filter section of the *American Cinematographer Manual*.

Both pictures were made using a 4-point 2mm Star filter. All else being equal, the one at f/22 (left photo) shows the light and dark pattern effect of depth-of-field causing the lines on the filter to be visible; in the one made at f/3.5 (right photo), the larger lens opening eliminates this effect. Photos by Ira Tiffen.



Working with Fluorescent Lighting on Location

Tungsten and Daylight Balanced Lighting

by Saro Varjabedian

Today, most commercial locations such as office buildings, supermarkets and shopping centers use fluorescent lighting. As a director of photography, planning a location shoot will require knowing how to best deal with fluorescent lighting. The difficulty which fluorescent lighting presents is that fluorescents emit high green color spikes. While our eyes adjust to the green color which fluorescents emit allowing us to see it as white light, film or video do not. You will need to color balance the video for the green, add a minusgreen filter to the lens or time out the green during the film development process. The problem is that often times just using the practical fluorescent sources will not be enough to produce a favorable image because either the image will be too flat or the fluorescent sources do not provide enough light for

proper exposure. The solution would be to add other light sources to the set. Once mixed color lighting is introduced then the light sources must be balanced to the same color spectrum or your image will have an unattractive green color hue to it.

For the purpose of this discussion, let us use as an example an office space with fluorescent lighting recessed into the ceiling and the introduction of another source of light. Listed below are two scenarios for balancing fluorescent lighting with either tungsten or daylight balanced sources.

Scenario 1: Introducing Tungsten Balanced Lighting

To balance for tungsten light sources gel warm white fluorescent bulbs with minusgreen, gel cool white fluorescents with

fluorofilter or replace the regular fluorescent bulbs with full spectrum fluorescent bulbs such as Optima 32s. Plusgreen 50 can also be added to tungsten light sources to balance the source to cool white fluorescent bulbs but the green color will need to be removed by adding a minusgreen filter to the lens or timing out the green during the film development process.

Scenario 2: Introducing Daylight Balanced Lighting

To balance for daylight add minusgreen gel to the fluorescent bulbs or replace regular fluorescent bulbs with full spectrum fluorescent bulbs such as Optima 50s. Plusgreen gel can be added to windows or HMIs to balance it with the fluorescent bulbs but the green will need to be removed by adding a minusgreen filter to the lens or timing out the green during the film development process.

To color balance locations lit by fluorescents it may take a combination of these techniques. The location will dictate the best course of action. If you are filming in a small office it might be better to gel the fluorescent bulbs to match the tungsten or daylight sources. If you are filming in a large supermarket with many fluorescent sources it would be a lot easier to gel the tungsten or daylight source to match the fluorescents.

Saro Varjabedian is a director of photography based in New York and has worked on over twenty films, music videos and corporate videos for various production companies. He has recently finished production on *Erza*, *Story 353*, *Agoraphobia*, *Hero the Great*, and the TV pilot, *Power-Outage*.



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Shooting *Solstice* in New Orleans

A Drama Set in the Bayous of Louisiana with Supernatural Elements

by M. David Mullen, ASC

Often I get asked “how do you find work?” and usually the answer is that most of my work comes from contacts formed on my previous jobs shooting feature films. The added advantage of this situation is getting to work with people that know and trust me, and trust is essential for a cinematographer to be allowed to explore his art fully. Without trust, a cinematographer is forced to build it gradually by delivering good (but somewhat conservative) images in tried and true ways – in other words, the cinematographer feels compelled to play it safe, only do what he knows works. You need trust in order to take chances, to be allowed to occasionally fail.

In the Spring of 2006, I was introduced by my agent to a producer that I hadn’t worked with before, Adam Del Deo, and along with him on this project, a director named Dan Myrick. The script was titled *Solstice*, a drama set in the bayous of Louisiana among some vacationing teens, with supernatural elements. The lead character, Megan, is dealing emotionally with the suicide of her twin sister, Sophie, at the previous Christmas, and mysterious happenings at their summer house lead her to believe the ghost of her dead sister may be trying to contact her.

At the meeting I was impressed by Dan Myrick’s intelligence and sense of humor. Dan was already famous for being one of the creators of *The Blair Witch Project*, and he had very specific ideas for how the horror elements of this story were to be presented. He was determined to avoid or minimize any clichés of the genre – he didn’t want the summer house to be old and creepy, he didn’t want the ghost to be some pale, decomposing dead girl à la *The Ring*. However, he did want a certain naturalism regarding the setting to be captured, a realistic approach to the lighting, and as much use of natural light as possible. Now it’s always a bit dangerous to go against expectations when doing a supernatural tale because to some extent, the gothic elements are part of the charm of the genre (plus they are fun for the cinematographer!). But I liked the challenge of capturing the natural qualities of the swamp location and thought that perhaps this would be a chance to do a horror film in the subtle style of a Terrence Malick movie.

The budget was what could be called the low-end of the union contract scale, and the schedule was incredibly tight, only 25 days. This sent up a warning flag for me because I’ve shot many 25-day features over the years, and have a good sense of how

long things take. The problem of a short schedule on this film was that over half the scenes take place at night, many inside the swamps and woods, and night photography *never* goes fast. The other issue was that we had a certain number of physical effects and some plate photography for post visual effects to set up. I was also concerned that a fast-paced shoot would not allow the sort of Malick-style naturalism to creep in because of the time it took to travel to scenic spots at the right time of day.

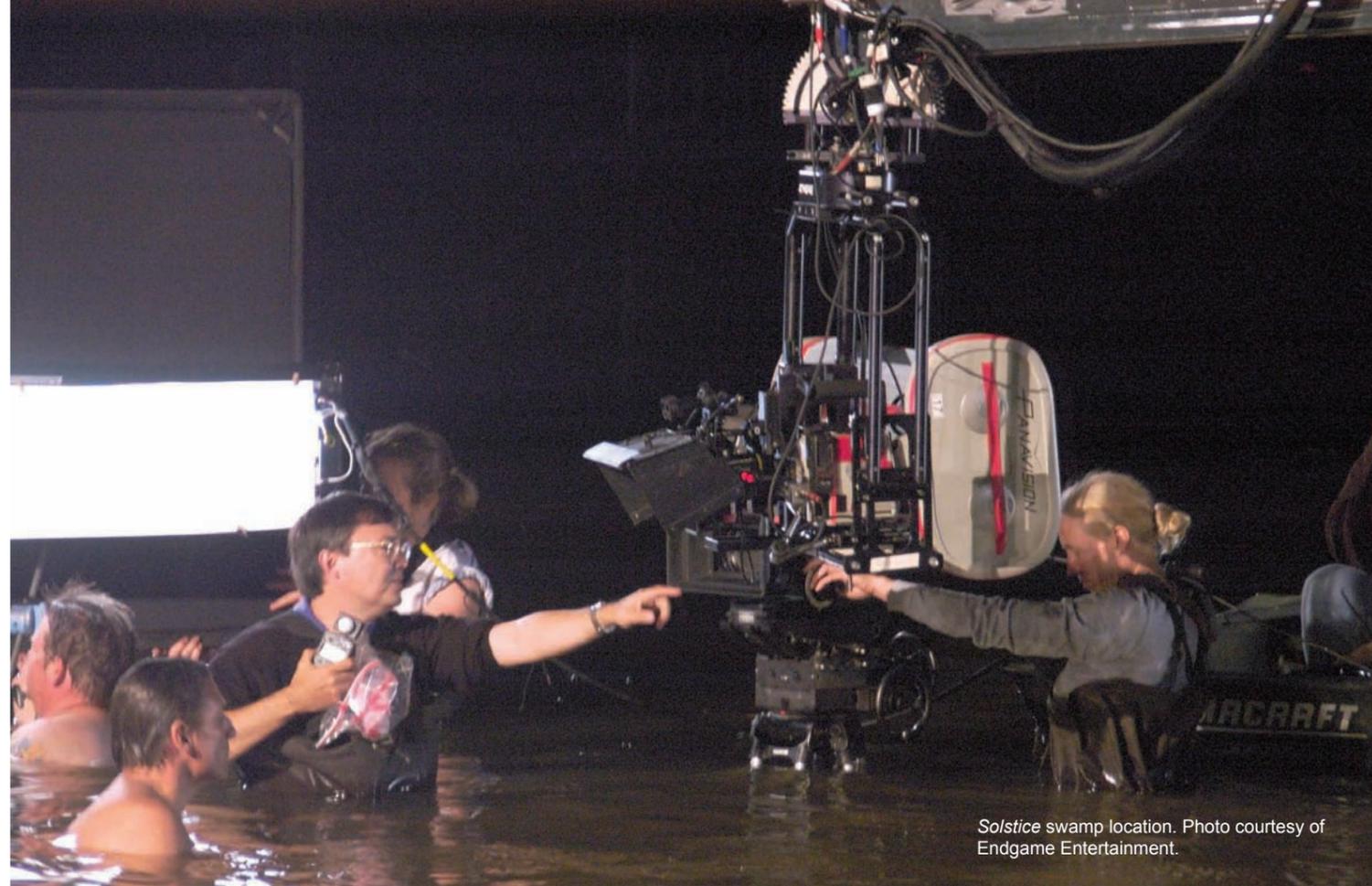
The movie was going to be shot in the New Orleans region, despite the fact that Hurricane Katrina happened only seven months earlier. This was not only due to the evocative locations that Louisiana provides, but the new tax breaks and incentives that the state provides productions. I had just returned from the Baton Rouge area only a month before I was hired on *Solstice*; I had been scouting for another indie feature that ultimately lost its financing and sent me

home after two weeks. While I was there, I had interviewed a number of potential local crew people, which I thought would come in handy now that I was returning just a month later.

When I was there before in late January, we were the only production starting up in that area – but now that I was returning in March to start preproduction all over again on a new project, I discovered that three other features were starting around the same time (in fact, one of them called me during prep asking if I wanted to come down to Louisiana to shoot their feature). Worst of all, one was the Tony Scott movie *Déjà Vu* starring Denzel Washington, a big-budget project that sucked up all the top local crew people, including almost everyone I had interviewed just a month earlier. Because of the tax breaks, there was pressure to hire as many locals as possible, but as our prep went on and the first day of shooting loomed closer, we had to start

calling people in Los Angeles that we knew because we had run out of local options. Ultimately almost no one on my camera crew was local, despite our attempts. Even our Key Grip and Gaffer came from Los Angeles, along with some of the electricians and grips. Same was true in many of the other departments as well, ultimately costing the production more money than they had planned on spending. This was complicated by the fact of a housing shortage in the area because of the many Katrina refugees still living in the remaining local hotels.

Since the budget of this movie permitted us to shoot in 35mm, I wasn’t tempted to bring up the possibility of shooting in HD; I felt that the beauty of these locations would best be captured on film. But on most of my recent features, I had opted to shoot the movie for release in 35mm 2.35 “scope” prints. I like that widescreen presentation format for many reasons. One is that it allows the location to play a larger part of the frame, to maintain a sense of place even in tighter shots. Two, it makes a low-budget movie feel larger in budget. And I like the compositional challenges of the very wide frame. But on my HD features, it had been as simple as framing for cropping 16x9 to 2.35 in the viewfinder; we just recorded the HD master to a 35mm anamorphic internegative by cropping and squeezing the image in the Arrilaser. For my 35mm features, I had shot them so far using anamorphic lenses, which I feel yield the highest possible image quality for theatrical projection because of the size of the negative area reserved for the scope image. However, on this project, I was hesitant to suggest anamorphic photography because we had such small locations and we had so much night exterior work. Anamorphic has less depth of field on average than spherical 35mm photography, which is why generally you try to light scenes to at least an f/4 – however, more often than not, large night exteriors are lit to f/2, maybe f/2.8 at the most. This creates a focus-pulling challenge, not to mention that so much of the frame is in soft-focus at wide apertures that we may lose a sense of the space at night. So I suggested that we shoot in Super-35



Solstice swamp location. Photo courtesy of Endgame Entertainment.



to achieve 2.35. I also suggested we use 3-perf instead of 4-perf and do a digital intermediate to convert the 3-perf spherical photography to 4-perf 35mm anamorphic. The 25% cost savings from switching to 3-perf would help offset some of the costs of doing a digital intermediate.

The other reason why I suggested doing a digital intermediate was there was no time for complicated tests on location to determine a unique look for the movie. Dan had expressed to me the idea that gradually throughout the film, the look would get less saturated and less warm. I had experimented with photochemical desaturation on a number of my features, notably *Northfork*, and I knew that a gradual desaturation effect was only practical if done digitally. And even though the overall look of the movie was to be naturalistic, I knew that certain supernatural moments would shift into an Expressionistic style, and I needed some post options to manipulate those scenes.

As usual, I was given a good deal on a camera package from Panavision, who has supplied the cameras on most of my features since film school. We had a 3-perf Millennium-XL as our “A” camera and a cheaper GII as a “B” camera. The Millennium-XL is a rather expensive camera actually, but it is the most flexible to convert to Steadicam use; plus, it is the lightest Panaflex made, and since we hired a great Steadicam operator (Chris Squires), I wanted to make sure he was comfortable with the camera he would be carrying. Our lenses



Solstice Editor, Mathilde Bonnefoy. Photo courtesy of Daniel Myrick.

were Panavision Primos, which are very sharp at wide apertures. Having just shot *The Astronaut Farmer* using the new Fuji Eterna 500T color negative, I decided to use it again for this movie. But since we had so much day exterior and interior work too, I decided to also use the new Fuji Eterna 250D as well, which hadn't been available for my previous movie. Since the new Eterna stocks had half the graininess of the previous generation, the new 250D stock was about as grainy as the older Fuji 100 ASA film, which meant that it was fine-grained enough for day exterior work. The Eterna stocks are also rather low in contrast, making them ideal for scanning work and post manipulation. If I hadn't been doing a digital intermediate where I could add as much contrast as I needed, I would have looked into printing the Eterna stocks on a higher-contrast print stock to compensate.

Since the 35mm 3-perf negative is roughly 16x9 in full aperture, I decided to use a ground glass where the 2.35 extraction framelines are near the top of the negative frame rather than in the center. This allows any TV version to share the same headroom as the theatrical scope version. It also means that the boom operator doesn't have a huge difference between the top of the TV and theatrical framelines to deal with.

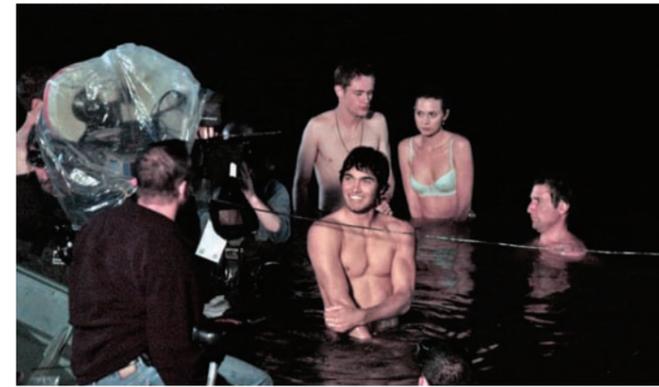
Right at the start of shooting, we did 50 set-ups in a 12-hour day. Which always impresses everyone... but personally, it's always a bad sign to me when you have to shoot that many set-ups per day just to cover what is on the call sheet. Because I know that it won't be possible to maintain that kind of pace. Our schedule favored day exteriors first, gradually falling into night photography. In order to both work fast, and to keep a natural look, I decided to not complicate day exterior shooting. When possible, I just had a handheld bounce card on standby to augment the daylight rather than automatically reach for HMI's or huge frames of diffusion. Of course, this means

that we have some mismatches due to cloud cover to fix in post, plus some time of day mismatching, but the advantage of this style is that I can quickly grab any interesting accidents of light that happen during the day.

We had a number of days where we shot past magic hour, trying to get every shot we needed. One flashback scene in particular was shot too late in the day, requiring that I work wide-open on the lenses and push the 500T film stock, but I justified the softer, grainier look that resulted as being part of the flashback style. Occasionally, when I'm not running the second camera on a scene, I'll send my B-camera operator, Theo Pingarelli, to grab some much-needed shots of the swamp location.

As I said, we've generally avoided any horror clichés in terms of style, but we had one scene where our lead character, Megan, explores an old farmhouse in the swamps, mainly shot with a roving Steadicam. I wanted it to look a little cold and monochromatic so I switched to the 500T stock with no daylight correction filters; this also allowed me to use a lot of available light mixed in with only a few HMI's and Kinoflos. I had the colorist pull half the blueness out of the dailies, giving the scenes a steely blue-grey look. I also smoked the interiors, which helped reduce the saturation further.

Because I'm shooting fairly fast stock for daytime exterior work, rating the 250D at 160 ASA, even with ND's and Polas, I sometimes end up shooting a scene at f/8 when the sun is out. I suppose I should be one of those DP's who keep the same f-stop all day long just to be visually consistent, like at f/2.8 (if I know that's what I'll be at by the end of the day), but the truth is that I prefer shooting 35mm at the middle f-stops because it helps the focus-puller work faster – they aren't dealing with shallow focus all day long. Every time the AC opens up the



f-stop all the way to check focus by eye, I think, “boy, that looks pretty”, but in reality, actors and cameras *move*... and a swimmy, shallow focus look can be distracting on the big screen.

The major disadvantage of shooting 3-perf came up in the middle of the shoot: the lack of ability to strike a 3-perf contact print and project the results on location. There is an expensive portable projector made by Arri with a 3-perf capability, but that is beyond our budget. I am reliant on the lab and the editor in Los Angeles to look at any problems on the big screen when necessary, which is what happened when two wide shots in our movie, shot on different cameras, different lenses, and different film stocks, both came up soft in dailies. Panavision came out to check our lenses and flange depth but found no problems. It was clear to me that for some reason, the film was not lying flat in the telecine gate nor the projector gate. I posed the question on the Cinematographer Mailing List (CML), and one person in the U.K. suggested the possibility that the lab had over-dried the negative and it had curled, and this could be fixed by rewashing and redrying the negative. So I decided to put off dealing with the problem until post. Jump six months later when we are doing the D.I. and when these two shots come up, they are perfectly sharp! I think simply being in the vault for that period curled up in rolls on cores flattened them out.

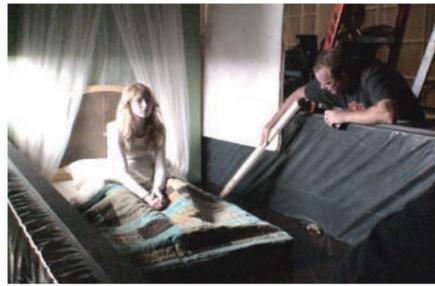


For many day scenes early in the picture, I wanted a warm bias to the image. Rather than deal with the extra glass of pale warming filters on the camera lens, I opted to shoot my grey scales at the head of the day with a pale blue filter on the camera (the 82A or 82B) which I then took off for the scene. By timing the blue-filtered grey scale back to neutral, the colorist made the scenes that follow look very warm in dailies.

A lot of the night scenes are set in “moonlight”, which for me was a half-blue color on tungsten-balanced 500T stock (meaning halfway between 3200K tungsten and 5500K daylight). This meant using 1/2 CTO (Color Temperature Orange) gel on HMI's and daylight Kinoflos for the most part, or 1/2 CTB (Blue) on a tungsten lamp. The director wanted something different from the commonly used big blue backlight approach to night photography, so for some scenes I used a helium lighting balloon contain a mix of HMI and tungsten globes to get that half-blue color; it created a soft top-light look. Other times I had to go for the backlit look, partially because some scenes had rain in them, and rain needs to be backlit to be seen. In general, I underexposed moonlit scenes by two stops, which felt about right in terms of darkness. But considering I rated the 500 ASA stock at 320 ASA (2/3's of a stop overexposed) it actually meant that a 2-stop underexposure was really on a 1 and 1/3-stop underexposure, which gave me more flexibility in color-correcting later.

One of our most challenging scenes involved six people standing in a circle in nearly chest-high water in the lagoon in a swamp, at night. I pondered over this scene over many times in my mind as to how I was going to light for 360 degrees at night. The area had to be netted off to keep the alligators away, and then a platform had to be sunk underwater into the mud to give the actors a level platform to stand on. I had the art department use string lights (a string of 40w clear bulbs) on a nearby fishing dock to provide a tungsten-source from one angle, which I augmented with two 2K tungsten open-faced “blonds” on a high wooden post, pointing towards the action as if they were the worklights of the dock. I had to rate the Eterna 500T at 640 ASA and push it a stop, which is how I shot the carnival scene in *The Astronaut Farmer*, which had similar strings of clear bulbs. They seem to look the best at T/2.8 at 640 ASA in that they actually looked bright enough to light something.

With the golden backlight from the tungsten lighting on the dock, hitting some low-level smoke creeping across the water, it sort of looked like that shot in *Apocalypse Now* when Willard rises out of the water. Across the lake on the opposite bank, I had an 18K HMI on a condor to provide a cold moonlight source. It was at a 90 degree angle to the dock lighting. So as I worked my way around the circle in coverage, the two people standing with their backs to the dock were backlit by tungsten / sidelit by



moonlight; some were sidelit by tungsten and backlit by moonlight (or filled-in by moonlight if standing on the opposite side of the circle), and the last two were frontlit by the tungsten mainly, which was a little boring... but logical since they were facing the only strong source of light in the scene.

On the closer shots where the two actors were backlit by the dock lighting, I flagged off the 18K and used a 4-bank Kino for a softer blue moonlight, underexposed compared to the dock lights -- which sounds simple in theory... but a nightmare to rig in four feet of water on the edge of a too-small wooden platform. This was the point where I got soaked trying to adjust the lights while wearing hipwaders. The Kinoflo in the water had a ground fault circuit interrupter. Just to get it to be two-stops underexposed when shooting at T/2.8 at 640 ASA, I ended up with two layers of 216 (plus the 1/2 CTO correction for the daylight tubes) and only one tube was switched on.

As you can imagine, everything went slower once I started putting the camera and a light plus flags into the water. It was a nightmare; I can understand why water movies go over-schedule! For the wide shots, we shot from the shore. I managed to get the production to rent a 30' Technocrane, which we used to good effect to get high and low angles. But once we went in for closer shots, the cameras had to be mounted to tripods in the water, with the lens and camera body just above the waterline.

At the same location by the lake, we shot a campfire scene. For the wide shot, I buried two orange-gelled 4' Kino tubes in the ground between the actors and the fire, which gave me just under a T/2.8 on their faces from the mix of real firelight plus the soft orange Kinos. For the close-ups where there was no fire at all in the frame (too crackly for sound) I switched to using two 1K's on a double-headed low stand, gelled orange, and going through a 4'x4' frame of 216. One was on a flicker box and the other on a dimmer, blended by the diffusion frame to create a believable flicker effect.

Our worst day happened when we finally made the move from the lake house location (where we had been for a week and a half) to a nature preserve with a swamp and an abandoned brick house which played a key role in the mystery. Well, that company move went as badly as I've ever seen in a while because of heavy rain the night before. The drivers got some of the production vehicles stuck in mud at the lake house... and then got other vehicles at the new location also stuck in mud, including a condor needed for the night photography. This condor also now blocked any access by other vehicles into the location. Trying to salvage some of the day, I thought maybe I could shoot something in what natural light was remaining if we hand-carried our camera gear down the road, around the condor, to the shooting site. But once we managed to do that, I found out that during all of this confusion, the drivers had forgotten to pick up the actors from the hotel. So even though I could have gotten a shot off by 4:30PM, it wasn't until 7PM, with just a half-hour of weak light remaining that I got an actor to shoot. And again, I was rushing to get the scene, shooting handheld with no marks, no rehearsals, with the lens aperture wide-open.

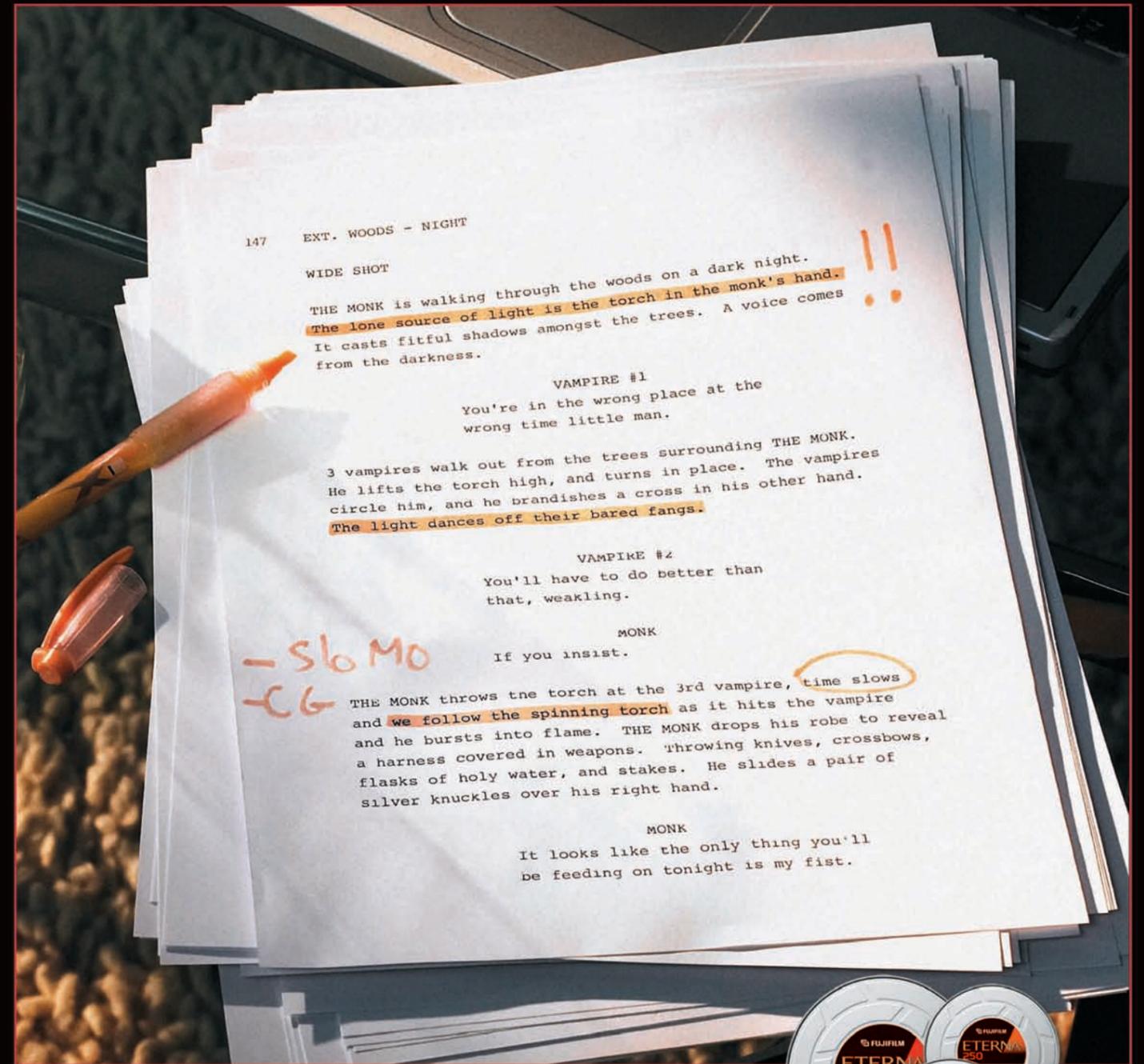
Our last night at the nature preserve consisted of rain scenes, and the only water

truck we could get was underpowered; unable to get decent water pressure, we spent a lot of time moving rain towers around to get them as close to the edge of frame on every set-up. And then equipment started breaking down in every department before we could roll. I had a 4K HMI shut-off twice (with a ten-minute restart time needed each time), then the remote focus on the Steadicam broke down, then the sound equipment stopped working... and during all of this I could hear the producers saying, "but we've got to shoot!" Luckily, we managed to light our last big scene quickly by floating a lighting balloon overhead, and then we faked all the coverage against the same set of (out-of-focus) trees, with the same backlight from the condor. The last shot was a simple stunt -- the actor had to leap over a fallen tree and then pretend to get his foot caught in an animal trap. But dawn had arrived and was filling in the shadows with soft, deep blue light. I pulled all the 1/2 CTO gel off of the HMI's to get a full blue color for the moonlight, then I put an 81EF warming filter in the cameras to correct the color back to half-blue. It actually had a nice look for the woods, the blue dawn twilight acting as my fill and the HMI as a big backlight, plus rain and smoke through the shot.

I've never had to deal with as many bugs in the air as at night in a swamp. Climbing up to change a scrim in a light involved swallowing a lot of hovering insects -- it was horrible. And actors had to put up with flying beetles covering our overhead helium lighting balloon, only to then occasionally rain down on them.

We got to spend a few nights after that shooting in the Garden District of New Orleans, a pleasant change. Our lead actress (Elizabeth Harnois) had flashback scenes with her character playing opposite her identical twin, so we had to deal with shooting parts of scenes and then waiting for her to be changed to the other character,

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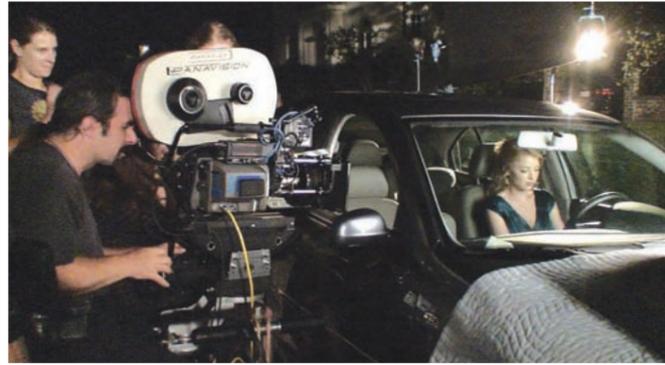


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with a wig, new wardrobe, etc. And we had to shoot one scene outdoors at night with a greenscreen so we could have her walk past herself as the twin. This was all very time-consuming.

Our 25-day schedule had one major flaw in it – it was too short! We needed about nine days at the lake house and three days on stage to finish the movie, but this plus the other location days brought the total schedule to 26 days. So the “solution” was to drop one of our days at the stage at the end of the shoot and combine three days of work into two. Unfortunately, it is the nature of any shoot to fall a little behind and owe shots from previous scenes. So on Day 25, the last day, our call sheet had 17 scenes listed, five different sets, nearly nine pages of script, interiors and exteriors, and two scenes involving stunts and visual effects! We worked 20 hours on our last day, from 7:30PM to 3:30PM on the following night, which ultimately gave me

two hours after wrap to go back to my hotel, shower and pack, and get on my return flight home to Los Angeles –so I missed an entire night of sleep. The truth is that we worked a 26th day after all.

At some point on this horrendously long day, I got asked if I could light the scenes badly (or less well) in order to work faster, but I personally feel that it takes just as long to light a scene badly... so that wasn't going to help anyway. One problem was that we were now shooting day scenes on a soundstage. There was no such thing as available light coming through the windows of the sets. Everything had to be lit to create a believable daylight look. I couldn't just turn on a Kinoflo to augment some natural light and shoot quickly. So we plugged ahead, scene after scene, until we were done.

A few months later we spent an additional three days on a stage in Los Angeles shooting more material to cover scenes (suspense sequences tend to need a lot more shots and cuts), and a few new scenes were added. Soon after editing was completed, the digital intermediate work was done at Technicolor TDI in Burbank. The negative was scanned on a Spirit 2K and color-corrected on a DaVinci while being digitally projected on a big screen. A number of early scenes in the movie became more flashback material, so I decided to give these shots a unique look by adding some digital diffusion (sort of an

overlaid Gaussian blur), plus crushing the blacks to give it a somewhat glowing but high-contrast look. Otherwise, we kept with the natural look originally planned, with a mild amount of desaturation as the story moved into the moonlight scenes near the climax. Unfortunately, we had to resort to using some HD stock footage to cover a driving montage, footage that I had been looking forward to shooting myself in Louisiana.

Throughout the production, no matter how badly things were going, director Dan Myrick never lost his sense of humor and was never rude to people, which I greatly appreciated. Producer Adam Del Deo was also a very generous and pleasant person. All of this helped make the experience highly enjoyable despite the difficulties. I look forward to returning to Louisiana someday with enough time to really explore the landscape and capture its unique beauty on film.

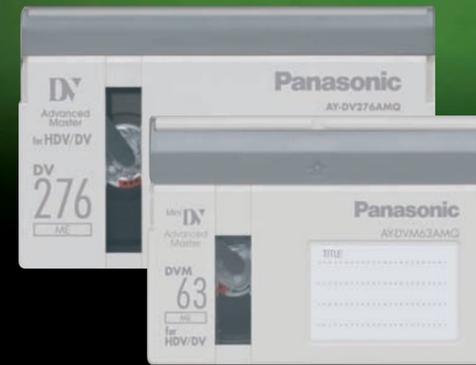
M. David Mullen, ASC has earned two Independent Spirit Award nominations for best cinematography, for *Twin Falls Idaho* in 1999 and for *Northfork* in 2003, and has photographed over thirty films, including *The Astronaut Farmer* (2007), *Solstice* (2006) *Akeelah and the Bee* (2006), and *Shadowboxer* (2005).



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Joerg Wagner Captures the Wild Ride: Bikes, Speed, and Adrenaline

Award-Winning Writer/Director on Experimental Documentary, *Motodrom*

Interview by Jody Michelle Solis

Writer/director Joerg Wagner talks about the making of his 9-minute experimental documentary, *Motodrom*, which won Honorable Mention for Short Filmmaking in the 2007 Sundance Film Festival. Wagner discusses shooting black-and-white, action, and stunts in this homage to the world of motor drome.



Writer/Director Joerg Wagner

Where was *Motodrom* shot, and how did you decide upon the locations?

Motodrom was mainly shot at a Hamburg fair called "Dom." When I looked at the material, I developed new ideas for additional shots and camera angles, so we followed the guys from the motodrom to two other fairgrounds, the "Schützenfest" in Hannover and the "Pollhansmarkt" at Schloss Holte.

How long did it take to shoot, edit, and complete *Motodrom*?

Well, it took us about two years to complete *Motodrom*. It was a production with a low budget, and we had to stop working on it whenever someone from the team had a paid job. If we would have worked constantly, I think we could have done it in three or four months.

What kind of story did you want to tell with *Motodrom*?

I didn't just want to make a documentary about the motodrom; I wanted to create a kind of cinematic wall of death ride. I wanted to make the audience physically feel what it's like inside the motodrom.

What was your budget, and how did you finance your movie?

We had a total budget of about 50,000 euros. Fortunately, we had support from German film fundings.

The beginning of *Motodrom* shows the drome being built from the ground up over a period of time. Could you describe how you created the time lapse effect, or what was entailed?

Directly on the fairground area where the "Hamburger Dom" takes place, there's a big WW II bunker. We had two Super 8 cameras with telephoto lenses on top of the bunker, shooting one frame every ten seconds. Of course, it was a matter of luck

that the motodrom was built up very near to that bunker.

Did you mount cameras to any of the motorbikes, cars or stuntmen?

We actually shot a lot of material with cameras mounted on the bikes and on the car. It was part of the concept to show the POV of the rider in order to give the audience an idea of how it feels to ride in the wall.

Did you use special cameras or film stock to shoot B/W, action, speed, and stunts?

The film was shot on 35 mm, Super 8 and Mini DV. My first idea was to shoot the whole film on Super 16 and then blow it up to 35. Unfortunately, it was impossible for the riders to perform with a Super 16 camera mounted on the bike. So we decided to use Mini DV lipstick cameras for the shots from the bikes. In addition, we used 35 mm for the slowmotion scenes and Super 8 for the fast motion sequence when the drome gets built up.

There were some shots looking up at the stuntman riding around the drome, which one might think could be very dangerous for anyone standing in the center of the drome shooting stunts involving motorbikes and cars. And then there was another shot looking down into the drome. What kinds of equipment did you use to capture these shots?

The shots looking up at the stuntman riding around the drome were technically rather simple. Peter [Drittenpreis] was sitting on a swivel chair with the 35 mm camera on his shoulder going round and round,

trying to keep up with the speed of the bike. He did a great job there. The topshot looking down into the drome was shot from a mini camera crane standing on top of the audience platform using a fisheye lens.

Would you say you have to be a specialist of sorts when working with B/W, action, speed, and stunts?

All I can say is, when it comes to shooting action, speed and stunts, it is great to have a creative DP who likes trying new things and who is crazy enough to shoot from the bottom of a drome while three bikes running at breakneck speed around his head.

Peter Drittenpreis was the main DP on this project. We worked very close together. Whenever I came up with some crazy idea about cameras going round in circles he tried to make things possible. He is a creative guy.

At one point, a stuntman rides his motorbike using no hands, and drama

is built up with the use of slow motion. Could you talk about this?

I love slow motion. It's one of the most beautiful things in film. In these particular shots I wanted to capture the beauty of this bizarre stunt entertainment. By reducing the speed, the rider is floating smoothly along the wall, and time seems to stand still for a short moment.

Was shooting with stuntment very dangerous for any crew or equipment?

Of course, you try to keep the risk as low as possible. But when you are standing on the bottom of the drome and three guys are riding around your head, all you can do is simply trust them. We had total faith in them.

How many people were in your crew?

On some days, when we did just Mini DV, there were, apart from the riders, only Peter, [Producer] Dirk Manthey and me. On other days, when we did 35 mm, used the crane or shot with sync sound, the team grew up to about 15 people.



Wall riders in Joerg Wagner's *Motodrom*.



Scene from *Motodrom*.

What was the most difficult or challenging shot to get?

There was one shot with two bikes that was really hard to do. We had a camera mounted on the back of [wall rider] Hugo's bike. On the other bike, [wall rider] Jagath performed his acrobatic stunts. Hugo was the cameraman so to speak. He had to drive a few meters ahead from Jagath in order to catch him in the frame. Jagath was standing on the bike using no hands, and therefore, couldn't control the speed of his bike. Hugo, on the other hand, could not see Jagath and had to keep the perfect distance to Jagath only by locating him acoustically by the sound of Jagath's bike. It was incredible, but it worked. Sad but true: in the end, this shot didn't make it into the film. During

the editing process, we realized that for dramaturgical reasons the shot didn't really fit into that part of the film.

Did you use storyboards?

Although I find storyboards normally very helpful, for this film it didn't make sense. We were more like hunter-gatherers, experimenting with all kinds of different camera angles and seeing what we would end up with at the end of the day.

What was your most favorite thing about working on *Motodrom*?

The most fascinating thing was to experience the everyday life of the motodrom guys. We soon became good friends with them, and at the end of the

working day, we sat together with them in their trailer, talking and laughing for hours. We are still in contact with them and meet them whenever the show comes to Hamburg.

Any advice on how to get a short documentary in Sundance?

When you shoot a film, don't think about things like Sundance or Cannes or what the film should be like in order to get it into a big festival. Just concentrate on your work, and do the film exactly the way you want it.

Photos courtesy of Joerg Wagner.

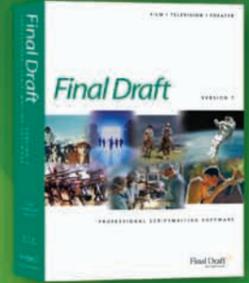
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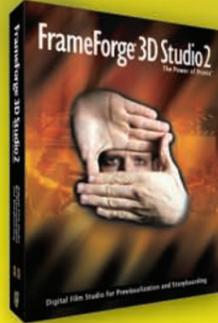
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Placing the Camera

Choosing the Look of the Film, Aspect Ratio, Stock, Lenses and Variety of Movement...

by David K. Irving

"People don't always express their inner thoughts to one another; a conversation may be quite trivial, but often the eyes will reveal what a person thinks or feels."
~Alfred Hitchcock

The camera is the director's eye and since film is visual storytelling, the camera is the director's most important tool. If the sound system in a theater were to cease functioning, and the audience would have no choice but to watch the film silently, the story should still be clear. Dialogue, sound effects and music are vital to a film, but the image is dominant.

The screenplay contributes the majority of information directors require to formulate a shooting plan. Broad strokes are established by the genre of the story. A comedy is usually bright and colorful whereas a horror film is misty and atmospheric. A script might scream out to be shot in black and white, sepia tones or pastels. Camera placement and moves are dictated by genre. Comedy can hold a static frame as the actors perform routines; while the conventions of a horror film prescribe low angle POV tracking shots to scare the audience into thinking "someone or something is coming to get me!"

But if the screenplay is a blueprint, the director produces ideas that visualize the drama. Directors examine the sequence

and determine how to shoot it. They consider everything, from the grand (how does this sequence fit into the whole) to the minute (should the actor tap his watch to see if it is working or just read the time). Whether a director is making a grand or minuscule decision, the camera will play an important part in that judgment.

Major choices are made in pre-production: the look of the film, aspect ratio, and the choice of stock, lens selection, and variety of movement. The shot selection process is the same no matter how big or from what angle the image is taken. The basic unit of a film, the shot is to the whole as the tile is to the mosaic. As you cut from one scene to the next, imbue each shot with an emotional arc, information, composition, motivation and continuity. Only a shot containing these elements is worth sending on to the editing room. Underdeveloped shots, say one that contains no information or motivation or neglects continuity, are more often than not eliminated.

A gestalt is a pattern of elements so unified it's impossible to see its constituents. That's the way a good film appears—so unified that each shot fits in seamlessly with the design of the overall picture. You achieve this by choosing a lens, an angle and a camera position to get a shot that can be low, high, close, distant, soft, hard, static,

and/or moving. Then frame-by-frame, you piece together the arc of the whole story.

SHOOTING RATIO

An early budget question is how much stock to purchase. This is the paper onto which directors write their story. Too much is a waste (film is non-refundable) and too little could jeopardize the integrity of the project forcing the editor to make difficult and/or awkward cuts. When shooting in 16 mm or 35 mm, the director of photography orders all stock from one batch. Because rolls have consecutive serial numbers, this guarantees consistent picture quality and control. Film not from sequential batches could be of slightly different grain size and color quality. Shooting on tape is less critical, and the cost is so minuscule that too much tape is never a question.

An average length of a feature film is about 150,000-feet although one can be shot on as little as 30,000 feet and as much as a million. The average length of a roll of 35 mm film is 1,000 feet. Therefore, every additional 1,000 feet you shoot adds a number to the shooting ratio. If a feature exposes 150,000 feet of film, the shooting ratio is 15:1. That means that for every foot used in the final print, 14 were left out. John Ford shot *Grapes of Wrath* on 30,000 feet of film. This means he shot an

astoundingly low 3:1 ratio. It also means he knew exactly what he wanted out of each camera position. Some directors keep themselves to a low ratio. For instance Buñuel said he never used more than 20,000 meters (approximately 66,600 feet) of celluloid. It's all in the planning.

150,000' - 200,000' of film stock is an average for a film. Anything over 250,000' is a lot. Under 50,000 is tight. In filmmaking the two things upon which a director never concedes is the amount of stock and the number of PAs. One must always have ample stock. At no point in the making of a motion picture should the production manager have to go to the director and say they cannot continue shooting because the company has run out of stock. A picture can have many slow downs for any number of reasons. Stock should not be one of them. So many people want to work in the movies that human labor is abundant and when a picture needs people to work the traffic or move crowds around the frame, a shortage of PAs should not be a factor.

COVERAGE

The first question a director asks upon arriving on set is how to cover the sequence scheduled for that day. Coverage (and its partner continuity) refers to the different angles from which a particular scene is shot. For instance, one can shoot two lovers kissing from several angles ensure choices in the editing room.

Once in the editing room, with a range of angles from which to choose, a sequence can cut together seamlessly to get the desired result. Scenes can be covered in myriad ways. From a single take (no edits) to multiple set-ups, the director maps out the plan for the shots and then with the director of photography, script supervisor and assistant director, determines the order in which to shoot them.

Continuity is ensuring all the elements from one shot match in every way the elements in the shot that follows. Props, wardrobe, hair, make-up and acting are the departments that bear close scrutiny by the script supervisor, director and cinematographer. If a character holds a book in the right hand during a sequence, every shot must show the book in the correct hand. If the character changes it to the left hand half way through the scene, all shots must match the correct progression of the book from one hand to the next. From outside we see a character walk into a building wearing a red shirt. Several days later the scene is shot when the character enters the same building. It is imperative that actor be wearing the same shirt. In this same example, should the character open the door to exit the building from the interior with a great huff, when the reverse shot is executed from the exterior, the energy level must match that of the character leaving the building, still in a huff. Should the character saunter out of the building, the cut from interior to exterior, which takes place in an instant, may jar the audience. Maintaining continuity is everyone's job. Continuity errors do occur, and often go unnoticed by the audience. But don't count on it. It's similar to making a bad grammatical error in a beautiful piece of writing. It takes the focus away from what is important.

SHOTS

Shots are either static (the camera remains stationary) or in movement or a combination of the two. In the same way, actors may be stationary or in motion or a combination of the two. The interaction between camera and actor is referred to as choreography.

The most common types of shots used are the master, mini-master, two shot, over the shoulder, and close up. These may be shot static on a tripod or mounted on a dolly, jib arm, crane or hand held for movement.

The master shot is popular because it takes in all the action of the scene. Once a master is in the can, the coverage must match the master. This helps to guide the remaining plan. To break up a big or long scene, a director might select to shoot several mini-masters.

When two characters are in a scene, the director employs a two shot to hold them both on the screen. The director can still keep both characters in a scene but favor the back or 3/4 profile of one of the characters in an over-the-shoulder shot. The frame features the character looking towards the camera, but the dynamic of having both characters on screen remains.

The size of shot is also an important consideration as a piece of the sequence. Directors can choose between the following:

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- extreme long shot (XLS)
- long shot (LS)
- medium long shot (MLS)
- medium shot (MS)
- medium close up (MCU - also referred to as a bust shot)
- close up (CU)
- extreme close up (XCU)

The director indicates to the director of photography and actors a specific frame size by using their hands to show the size of the shot. Showing one hand slightly over the head, and the other at chest level means a bust shot. When staging actors, directors also need to identify how many characters are in a shot. A two shot means two actors, a three shot has three actors, etc. The director also selects shots such as over-the-shoulder (OTS) to maintain the tension and relationship within the frame of two characters yet seeing the face of only one.

To isolate one of the characters, the director shoots a single or close up. The single takes in much of the actor's torso and head, whereas the close-up features the face. The director wants to accent the eyes or another part of the face then an extreme close-up (XCU) is used.

Alfred Hitchcock used the camera to explore subtext; "The sound track says one thing, while the image says something else. That's a fundamental of film directing. Isn't it exactly the way it is in real life? People don't always express their inner thoughts to one another; a conversation may be quite trivial, but often the eyes will reveal what a person thinks or feels."

Two additional common shots are establishing and insert. An establishing shot is used when a director wants the audience to know where they are, to have a reference point. Two characters sitting on a park

bench could be anywhere in the world. A wide, establishing shot of the Eiffel Tower cues the audience they are in Paris. The next shot, a two shot of our main characters on a bench, makes the geography of the scene clear.

An insert is a close shot of something to which the director wants the audience or a character to see. The hand of the man on the bench holds a wedding ring. The girl clutches a plane ticket to Kabul. These close-ups help tell the story.

Each shot has an angle. For the most part, directors shoot at eye level. However, great effect can come from a low angle shot, high angle, or tilted (canted or dutch). The director John Huston once said, "It would be very hard to make someone, even a comedian, amusing or funny by shooting up at them. I don't say this couldn't be done, but I think it probably comes from our memories as children -- from those that are bigger, wiser, stronger, nobler. We look up -- same as you do with sculpture, monumental sculpture. Would you look down at your superior, or even God Almighty?"

LENSES

Each shot is taken with a particular lens. These range from wide angle (10mm to normal (35 mm/50 mm), to long (75 mm to 200 mm). Extreme lenses, employed for specific dramatic effect include fish eye (5.7 mm) and very long (500 mm and longer). A lens can keep the subject in the frame sharp, or in focus, depending on the amount of light striking the lens, the focal length of the lens, and the depth of field. A wide-angle lens, for example, lets in a lot of light, so most objects in the frame are always in focus. A longer lens, in a dimly lit set-up, may focus on the actor while everything else in the foreground and background are blurred, or out-of-focus. This latter example can make for a visually striking effect that implies to an

audience that the character is in their own world, separated from the rest. The image of isolation can also be accomplished by shooting a character in an extremely wide long shot from a high angle set against a barren landscape. The combination of lens, proximity to the subject, depth of field and angle of the camera, make for hundreds of options available to the director to visualize the story.

Besides these basic shots, directors come to rely on shots which have specific relevance related to the story. These include the reveal, point of view, and the reaction shot.

The audience sees only what is in the rectangular image on the screen. Whatever is to the left or right, above or below the frame is said to be "off screen." If the camera dollies, zooms, tilts or pans to show us what we cannot see, this is a "reveal." It is excellent visual storytelling because the shot builds tension as the camera moves to inform the audience of something they do not know and about which they may be very curious. It is very satisfying when the camera settles on the thing revealed.

A powerful example of the reveal is in Alfred Hitchcock's film *Psycho*. Immediately after the violent death of the main character in the shower, the camera tracks ever so slowly from her open eye, past the bathroom door, into the bedroom, over to the end table, and settles on the folded newspaper. This key prop hides the \$40,000 Janet Leigh's character has embezzled. The shock of the stabbing in the shower has the added emotional value that the main character has been killed and the film is only half over. This is unusual in a film and one of the great story twists in cinema. All the while processing this information; the violent murder, the violation of the privacy of a shower, the elimination of the main character, when the camera settles on the newspaper the

audience realizes for the first time that this is no longer a story of a crime of greed, but a crime of passion. That one shot, that reveal, that seemingly innocuous shot of the newspaper, packs quite a wallop.

When the camera becomes the character, it is called a point of view shot. A character looks off camera, shouts, "Hey you!" and the cut is made to what the character sees. We see the character walking cautiously down an alley. The cut is made to the character's point of view, hand held, so it has a bit of movement, as would a person walking and looking ahead. Add some tense music and the audience immediately wants to know, who or what is at the end of the alley.

One of the more common and important shots in film grammar is

the reaction shot. When two or more characters are in a scene, the director has the choice of shooting the character that is speaking and/or the character listening. In most cases all the lines from one character are shot from a particular angle, and the camera is then reversed to shoot the other characters lines. Included in the shooting is the period when the character to whom they are speaking says nothing. This is their reaction shot. The editor then has the option of using either the on-screen dialogue or the reaction shot of the character who is listening. Although it is nice to see who is speaking, once the characters have been established, the value of the reaction shot is that the audience hears the dialogue at the same time they see the reaction of the person listening. We, as an audience, can then share both the

characters as well as our own reaction to the dialogue.

CHOREOGRAPHY

Once frame selections are made, the director has the option to keep the camera static or in motion. A static camera presents a stage, or proscenium, in which the drama unfolds. In the early days of cinema, cameras were so heavy and bulky, the static shot was the director's sole option. Cinema was born out of a still camera and the static camera still has value today.

Once cameras were put on tracks, and became lighter and smaller, directors found that a moving frame created a tremendous amount of energy. This freedom of movement added an element to cinematic expression that compounded the tension within the shot.

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Directors can move the actors in the frame, move the frame around the actors, or a combination of the two. Camera movement includes pans, tilts, zooms, dolly, crane and hand held. The movement may be short or long, fast or slow. The speed may be altered in any manner within the shot. Moving the actors within the camera choreography is the blocking. As with lighting, the movement of the camera should be purposeful. A flashy camera may overshadow a subtle film. In a busy restaurant the director can have the camera follow a waiter holding a tray of food through the room and settle on the main characters.

Composition, besides aesthetic value, is important in that it affords the director an opportunity to direct the audience's eye to that part of the shot deemed most important to tell the story. If the entire frame were busy with action in a long shot, it would say, "everyone is bustling about." But if the director wants the audience to focus on an argument at the lower right hand corner of the frame, he or she can compose the shot in such a way as to have the audience's eye drawn to that specific section of the frame. This can be achieved through blocking, lighting, camera movement and sound.

To illustrate the example above, the blocking of the background extras could be staged so they moved more slowly than the animated actors engaged in the argument. The lighting could be dominant in the portion of the frame where the argument is taking place. The camera could dolly in the direction of the characters arguing. The sound of their heated discussion could be dominant over the ambient sounds associated with everything else in the frame.

Depth is part of the illusion of a flat two-dimensional screen. Directors take advantage not only of the composition within the frame, but also the planes in the frame—foreground, middle and

background. Shooting a sequence with the branch of a tree covering the upper right part of the frame forces the audience to look beyond the tree, thus creating the illusion of depth on the screen. Action can be staged on all three planes layering the scene with complex imagery. The director can also call attention to a specific part of the frame by racking the focus, from background, to middle ground, to foreground.

Architecture, size, relationship and negative space are tools in the director and cinematographer's palette to create a dynamic frame. In designing *Psycho*, Hitchcock consciously juxtaposed Norman Bates' tall Gothic house with the low, modern hotel, "That's our composition, a vertical block and a horizontal block."

Besides what an audience sees on screen, the director should pay attention to what is happening off screen. The four sides of the frame are constantly shifting if the camera is moving. Therefore, new information is continually being revealed. Curious about this new information, an audience is eager to be surprised. Off screen sounds, illustrating off screen action, make an audience curious to know what else is going on. Remember, the reveal is one of the more dynamic uses of cinematic language.

SHORT CUTS

Responsible for the schedule, directors learn short cuts to keep the company moving at a swift and efficient pace. Two valuable techniques are the employment of a second unit and swing crews. Though both can be expensive, the time they save translates into the money they save and in the end the company comes out ahead. Both part of a "B" team, they help the "A" team move faster.

The B team is the second unit, composed of cinematographer/operator,

first assistant camera, clapper/loader driver and a second assistant director. During principal photography, a second unit might be assigned to shoot second camera in an action sequence, or shots that do not require principal actors. These shots may have been assigned to a second unit on the original schedule or may be slop shots left over from a shoot the A team couldn't finish. These types of shots would include pick-ups, inserts, drive bys, establishing exterior shots, etc.

Should the A team miss an insert, the second unit can put it on their "to do" list. As a small team, the second unit can move quickly, collecting shots that keep the film on schedule. Second unit can be employed for short periods, to act as second camera and collect bits and pieces of the production schedule.

If a swing crew arrives on set the night before a big interior sequence, they can "rough in" the lighting instruments called for by the lighting plan. Then, when the A team arrives on set the next morning, the cinematographer and gaffer complete the lighting plan and the company is ready for principal photography much earlier than had the A started from scratch.

David K. Irving is a film director, writer and producer, book author, and an Associate Professor in film production at New York University. He has written and directed dozens of documentaries, and his feature directing credits include *Night of the Cyclone*, *C.H.U.D. II*, *The Emperor's New Clothes*, *Sleeping Beauty* and *Rumpelstiltskin*.

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Solutions for Re-shooting a Film that Couldn't Be Fixed in Post

Stretching Creativity Past the Limits

by Myrl A. Schreibman

Directing an industrial film is difficult enough. But directing an industrial film when you are brought in to fix something that someone else has directed is almost impossible. And fixing a badly directed project that cannot be fixed in editing and one that is a narrative story which must also instruct is close to ridiculous. But that was the challenge I was faced with.

The United States Department of Defense commissioned the writing of a short dramatic script based on the possibility of a third world terrorist hijacking a C-141 military transport aircraft with the U.S. Military resolving the conflict without any injury to U.S. service personnel. They assigned its production to a civilian/military film unit based at the now closed Norton Air Force Base in San Bernardino California and employed a director. When the fine cut of his movie was shown to the military producers, the picture did not work: it lacked the drama, scope, coverage and actor performance that was needed to tell a story. The hijacking of the aircraft while it was in flight did not make any sense, and the rescue of the pilot and crew by ground snipers had no suspense or excitement even though it was shot at night. Also, the

capture of one of the hijackers wasn't shot. No form of editing could fix those problems. They threw the problem to me to see if the project, with minimal re-shooting, could be salvaged. After discussions with Tom Denove my cinematographer, we decided to try. But they threw us a new problem! Very little money was left in the budget. Only enough for one night of shooting, and certainly not enough money to get the C-141 in the air to re-shoot the hijacking where the character relationships were developed.

Creativity works best when there are limitations and restrictions. And this project was stretching it to its limits. Whenever chaos sets in, directors must go back to the basics: story and character to find the solution to any and all problems. And that is exactly what we did. We had to go to the moment of the aircraft being hijacked in the air, (old footage), rework the story to allow for it to land, and while holding the crew hostage, it was to be refueled. When landed we developed the character relationships (new footage) before the rescue took place.

Tom and I did not know what a C-141 transport aircraft looked like so we were hustled over to the base tarmac to be introduced to our main character. When we saw it, we knew we were in trouble. A C-141 aircraft has a height of 39 feet, a length of 168 feet, and a wingspan of 160 feet. This was a big mother! The cockpit door to the aircraft is forward and about 25 feet above the ground, and the back end of the aircraft lowers and becomes a ramp permitting equipment, vehicles and troupe

personnel to be loaded for transport. A C-141 is so large that it can hold two whales in their own tanks and still have room for a helicopter. (In Milos Foreman's HAIR, the character Claude, with a battalion of soldiers, marches into the back end of a C-141 aircraft.) We were shooting in 16mm film, had no money to speak of, a small crew, limited lighting equipment, one night to shoot our fixes and a mega-giant player that was important to the story. And on top of it all, the mega-giant player, the airplane, had to be towed to the middle of the runway to shoot the sequence. How was I going to stage the scene? Or more importantly, how was I going to stage the master shot when the hijackers come out of the cockpit door, move them down the stairs that were moved in position by ground crew while holding the pilot and co-pilot hostage and then having them attempt an escape? We could do it easily without seeing the massiveness of the C-141, by showing the staircase and the front of the plane. But that would not give the project production value nor engage the military audience into the reality of the size of a transport aircraft which was its reason for hijacking... (Besides, I knew that would be a coverage shot anyway!) We needed to somehow get above the aircraft on a wide shot shooting down the plane's fuselage and follow the hijacker down the stairs to the tarmac. The change in perspective in one shot would show the audience the power and strength of the aircraft and its potential importance for hijacking while at the same time bring us into the drama of the characters in conflict in the story. I intended on playing the scene

that focused on character relationships at the bottom of the stairs before the hijackers tried to escape. This would let us easily move in for tighter shots like the close-ups and extreme close-ups that the story needed.

We needed a crane! And a crane that can go above a four story building (39 feet) and then could come down to move in closer to our characters and the story elements. But there was no money in our budget to rent a crane.

Tom was using a couple of platform scaffoldings from Norton Air Force Base for his lights to light the aircraft and the scene, so we knew we had the possibility of a high angle shot if we could get one more scaffold from the Base. But I needed the shot to move motivated by the actors coming down the stairs. The fixed scaffold was not the answer. As Tom and I were scouting the location, we noticed that the airmen were cleaning a C-130 aircraft using a "cherry picker" from which they washed the top of the aircraft. We noticed that the lift element of the cherry picker was not extended fully and wondered how high it would be if it were? We asked. It went up to 45 feet. We had found our solution. If we added a tripod or a six foot camera operator on the cherry picker, we could get the camera 51 feet in the air; high enough to find our angle over the C-141 at the top of the shot. Now the problem was to find a way to move the cherry picker with the action. We continued to watch the C-130 bath and noticed that when operated, the cherry picker had a jerky movement going up and a smooth movement coming down, when a light bulb went off at the same time in both mine and Tom's heads. He turned to me, and we said simultaneously to each other, "Let's get this cherry picker for our shoot."

The night of the shoot, we positioned the cherry picker about fifty yards away

from the aircraft towards the front of the fuselage. I dramatically staged the actors to come out of the plane and move down the stairs to under the wing with one of the hijackers holding a prop pistol at the head of the actor playing the pilot. Real military snipers portraying actors who were snipers were positioned for the camera shot. Tom and I went up in the cherry picker to set the

head of the shot and see what we could do for the descending camera movement from the cherry picker. Every time we tried the shot we just couldn't make it look right. It kept looking like we were just doing a high angle shot that was descending straight down. If we added a zoom movement to the image, it became too mechanical, unrealistic and very cheesy. It did not



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Director Myrl Schreiberman and Cinematographer Tom Denove (at camera).

provide any drama to the movement that the shot needed. Finally, Tom told me to get off the cherry picker and just leave himself and his AC to do the shot as he had an idea. I was fine with this since being 45 feet in the air on a small platform was not my idea of a good time. He asked me to call a rehearsal again, and we raised the cherry picker to the top of the shot. Only this time, Tom was positioned by the back corner of the cherry picker platform hand holding the camera, and when I called action, and the cherry picker began to descend, he moved to its diagonal front corner. After the rehearsal, he motioned to me a 'thumbs up' to shoot it. Knowing that we were limited

in time with this night shoot, I trusted his dramatic storytelling skills and called for "picture". The camera rolled. We had camera speed. I said "action". The actors fully in character and snipers at the ready executed their staging perfectly, and the cherry picker made its move while Tom made his. Then in a brief glance I noticed that the AC was adjusting the zoom as Tom made his diagonal movement and the cherry picker descended. Brilliant! When we saw the dailies, we saw what we now label as a "poor man's" crane shot. The slight dolly movement while zooming in to a tighter shot while the cherry picker was descending changed the axis of the shot just enough to

provide the dramatic element we needed for the master without drawing attention to the zoom. And the shot gave us the direction the coverage of the scene needed to take.

When we finally finished the sequence which included snipers firing and one hijacker getting hit and another running away from the scene, we discovered we had about two hours of darkness left. Not enough time for a small crew to strike the lights being used with the C-141 and move them nearby to light an area we were using for the capture of the fleeing hijacker. I turned to Tom and asked, "What do we do?" Tom told me and the gaffer to drive our cars to the next location nearby and he would drive his. He asked me not to worry and for me to get over there first to stage the scene for him to look at once he got there. Rushing over to the next location I hoped the sun would delay its rise just a few more minutes. When Tom arrived I showed him the basic staging of the actors. We briefly discussed how to shoot the master focusing on the story noting how much time we had before the sun would rise. Thinking he brought some lights with him he then asked for the keys to my car. The next thing I knew he positioned the headlights of our two cars as back lights for the scene, and had the gaffer's car headlights as the cross fill for the actors and the location. After shooting the master I created selective coverage always working the staging for the headlights of the three cars. We shot the entire scene using only car headlights and finished it just as the dawn was breaking in the eastern sky. Necessity is the mother of invention and creativity is its father!

Myrl A. Schreiberman is a Producer/Director, professor at UCLA Film School, and author of the book, "The Film Director Prepares, A Practical Guide for Directing Film and Television."

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Creating a Unified Look for Your Movie

Integrating Your Shots, Scenes and Sequences into a Unique Visual Style

by Leonard Guercio

So you've shot your movie, finished the final cut and had the music scored and mixed with sweetened dialog and sound effects tracks. Yet, despite your certainty that the story, performances and direction mesh very well together, you feel that something is still lacking. Chances are what's missing is a unified look for the entire movie. If this is the case, color correcting your movie can help coalesce and integrate all the discrete shots, scenes and sequences into a coherent, unique visual style – a style that clearly communicates the overall look and feel you intended from the beginning.

Putting It In Perspective

The term "color correction" may be somewhat of an understatement – even though adjusting image color is one of its obvious functions. More precisely, the process is about color enhancement, overall image improvement and integration. It often starts with adjusting over and under-exposures and color balancing so that the individual shots have the desired appearance. What's more, at times the process may have nothing to do with color. If, for example, you're working in black-and-white, color does not figure into the

correction at all. Yet, you can still unify the look of your movie by adjusting white and black levels, gray tones and contrast. In any case, "color correction" has now come to embrace all aspects of adjusting, enhancing and integrating a movie's images into a unified, coherent visual style. Whether you're shooting in film and transferring to videotape or shooting and editing entirely in video, balancing all the shots in a scene is key to preserving a consistent visual continuity.

A Good Start

Shooting a few seconds of an 18% gray card or color chip chart at the beginning of every new film roll or laying down several seconds of color bars on videotape provides you with a standard visual reference. Achieving proper color (or B&W) begins in the camera during the image acquisition stage, but color correction may be carried out in varying degrees throughout the moviemaking process. When adjusting color, white, black and mid-tone levels, it's essential to have a properly calibrated broadcast video monitor to assess the changes you make. Calibrating your broadcast video monitor to color bars is the

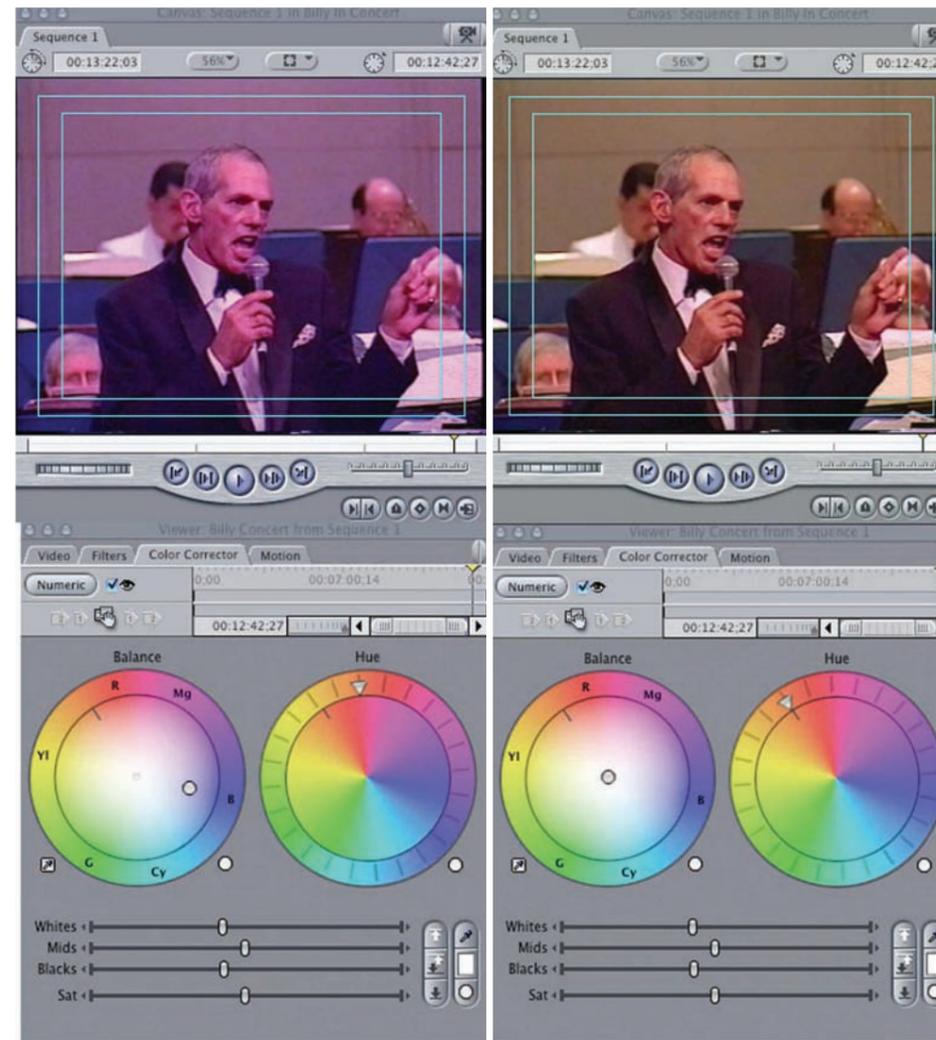
first step to ensure a more accurate rendition of the image adjustments you make. Using a waveform monitor and vectorscope will ensure greater precision to the set-up. Because your computer monitor renders colors differently than a broadcast monitor, you should never rely on your computer monitor alone for assessing color accuracy.

Two Paths

Essentially, there are two approaches to color correcting your movie. One: You can learn to master the art and craft of color correction yourself. Two: You can employ an experienced professional colorist to do it for you. If you choose option one, there is good news. Today, nearly all the major non-linear edit systems – like Final Cut Pro HD, Avid Xpress Pro and others – have very effective color correction tools built into their applications. Achieving an acceptable level of competency takes a lot of practice. With enough time on the color correction learning curve, you can become fairly proficient at enhancing your own images. Although, if you believe you have a really good film and can afford to do so, it's wise to bring in a professional colorist. I can change a defective light switch in my kitchen, but I wouldn't take on the job of re-wiring my whole house – I'd hire a registered electrician with good credentials. Moreover, having an unbiased person working to achieve your movie's visual style can be a blessing, especially if that colorist understands the vision you and your DP have designed. Also, the colorist is most likely to be impartial to insider information about each shot and thus can concentrate on enhancing the picture as a whole.

Getting Down To Business

If you choose to do your own color correction, the best place to start is with your NLE's help manual. (If this doesn't work for you, there are several good in-depth books dealing with color correction in the popular non-linear edit systems. There are



even classes being offered at film schools.) Begin by familiarizing yourself with basic color theory and the various tools in your color corrector. An expedient approach is to work from the general to the specific. For example, choose a master or wide shot, color correct that shot to your liking, next adjust the color of the medium shots and then the close-up shots to match the master. Do this with every scene and sequence until they all fit together seamlessly.

As a general example, here is an image from a concert performance I shot. Since I was merely documenting the concert, I was stuck with a lighting plan that was

already in place. After white-balancing my video camera, the lighting changed during the course of the show. The singer was illuminated by the hall's stage lighting, which was color-gelled to create a more dramatic effect. In the left screen shot, the image of the singer suffers from a bluish cast, and below you can see that the corresponding color wheel is weighted toward the blue. Opening up the color corrector tool in my NLE, I shifted the balance and hue controls giving the singer a more naturalistic flesh tone. The right screen shot shows the enhanced image of the singer. Notice that the corresponding color wheel is now balanced at center.

Seeing The Big Picture

Whether you choose to do it yourself or to work with a colorist, the overall effect of color correction should be seamless and go unnoticed by your viewers. In the end, creating a unified look for your movie is like all fine craft skills: it should not draw attention to itself but rather serve to connect the ideas and emotions of your movie directly to the minds and hearts of your audience.

Screen shots courtesy of the author.

Leonard Guercio is an independent filmmaker and an adjunct film professor at Temple University in Philadelphia.

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Re-creating Space for Dialogue Replacement

Matching Location Audio

by Bryant Falk

Many times when mixing a project I'm confronted with a classic problem. The location audio does not match the studio audio. One famous example is with dialogue replacement. The dialogue that was replaced sounds significantly different than the original.

Let's look at an example I constantly deal with: two people talking in a car. The acoustic quality inside a car is usually based on the very absorbent seats and the very reflective glass. Thinking for a moment I realized what other location has this similar quality... my vocal booth! Yes, the foam

inside was very similar to the interior of a car and the front glass could act as my windshield! By pumping my new dialogue through a speaker aimed at vocal booth window and then adjusting the microphone distance from that window I was able to re-create a very effective in-car sound!

Another trick is what I call "The Eavesdropper". Simply put your speaker on one side of a door and your microphone on the other. By varying how open or closed the door is your audio can sound like you're eavesdropping on a conversation. Remember the rooms you are using plays a

critical roll.

When trying to re-create your room sound with software, always try to make note of the room dimensions and furnishings. A lot of these programs will allow you to punch in dimensions and other parameter to match. Also, try to get a gauge on how "Live" a room is. This is audio slang for the amount of reflections in a room. A very live room would be a bathroom with all hard surfaces. A "dead" room would typically be a closet or a library like in the film *My Fair Lady* with Audrey Hepburn and Rex Harrison.

Adjusting how live a room is can be done with the use of blankets, pillows and whatever else you may have around that can absorb reflections. Usually, the 'less reflections,' the less need of a specific type of space. To create a small space with a hard surface, I'll have my talent talk next to a piece of wood. The quick reflections create a sense of containment that can be very effective.

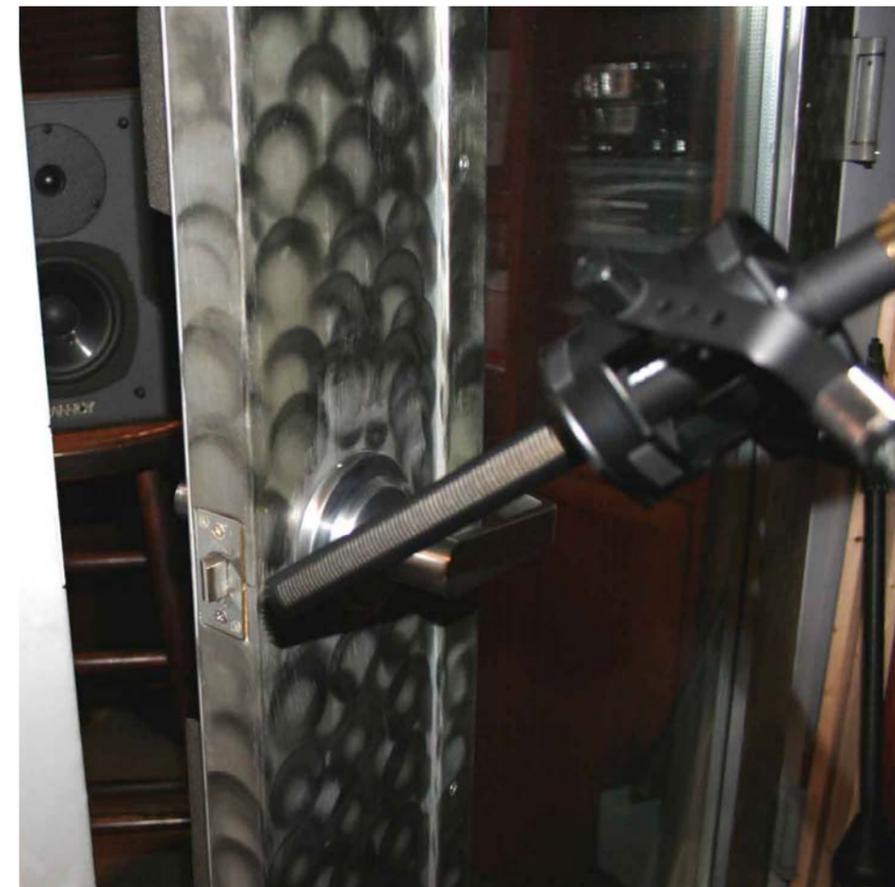
Whenever possible I always prefer the organic approach to re-creating a room verses using software. On an upcoming project which involves almost complete dialogue replacement, the talent will be returning to the same location to re-record all their dialogue. Though not a financially viable option for everyone, it is an option that may yield very desirable results.

Keep in mind the final touch of EQ is a great way to get your audio to work

together. EQ can help seat your audio into the mix by cutting or boosting the appropriate frequencies to more closely match the original audio.

Photos taken by the author.

Bryant Falk has been a producer and engineer for over 12 years working with such clients as *The Ricki Lake Show*, Coca-Cola, Sports Illustrated, Valley National Bank, and MTV's *The Shop*. His company Abacus Audio (www.abacusaudio.com) handles many aspects of the audio production field from creative and production to mixing and final output.



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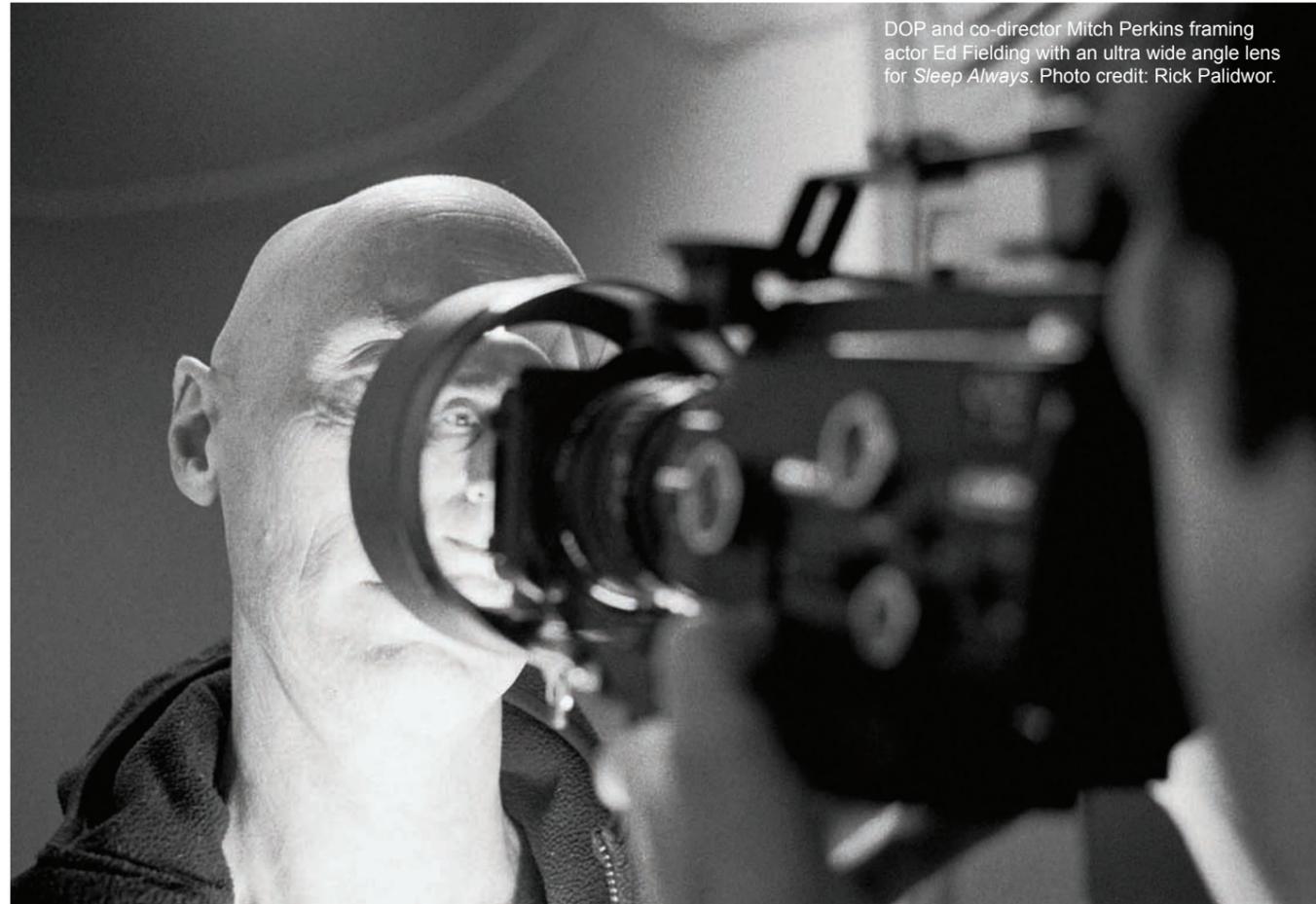
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DOP and co-director Mitch Perkins framing actor Ed Fielding with an ultra wide angle lens for *Sleep Always*. Photo credit: Rick Palidwor.

Film Is Not Dead!

Super 8mm Lets Film Live On

by Chris Cavallari

For some, digital video cameras with amazing new technologies are sounding the death knell for film as the main choice of productions around the globe. A small, but dedicated community is making sure that at least one underdog of a film format doesn't go down without a fight.

You may be familiar with Super 8mm film. Most of us recognize the reversal stock from home movies shot by our parents and grandparents: the grainy image, the slightly surreal colors, and the shaky camera work. What you may not know is that around the

world, filmmakers are still using Super 8 to create works of art that can run with the big dogs. This ain't your daddy's Super 8.

Building a Community

The fact that there are several online communities and forums dedicated to Super 8mm filmmaking, each with thousands of members, is a testament to the fact that Super 8mm film remains a viable format in the film world. It's not just student filmmakers who are cutting and splicing

either. Amateurs and professionals alike are finding a use for this unique format.

Taking a stroll through the forums of one of these communities shows a plethora of do-it-yourselfers who take the opportunity to embrace the format and help others do the same. With topics like "What's the latest on the jitter problem?" to "What Ektachrome is still easily processed?" there's no shortage of information available. The many members embrace the medium as a truly unique form of expression, one that in some way connects them to another age of filmmaking.

It's not all technical talk. Forum members collaborate on international "Pass-the-cart" projects where a single 2.5 minute cartridge is passed from person to person; Super-8 Cities projects, similar to the old Travelogue documentaries, where the beauty of a city is highlighted; and the perennial favorite, Time Lapse. Of course, one must not forget the real joy of Super 8 filmmaking today: The Narrative.

Making It Happen

In 2001, Australian filmmaker Scott McPhie decided to use Super 8 for his debut movie, *In My Image*. And unlike most indie filmmakers who, due to time and budget constraints, struggle to keep the scope of their films small, McPhie went all out with an epic film. The fictional film follows David Miller, an idealist lawyer-turned-anthropologist in the colonial frontier of highland New Guinea in 1938. When a highlander native is charged with murder, Miller is drawn back into the courtroom to defend the man.

McPhie chose to shoot Super 8 for two reasons. "Economy and quality. The film has a very low budget which makes Super 8 preferable to other film gauges, but because we want to maintain as high a picture quality as possible we're not going

to be shooting on video, even though that would be cheaper still than Super 8. Super 8 has higher resolution and better colour saturation than even the highest quality digital video, and by using the best quality camera, telecine process and lighting that we can, we hope to maintain this standard through to the finished product." The scope of the picture stands in somewhat of a paradox to the format. Normally, a large scale film like *In My Image* would be shot in 35mm, or even the 70mm IMAX format. Those formats, however, necessitate enormous production costs, prices that McPhie just couldn't pay. Super 8 offered the great compromise. Epic picture – little format.

While McPhie use Super 8 for the grand epic, Rich Palidwor and Mitch Perkins went in the opposite direction. The Toronto filmmakers took the surreal quality of the Super 8 filmstock and used it to their advantage in the film *Sleep Always*. The film looks at the world through the eyes of Frank, a delusional character who becomes infatuated with a homeless woman. "The story has very little to do with reality," says Palidwor. "In that sense, it could never be told properly with videotape, which is often associated with reality. Film has that ability to convey emotion and mood, dream and fantasy." "[It's] more suited to our purposes - for a visual interior monologue, film grain

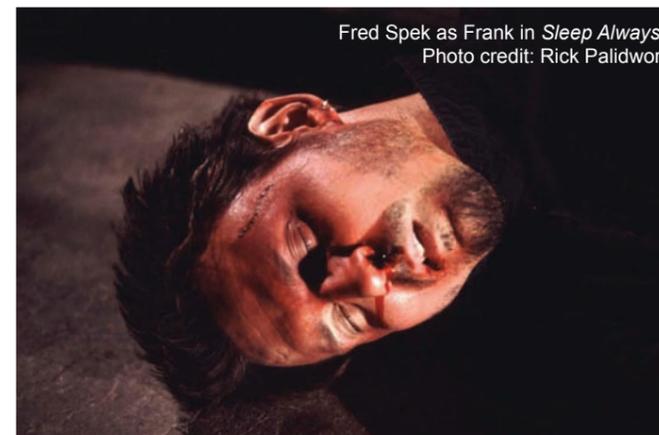
and frame rate provide a 'distance' from reality."

Palidwor and Perkins used the flexibility of Super 8 equipment to quite literally broaden the perspective of the film. In the Super 8 world, Do-It-Yourself is not only a hobby, it's a necessity. With that in mind, the filmmakers actually modified the camera, widening the gate to maximize the amount of usable film. The result is a widescreen Super 8 format they dub "Super-Duper 8."

"It's about obsession," says Palidwor, speaking about the plot of *Sleep Always*. But he may as well be talking about the rabid fans of this small gauge film format.

How It's Done

Though Super 8 is a burgeoning market once again, it can still be difficult to find resources to complete a film. Mixing the old with the new, Super 8 filmmakers use the Internet to keep up to date with the latest in the Super 8 world. While eBay and yard sales are the main way to buy equipment – I purchased my Elmo from a kindly old camera buff – and other production elements remain the same as other established formats, finding shops that sell and process the film presents the biggest challenge.



Fred Spek as Frank in *Sleep Always*. Photo credit: Rick Palidwor.



Frank plays sax in *Sleep Always*. Photo credit: Rick Palidwor.



DOP and co-director Mitch Perkins lining up a low shot for *Sleep Always*. Photo credit: Rick Palidwor.



From left: Actors Laurie Maher and Fred Spek on the set of *Sleep Always* with directors Rick Palidwor and Mitch Perkins. Photo credit: Jo Dickens.

In 2006, Kodak was one of the few remaining film companies producing color reversal film for Super 8. The inexpensive film was one of the most popular for amateur filmmakers to use, mainly because processing was included in the purchase cost. Unfortunately, the company found that costs of making this stock were too high, and discontinued the last of the reversal films, K40. This was a big blow to filmmakers who previously had been able to simply project the film on a wall and videotape the projection for editing on a computer. Today, only color and black-and-white negative stocks remain, which of course raise the cost of production considerably.

DOP and co-director Mitch Perkins setting up a high shot for *Sleep Always*. Photo credit: Rick Palidwor.



All is not lost, however. Again the resourcefulness and creativity of the Do-It-Yourselfers has come into play. From a contraption that captures the film frame by frame and lays it to video, to home built camera stabilizers, the community of Super 8 filmmakers is alive and well. A web search for DIY equipment can yield hundreds of results, many tailored to the specifics of Super 8. Magazines dedicated to small gauge formats populate the literary landscape, and of course online forums remain extremely active. The only real roadblock to filmmakers is the relative lack of facilities that are equipped with the specialized equipment required to process Super 8 cartridges. But with the veritable plethora of other resources available, Super 8 is not likely to go away soon.

The Future is the Past?

Is Super 8 merely a hobbyist's way to feel like a professional filmmaker, or does the format have more in store? It's difficult to come to a conclusion at this stage, but one thing is certain: Super 8 will be around for a long time to come...or as long as the manufacturers keep making the stock. Inevitably, film will go the way of the Magic Lantern, but for now, Super 8 offers a chance for film buffs to really get their hands dirty in the world of filmmaking. And for many, that's a dream come true.

Chris Cavallari has been working in television, video, and film for 12 years as a lighting cameraman, cinematographer, director, video editor, and grip. By day he is the Lead Television Studio Technician for a Broadband TV Network; by night, he writes and directs films & podcasts for his company Filmosity Productions, produces the podcast "The Martini Shot: Moviemaking for Beginners," and runs the New Jersey Podcasters Association. His website is www.filmosity.com.

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Staying Legal in a Multicolor World

Some of the issues related to color space, formats, and conversion between formats...

by Steve Holmes

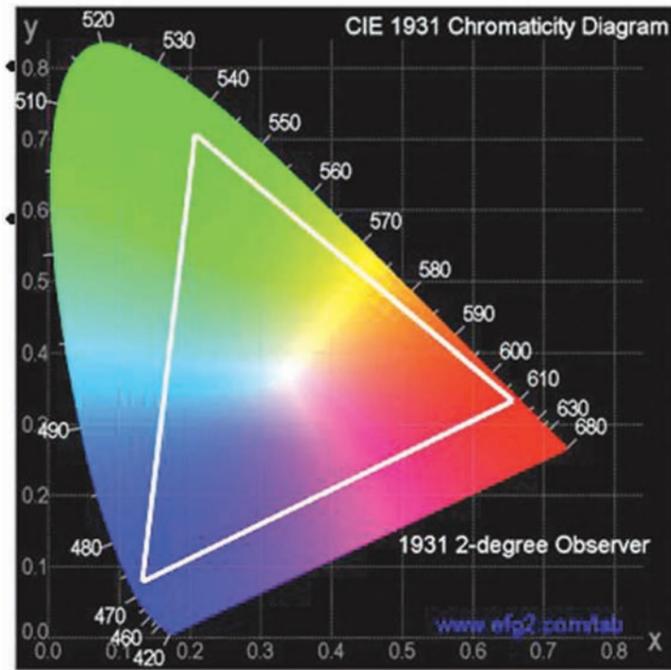


Figure 1 CIE chart

Monitoring the color gamut in today's video system is not a routine activity for a lot of people working in the video industry. But, if you create video with a graphics workstation or perform technical or creative adjustments on cameras, you are keenly aware of the potential problems that can occur when the RGB color gamut is violated. Those glorious, vibrant colors you crafted lose their brilliance when transmitted or recorded, destroying the visual impact you achieved on a computer display or a studio monitor. Many facilities are "hybrids" working with a variety of different formats – analog or digital, standard definition or high definition – that complicates this process further. We work in a multiple color space world, dealing with both SD and HD formats, NTSC composite, Y Pb Pr component and RGB, then conversion between formats and color space.

A brief background will help explain some of the issues related to color space,

formats, and conversion between formats in digital television systems. For example, waveform displays have historically been used to validate gamut compliance in NTSC systems. But as you will see viewing a Y, Pb, Pr component, waveform tells you very little about things like how much NTSC Peek chroma you will create. We have content in the form of RGB Computer Graphics, Y Pb Pr and NTSC. Each one has its own color space, and not everything we do in one format or color space can be converted to the other formats and remain legal.

Chromaticity Diagram

Monitoring the color gamut of a component video signal is not as much of a routine activity as it should be for the majority of those working in the video industry. To prevent the undesired impact of color gamut violations, there are various displays to simplify the operator's and engineer's tasks.

Most everyone is familiar with looking at an NTSC waveform. What we have been dealing with all these years is a two channel system where the Chroma information is superimposed (riding) on top of the luma channel. Now in Component video we are dealing with 3 independent waveform channels: Y Pb Pr, and also, 3 channels or waveforms in RGB. The CIE 1931 Chromaticity diagram shows all possible colors that are discernable by the human eye. The important thing to be taken from this figure is that television color spaces such as NTSC, and the like are subsets of this range of colors. We had to pick a Particular Green, a Particular Blue, and a Particular Red to be used in today's color television system (See white triangle in Figure 1). Any color that falls outside of this triangle cannot be reproduced by today's television systems.



Figure 2 Y Pb Pr 100% bars

Y Pb Pr ColorBars

The traditional approach to gamut monitoring, the waveform display, does not tell what is going on in other color spaces. A digital component video operator must make six total checks to validate gamut, looking at the white levels of each component and then the black levels of each component. (See Figure 2.)

Vectorscope Display

A Vector scope shows both of the color difference signals in a NTSC or component signal. The B-Y signal causes horizontal deflection and R-Y causes vertical deflection. This results in a display having six peripheral dots and two central dots. The central dots result from white and black bars which are not colors and in which color difference for each is zero. What the Vector

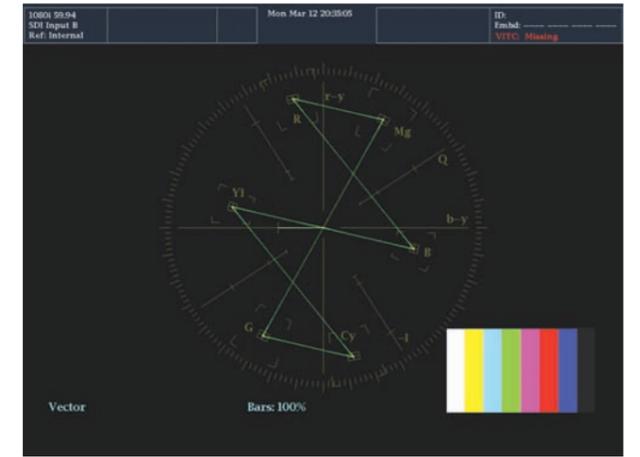


Figure 3 Vector Scope

scope will not tell you although is how much Peek Chroma that you are creating in a NTSC signal. (Figure 3.)

Y Pb Pr Waveform View

If you look at the waveform shown in Figure 4 it is very difficult if not almost impossible to tell how much NTSC peek chroma is going to be created by this signal. A component signal can easily produce 130 IRE of peek chroma. The maximum amount of chroma allowed in NTSC is 120 IRE due to the RF modulation process. Likewise a component signal can generate a RGB signal that is out of Gamut, more on RGB in a moment. Even if the video you are working on is HD you have no control of how it will be viewed at the end of the food chain. It could be down converted to composite for viewing at some point.

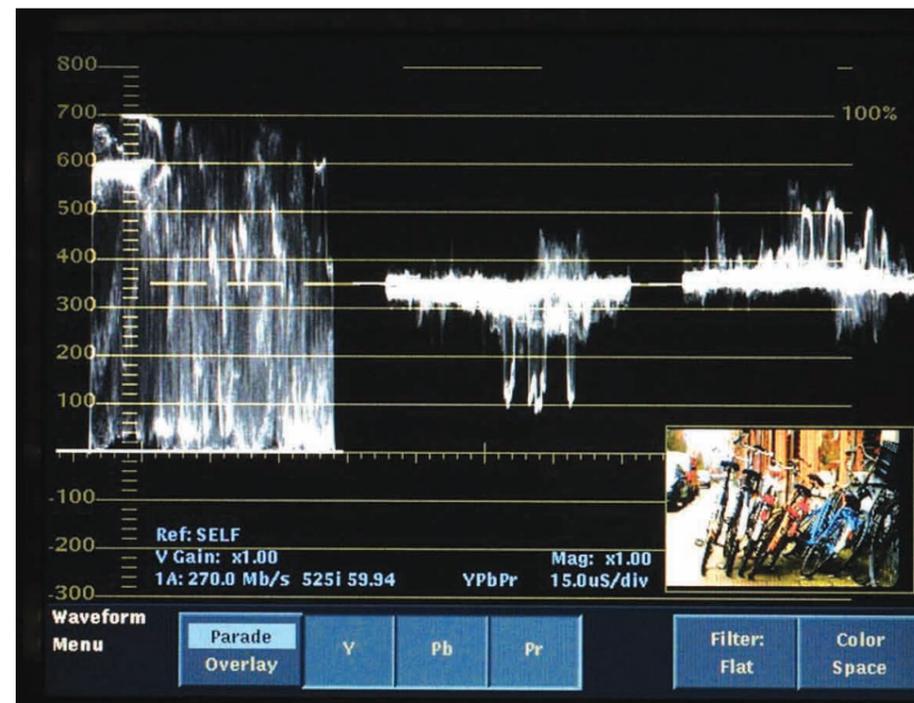


Figure 4 Y Pb Pr Live Signal

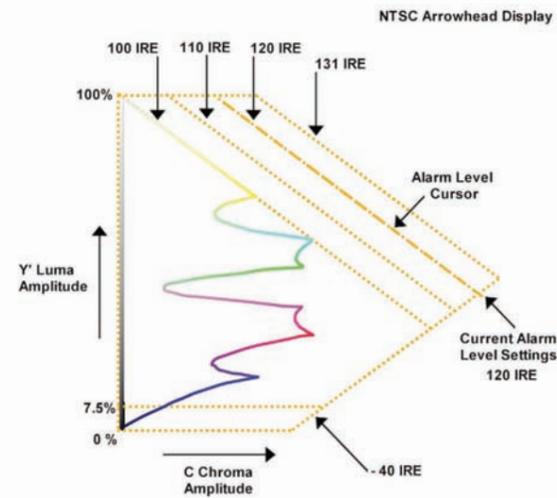
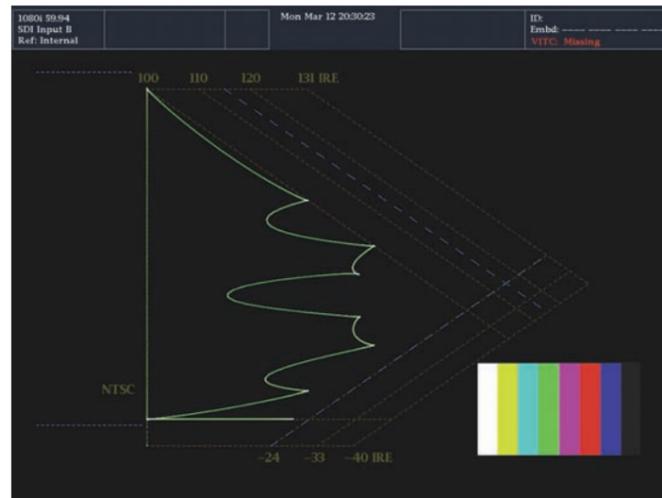


Figure 6 Arrowhead display

Arrowhead Display

Program material will still be transmitted as a composite signal in a hybrid plant or in distribution for many local markets like Cable and Satellite. The requirements are different for keeping this signal legal. To monitor the component signal in composite space, the signal can be applied to a composite encoder then to a distribution amp. The composite signal is then measured and monitored using a familiar analog waveform monitor and vectorscope. But this method introduces several unknowns, the setup of the composite encoder, the levels of the DA and the calibration of the Analog waveform monitors, and the potential for error is great. The Arrowhead display shows engineers and operators to easily see out of gamut conditions in composite color space without the need of processing the signal through a composite encoder. Figure 5 shows how the Arrowhead display is constructed for NTSC color space.

The great thing about the Arrowhead display is that it's done mathematically, so it can't be in error. The Arrowhead display plots luma on the vertical axis, with blanking at the lower left corner of the arrow. The magnitude of the chroma subcarrier at every luma level is plotted on the horizontal axis, with zero subcarrier at the left edge of the arrow. The upper sloping line forms a graticule indicating 100% color bar total luma + subcarrier amplitudes. The lower sloping graticule indicates a luma + subcarrier extending toward sync tip (maximum transmitter power). The electronic graticule provides a reliable reference to measure what the luminance plus color subcarrier will be when the signal is later encoded into NTSC or PAL. An adjustable modulation depth alarm capability is provided to warn the operator that the composite signal may be approaching a limit. The video operator can now see how the component signal will be handled in a composite transmission



system and make any needed corrections in production. Normally for NTSC transmission the threshold is set between 110 and 115IRE because values over this limit can cause problems at the transmitter in the form of sound buzz. Figure 5 shows an NTSC SMPTE Color bar signal that falls within the limits of the Arrowhead display. However applying a 100% color bar signal as shown which is legal and valid in R' G' B' space, causes the limits to be exceeded in the composite NTSC space.

Four Tile Waveform View

As seen in Figure 7, a four tile component waveform view, the signal shown in the lower left quadrant is a perfectly legal component Y Pb Pr signal, but when viewed as a Y RGB display in the upper left quadrant you can see that the Red channel is at almost 800mv. The Diamond display in the upper right quadrant shows the same Red error.

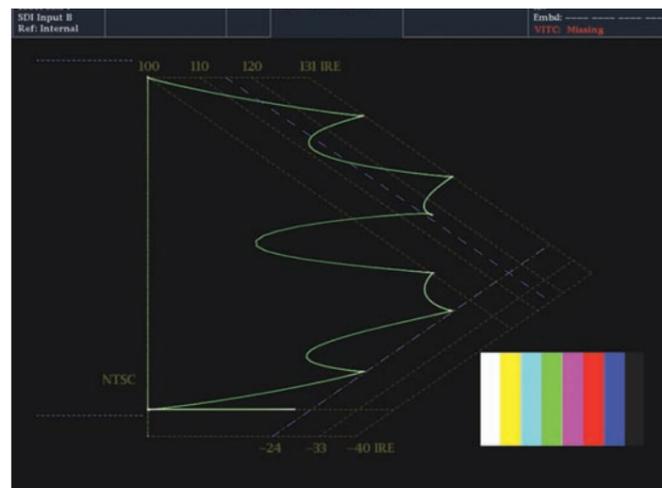
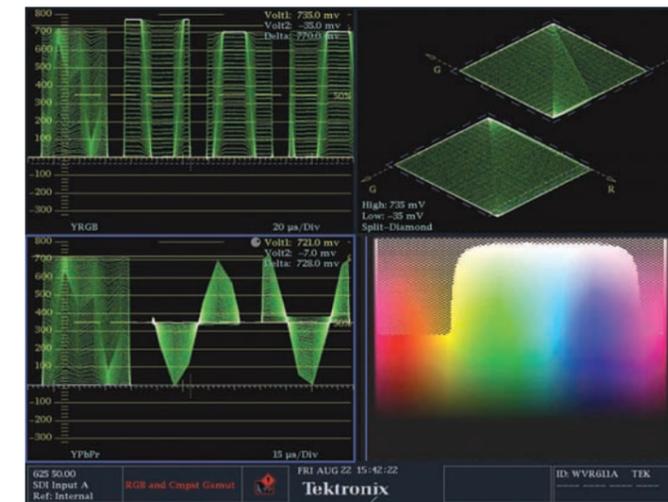
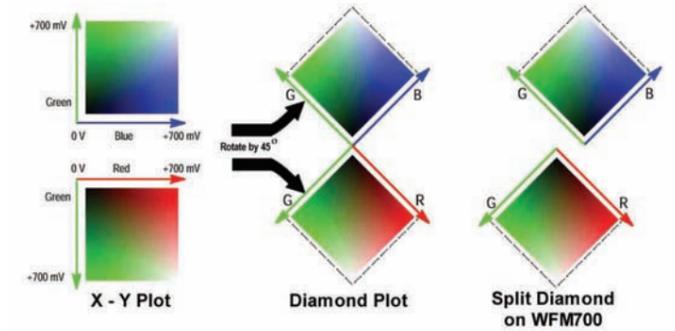


Figure 7. Arrowhead display showing SMPTE Color Bars

Diamond Display

In creative and operational environments where monitoring the RGB gamut limit is critical, the Diamond display is unbeatable. Conventional waveform monitor display modes, such as parade and overlay, are great for measuring signal levels, but gamut limit violations don't stand out like they do on the Diamond display. The Diamond display provides gamut limit monitoring with any signal. The Diamond display consists of two XY plots: green versus blue in the upper diamond, and green versus red in the lower diamond. In the upper Diamond any signal that is a legal Green Blue color will stay inside of the diamond created by the upper Diamond. Likewise the lower portion of the Diamond checks the legality of the Green Red colors. The plots are bounded by a graticule indicating nominal gamut compliance between 0 and 700mv. By separating the diamonds, it is easier for the user to visualize black gamut errors as shown in the split Diamond.



Signal monitoring in the RGB color space does have several very important applications. Even though signal transmission in RGB is rare, many creative and operational controls continue to bear the labels R, G and B. Computer graphics workstations and paint systems operate in RGB color space and are among the most frequent sources of illegal video. Camera control units (CCUs), telecine, color correctors and gamma correctors also employ RGB color space controls. Monitoring these types of systems is an obvious application for the Diamond display.

Conclusion

The Diamond display excels in several areas for R'G'B gamut, however it is not the answer to every measurement question.

Today's video operators need to use a whole host of tools: Arrowhead, Waveform, Vector, and Diamond Displays, as well as being visually pleasing. While virtually all component video transmission occurs in one of the standard color difference formats widely used today, viewing those signals in the RGB color space is still a necessity in some situations. It is much harder to know how much Peek Chroma you are creating. As computers become more widely used in video applications, the possibilities of creating illegal video signals increases — and Diamond is the best tool for keeping track of RGB gamut violations. Performing color correction adjustments, gray scale tracking adjustments or black balance adjustments on a CCU are additional tasks that can be simplified by the Diamond display. The Arrowhead display provides a means for a digital hybrid facility to easily ensure the signal is valid for transmission in a Composite environment and simplifies the operators' task all within the digital domain.

Graphic charts courtesy of the author and Tektronix.

Steve Holmes has over 20 years of video experience. He spent 20 years with GTE/Verizon installing, teaching, engineering, and managing Video and CATV systems; and he taught video transmission and video engineering to non-video engineers. He was involved in one of the first Video on Demand, Near Video on Demand, FTTH (fiber to the home), FTTN (fiber to the node) and HFC (hybrid fiber coax) trails before the development of digital video compression systems. Today he works as a Sr. Video Applications Engineer for Tektronix consulting and teaching test methodologies for Broadcast, Studio, Cable and Manufacturing for customers based in the Western United States and Western Canada.

Sean flying his rig on a chilly Canadian morning.



editing life simple – Boris FX, After Effects, Magic Bullet – I just can't get enough of them, but on one of my latest docs the one scene that caught my eye amidst all of the CG and titles was a smooth, three minute long Steadicam walk that was properly exposed, with every color accurately captured.

Capturing stunning images should be our utmost goal. My best friend and rig-flyer Sean Sealey has been advancing his Steadicam career at an astonishing pace. He's been offered some fantastic work that he's turned down which I found very surprising. I've never called him on it, but I've gone to bed many nights thinking "Gosh, what a fool! He could have nailed a feature and networked with a feature crew!" Instead of countering my discontent, Sean spends his time training his eye with a Nikon D50. His rationale makes perfect sense. A first impression can only be made once; Sean ensures that the first impression he makes is always flawless – even if it means perfecting his eye for composition, exposure and balance over the next 10 years. That is why he will always be an "A" list contender. Not everyone can afford to buy a D50 and start training their eyes, but what most people can afford when working on set is to ensure that their cameras are aligned properly. Producing camera alignment tools is both an art and a science. Misaligning a camera with a home made or inaccurate chip chart will produce inferior images and be costly to your career. It was an interesting happenstance that introduced me to DSC Laboratories. My university uses DSC products and on graduating my professor told me that DSC was looking for good people. Working with DSC has opened my eyes to the benefits accurate camera alignment can make to a DP's career.

The Science Behind DSC Lab's Products

For over 40 years, DSC Laboratories has been perfecting the science of image improvement. We customize patterns for nearly every television station and blockbuster feature shot digitally, and do both through strategic, environmentally sound practices. We have created nearly 50 different patterns in front and rear-lit

I would not have seen myself following in my first year of university. But after some real world experience, I seemed to run into problems on set that required technical, scientific or engineering solutions. I'm not alone on this – I have many friends who are backed into the same corner, but that is arguably what keeps this business so exciting. It is constantly changing, but we have ourselves to blame for this. With all the advancement we have made in terms of software upgrades, plug-in creations, and the like, we must never forget that at the end of the day, it is shot quality that counts. I have found so much software that makes the

The Science Behind the Camera Test

Understanding How to Make Better Images through Research

by Michael Kent

As a recent graduate of television studies, I possibly have a different perspective to many established DP's and shooters. Having shot a few shorts, a full season of race car TV, production managed a feature, and shot four documentaries, all on DVD – to call me 'seasoned' would be a gross overstatement. However, I am at that interesting stage in my career where the basics have become basic, and I am anxious to learn more of the industry's subtleties.

Over these various projects I have become infatuated with the science and engineering side of the business – a path



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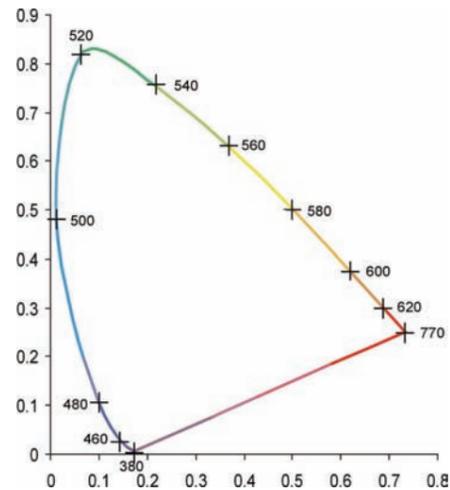
configurations that can test everything from color balance to lens resolution on any type of digital video camera. Much of what we do, I cannot publish, but what I can, I will share.

Before getting into the fine details, it is always good scientific practice to set up a baseline. For our purposes the baseline revolves around understanding why the need for accurate test patterns exists. There are three elements that need to be 'baselined', and they all involve the flow of how the image is originally perceived to how the final product is viewed on screen.

The Human Eye

Without getting into too much biological detail, recreating what we see from behind the lens can only be achieved if we understand why we see what we see. The eye perceives images through photosensitivity - interpreted through rods and cones in the retina. The fovea is a spot within the retina that is densely packed with cones - all of which have a specific red, green or blue protein separation, and thus help produce a visible color spectrum. If all three cones are activated at the same time, they tell our brain we see white light. If some are firing at full intensity and some are not, we see colors in between white and black. Rods are very sensitive to light information and do not "see" color. Cones have color sensitivity, but require more light to function.

The way we measure how sensitive cones are to light energy is through wavelengths. Nanometers are distance markers that help us quantify what wavelengths of light make up our visible spectrum. The spectral band of colors goes from Ultra-violet (below 400nm) up to Infrared (above 700nm). Individuals perceive color information differently, but for the most part, the human visible spectrum ranges from 400nm (blue) to as high as about 675nm (red). As evidenced in this diagram, all colors we can see within that range fall in this spectrum. Camera manufacturers must take these factors into account when designing a color camera's taking characteristics.



The wavelength spectrum of light from Ultraviolet to Infrared.

The Camera

While the peak sensitivity of human vision is about Blue 440nm, Green 540nm and Red 580nm visually "true" Red for most people has a spectral peak of about 635nm. A camera and television set must reproduce the color at the same wavelength if we are to accurately recreate that color. This is a difficult task, given the characteristics of monitors and TV sets, also the fact that they are seldom set up properly. CCDs transmit information by converting light to voltage levels that vary with brightness. Ensuring that a digital image when recreated will be of a particular spectral curvature becomes a complicated science. In most cases, cameras try to mimic the cones found in the fovea with three CCDs, one each for each of the Red, Green and Blue primary colors.

In taking a picture of a banana the yellow color will activate primarily the red and green sensors - by the time we see that same banana on television, its color will incorporate the characteristics (i.e., color space) of the television set, which, in theory, should be similar to the "look" of the original banana.

Data from CCDs is converted to digital voltage levels whose characteristics can be adjusted using a camera's color matrix. CCDs interpret images based on specific color thresholds engineered into their algorithmic circuitry. Optimizing these thresholds largely depends on how deep the

camera's menu will go. Higher end cameras allow an enormous amount of matrix setting control, but without accurate monitoring materials, it is impossible to line up these colors with any form of consistency.

| < COLOR CORRECTION > | | |
|----------------------|-----|-------|
| | SAT | PHASE |
| R | -63 | +07 |
| R-Ms | -29 | +25 |
| Ms | +30 | +44 |
| Ms-B | +42 | +41 |
| B | -35 | +00 |
| B-Cy | +19 | -40 |
| Cy | +45 | -14 |
| Cy-G | +29 | +00 |
| G | -10 | -10 |
| G-Yl | +00 | +00 |
| Yl | -16 | +01 |
| Yl-R | -37 | +13 |

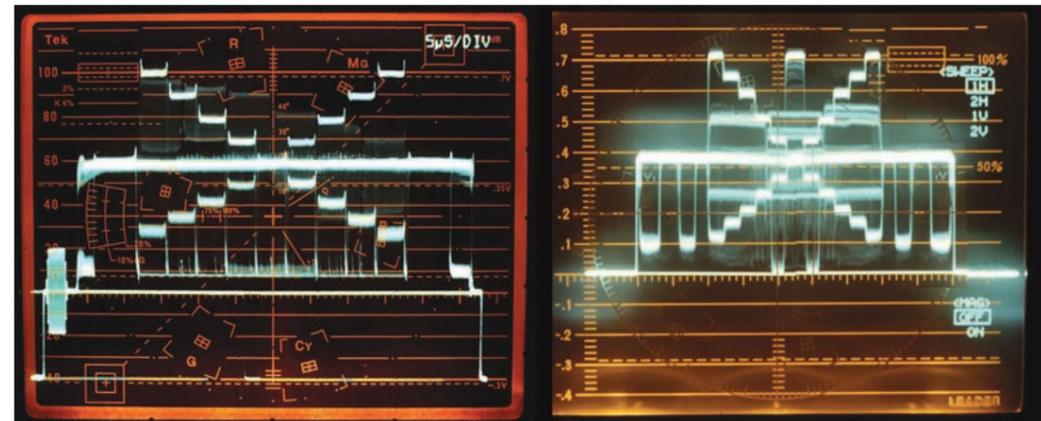
Deep inside a camera's menu settings, this Color Correction menu was found.

The Waveform Monitor

The waveform monitor is one of two important tools that make up an effective camera shooter's toolkit. A waveform monitor displays a video signal in millivolts (mV) for HD and IRE (Institute of Radio Engineers) for NTSC. 700mV is equal to 100 IRE units.

Using a precision DSC grayscale aligning a camera is usually quite simple. First, light the ChromaDuMonde or other DSC chart evenly, and then adjust camera settings to produce equal spacing of the grayscale's step signals between 0 and 700mV - this should result in accurate grayscale alignment.

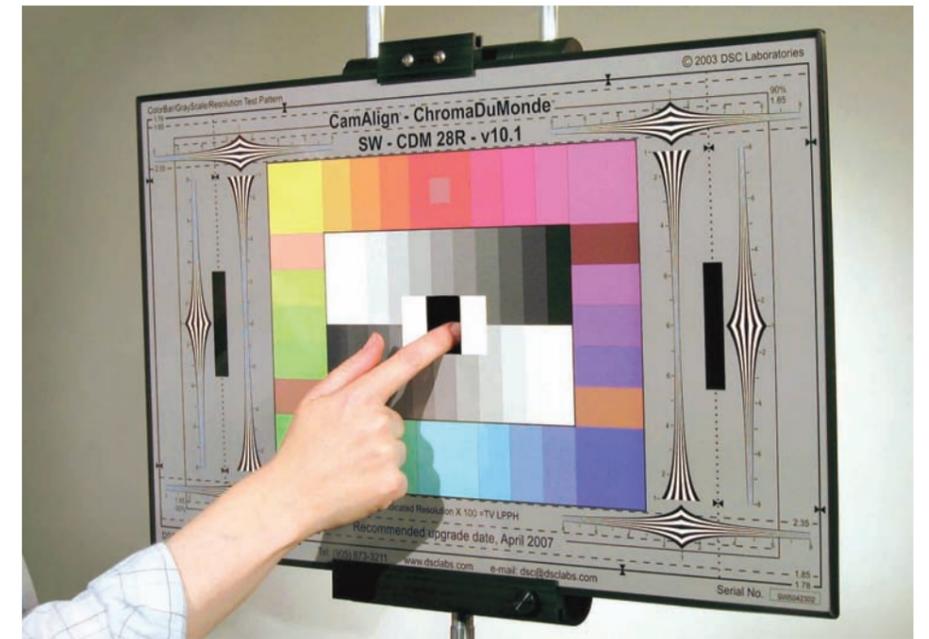
Two waveform monitors and two patterns; (left) a nine step grayscale on an NTSC monitor; (right) an eleven step grayscale on an HD monitor.



When selecting a test pattern, dynamic range becomes very important. In the early days of television, the dynamic range of a camera was very limited, to about 20 or 25:1. Grayscale pattern had a similar low dynamic range. Unfortunately, such test charts are still being sold to align modern cameras which have a dynamic range of 3000:1 or higher. The progression rate between most 9 step charts and a modern 11 step pattern is also different. The lightest step on a 9 step chart is 60% reflection where a similar 11 step chart has a reflection of 90% (on the first step). Obviously, different densitometric curves between test patterns will result in different image reproduction from cameras. Aligning to an inaccurate or grayscale of limited dynamic range can result in poor quality images that are beyond redemption!

The need for an accurate Grayscale chart is quintessential to setting precise gamma and exposure. The white chip on a chart is normally set to 700mv (100 IRE) and true black close to 0 mV. Setting the black can be tricky. NTSC has a basic black level set up of 7.5 IRE above true black. It would seem logical to set the blacks at 0; however, absolute black is an impractical goal because all surfaces reflect some light, however little. Even the blacks found on DSC CamAlign charts with their special ultra high reflective gloss surface, while way below regular charts do reflect some light.

In addition, with front lit test pattern configurations lens flare will contribute light and in turn, raise the black level. Similarly with DSC's rear lit Combi patterns where black is true black (opaque), zero black is still impossible to obtain.



The closest to true black in a test chart is in DSC's CaviBlack (cavity black), where a special antireflective material is angled to trap light.

A cavity black is a physical hole within the ChromaDuMonde chart - on a waveform monitor, the cavity black would be the lowest signal line.

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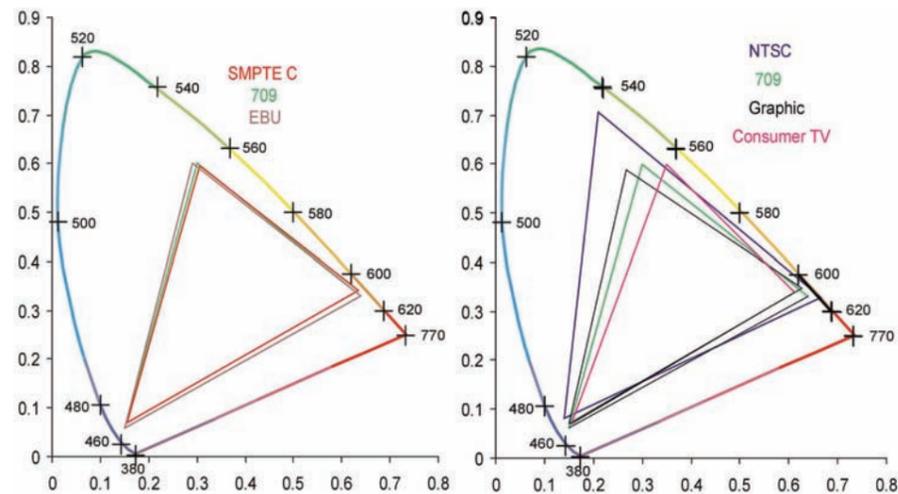
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Different gamut color spaces – the widest outside band represents the human visible spectrum of colors.

The Vectorscope

The vectorscope is the other ‘must have’ tool that should be part of every shooter’s toolkit. Only after setting a camera’s exposure levels and tracking can a shooter move on to optimizing color. DSC uses the latest International Telecommunications Union standard for HD color ITU-R BT.709, (SMPTE 274M). ITU 709 standard largely replaces a number of previous standards. While the NTSC colorimetry standard had an excellent wide color gamut (when TV sets were made to the standard) they didn’t sell, because the picture was too dim and had to be viewed in a darkened room. For this reason SMPTE C and Europe’s EBU were born and for 25 years DSC made charts to both these standards.

DSC standardized on 709 five years ago and provides printouts showing the offsets, on the rare times people ask for them. Every primary color on a DSC chart is designed to line up in its respective vectorscope box.

This ChromaDuMonde has a total of 28 colors – the primary colors in the corners and the center fall into their vectorscope boxes. The colors in between form a straight line between the primary colors when properly aligned.

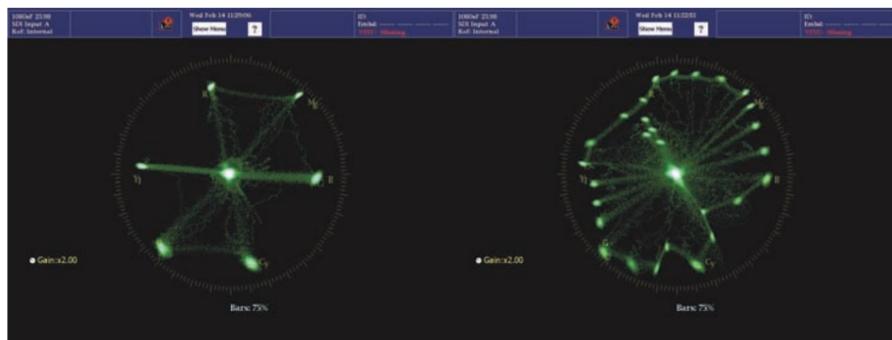
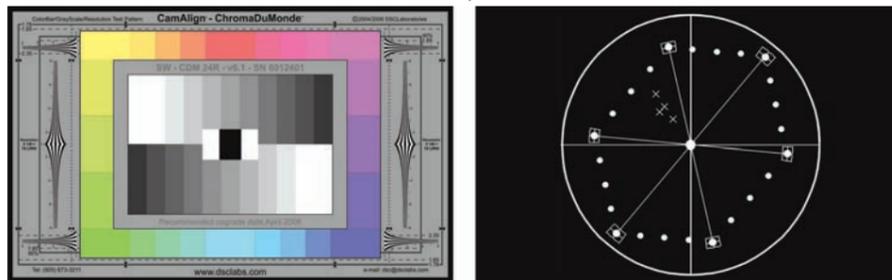
Why not just the primaries? With the advanced multi-matrix settings of modern cameras, it is possible to line up

Why are those boxes so important?

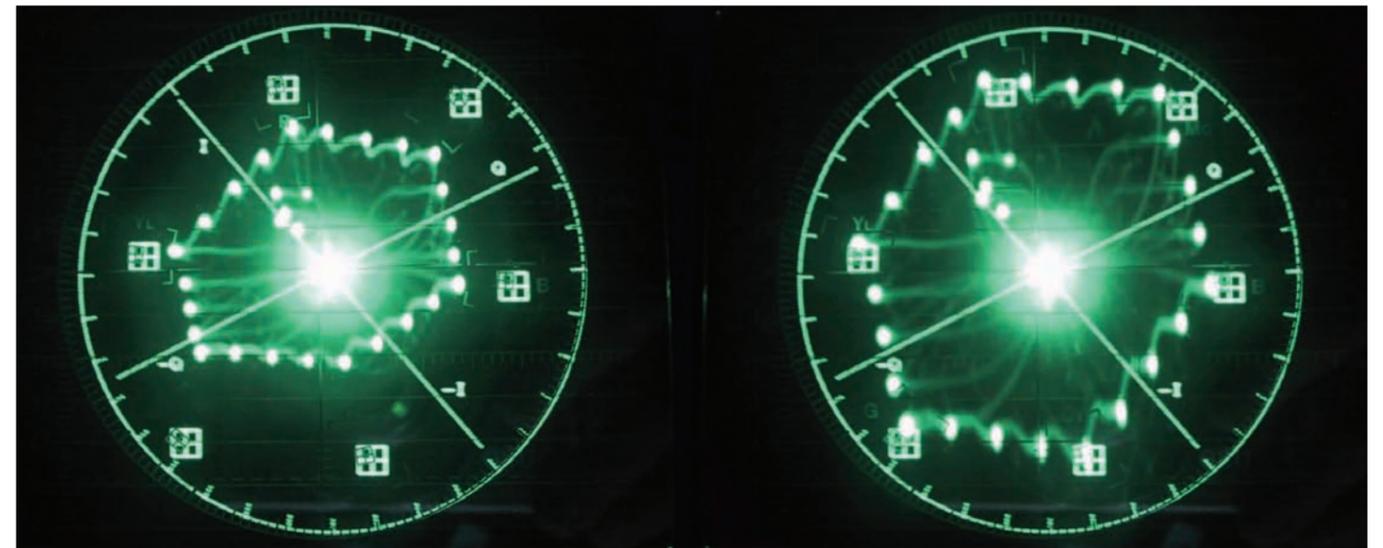
DSC primary colors not only line up to their respective boxes, but also have uniform luminance values, an exceedingly difficult task. DSC charts are renowned for their accuracy and consistency. When aligning a camera’s matrix settings increasing or decreasing the sensitivity of a particular color will also change other colors. This often requires considerable patience in camera alignment. Always remember that the red and yellow are the most important as they largely define skin tone. Here is an example of camera operator error - if you line up red on the vector box to someone on set with a red sweater you will be altering the colorspace and gamut to reflect that red as your ‘true’ red. This is exemplified when going into the camera’s matrix settings to adjust color sensitivity. Notice that in many instances a particular color cannot be selected on its own. Instead, alterations can be made to B-Y, R-B, etc. When these settings are increased or decreased, all of the other colors on the vectorscope shift – adjusting

each primary in their box, but reduce its working colorspace. The image below has been aligned to a 6 color pattern using a multi-matrix menu – as you can see; each primary is in its box. The following image is what a 28 color chart looks like with those settings – clearly the intermediary colors are completely skewed although the primaries are lined up.

(Left) The popular DSC Labs ChromaDuMonde 28R; (right) the ChromaDuMonde 28R as seen on an HD Vectorscope.



(Left) Using individual color adjustment settings, the primaries have been lined up in their boxes using a 6 color chart, (right) however, when a 28 color chart is put in front of the camera, the intermediary colors have been effected in a very negative way, skewing colors and reducing working colorspace.



(Left) Sony F900 with no matrix adjustment; (right) Sony F900 after matrix adjustment has been performed.

one color incorrectly will affect the entire colorspace and this should always be taken into consideration. Lining up to an incorrect color is worse than lining up to no colors at all – much like the common error of white balancing to a sheet of white printer paper.

Most camera manufacturers preset their matrixes on the warm side and many clients using DSC charts to align \$60,000+ cameras discover that red and yellow are the only colors that fall in the vectorscope boxes when they take their new cameras straight “out of the box”.

Camera matching becomes impossible without an accurate test pattern. No two cameras are identical making it unreliable to upload the settings from one camera to another. The only way to match cameras effectively is to use the *same* pattern in the *same* lighting condition. Set exposure levels, white balance (*which can be done to the entire chart with colors as it is spectrophotometrically neutral*) align the colors on a vectorscope and then match the second camera to a freeze frame of that pattern.

More often than not, the perfectly aligned vectorscope image is not the ideal setting based on the characteristics of the scene. However, by first aligning to a DSC pattern, it becomes an accurate baseline with the widest colorspace as a reference.

Small changes from there are not always recommended, but up to the operator.

Color Correction

Many of our clients have used our test patterns in post production as well. When initially setting up a camera, common practice is to do so at 2000 lux, with both light sources at 45 degrees. This however, does not necessarily mimic real life shooting scenarios and that is why DSC Labs test patterns can also be used as color correction tools. By recording just a few seconds of a DSC test pattern at the head or tail of a scene, the lighting characteristics of that scene are recorded to tape, and editors can use this data to color correct or match scenes in post. Secondary colors are very useful in post, provided a DSC ChromaDuMonde pattern was shot on set; they are used to see changes to other colors when one color is changed dramatically.

This entire article has focused on the SRW ChromaDuMonde 28R – just one of the 50+ patterns offered by DSC Labs. Whether shooting on MiniDV or DVCPRO, there is a chart designed for every application.

We hope that you will join the growing number of shooters who understand how to make better images through research.

Michael Kent, 24, is a graduate of the Radio and Television Arts program at Ryerson University and is the Operations Manager at DSC Laboratories. Michael has spoken at the SMPTE HD Boot Camp II, and has helped create the Educational text: *Imaging Technology: Advanced Guide to Digital, Film and Television Production*. Michael also owns Skinnee Pant Productions, races at an SCCA Pro Driver level and is a registered ACTRA stunt driver. He currently resides in Toronto, Ontario Canada.

Protecting Yourself and Your Gear in Difficult Environmental Conditions

Rainy, Windy, and Dusty Locations

by Kevin Zanit

In the business of production, we often find ourselves trying to accomplish our work in conditions that would make most people just want to 'stay indoors.' Not only do we have to sometimes work in difficult environmental conditions, we also need to protect ourselves and our equipment. This advice is in no means completely comprehensive; think of it as some basic guidelines for working in rainy, windy, or dusty locations. Some of the recommended items would not be on set unless these conditions are expected in advance, but some items can be carried as simple expendables.

Working in the rain presents many challenges. Some of the challenges involve keeping the set safe (minimizing risks of electric shock), and keeping camera equipment safe. You may want to have on hand a circular rain deflector (to keep rain drops from showing up on screen), trash bags and plastic baggies, a splash bag, or even a water housing (depending on the amount of rain), large plastic trash bags to cover carts, and even better to ask production to have extra pop-up tents to cover your staging area. Also, remember that tape may have problems sticking to various parts of the camera in cold or wet conditions. If it is especially cold out, be careful not to store lenses in a warm location and then immediately bring them into the cold set, because they will fog.

For the electric department, you will

need to procure enough apple boxes to elevate all your connectors and distribution / lunch boxes. Even better than apple boxes are "swamp boxes" that have small legs that don't make water collect as much as an apple box does. You will need to make small tents out of a plastic / metal mesh called Celoflex on the bale of the lights to protect them from the rain. You will need to constantly check the Celoflex because the plastic melts over time, rendering the material useless in stopping water. Use visqueen plastic to wrap around electrical connections. Use heat shield, a very weak color gel, or scrims to help shield the hot lens from any water drops. If water hits the hot lens of a light it can crack or explode due to "thermal shock". You also need to have the proper type of ground fault circuit interrupters (GFCIs or GFIs). It is critical that you have a "Type A" GFCI that is rated for the voltages you are working with. Consult with the rental house on this information.

The grip department may be asked for extra 4x4 frames of gel to make small rain covers or may be asked for frames of griff to cover larger areas. The grip department does not have too much to worry about protecting from the rain.

You will also need to protect yourself from the rain. Have some extra shoes and socks prepared in case they get soaked, have at least one or two light jackets that are waterproof (if you have two, you can double up and have layers to take off if you get hot),

a good hat to offer some cover from the rain can be handy, and a towel is nice for when you are done.

Working in windy conditions can present its own set of challenges. If the wind is man-made by the special effects department, it is safe to expect a lot of it! For the camera department the issue is not really the wind in and of itself, but what debris the wind blows. If it also dusty, an optical flat in front of the lens is not a bad idea, but mainly it is just important to



constantly check the lens for dirt and dust. Also, taping some areas of the camera that dust could work itself into with the strong wind is wise. Being extra diligent with gate checks is a good idea.

For the electric department, heat shield or a single scrim is important to protect the hot lens from the cold wind in order to prevent thermal shock. You also may need to use small grip clips instead of C47s to hold gel to the barn doors as gel can be easily blown off in strong winds.

For the grip department, you may need lots of extra sandbags to secure everything in the wind. Also, be sure to have enough rope for tying guy lines to any large frames of diffusion, etc.

For yourself, have eye protection, as dust being blown at a high rate of speed is never fun when it hits your eyes. If large wind machines are in use, ear protection is wise as they can often be very loud. Having a jacket and hat with chin strap (to keep it

from blowing off your head) is not a bad idea either.

When working in the dirt, many of the same precautions are used as when working in wind. For the camera department, it is important to be on top of gate checks and insuring that magazines and changing bags / tents stay clean.

For the electric department, try to keep connectors from dragging in the dirt so they don't get "crunchy" and hard to connect. It is a good idea to place a small band of tape around connectors to seal them closed so dirt will not get in. Also, "desert wrap" your cables – connecting the male and female ends of a cable into each other so that dirt does not get inside when the cables are not being used.

The grip department does not have much to worry about other than trying to maintain a certain amount of cleanliness so that risers of stands and threads of clamps, etc. don't get stuck together.

This list is far from complete, but these tips should help you be prepared for some of the worst conditions we face. When in doubt about the safety of people, the best bet is to just say no to the people trying to get you to work in these conditions. If it is known ahead of time what the conditions will be like, research what you need to do in order to protect your gear and people.

Kevin Zanit is a cinematographer based in California. His experience is mostly in music videos and does narrative work as well. His filmography includes *Room Service* (2006), *These Days* (2006), *Inner Prison* (2005), and *Passing Moments* (2003).

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Landing an Agent

How to Get an Acting Agent; 7 Important Guidelines

by Vanessa Daniels

In the acting industry, landing an agent can be more challenging than landing a role. Having an agent is a great desire among all actors, the advantage being they will be able to open certain doors in the industry and get you into certain auditions you would not get otherwise. There are several ways to go about getting noticed by an agent:

- Perform in a student or industry showcase.
- Get a role in an off, off-Broadway show and invite agents to attend.
- Do a mass mailing of your headshot and resume to every agent on whichever coast you reside.

I have had 3 agents up to this point in my career. The first discovered me in a show downtown, the second at a student talent showcase, and the current I acquired through a mass mailing. My experience is proof that there is no right or wrong way to get noticed, the important thing to remember is to GET NOTICED. Don't wait for them to discover you. Below are a few guidelines and suggestions.

1. Avoid the narcissistic cover letter. A casting director the other day had a room full of auditionees cracking up as he read aloud the worst cover letter of all time. It was 3 pages long, and led its reader through a self-indulgent account of one young aspiring actress's journey. She is "by divine right the next big thing" and talked about how "all the art inside the depths of her soul kept her awake at night; for she knows she

is the light, the truth, the beauty that should be thrust upon the stage and silver screen." Keep your cover letters short and sweet. "To Whom It May Concern: Photo and resume attached for your consideration." Include your contact info. Nothing more. Agents won't read it. They WILL read your resume, so if you have a few solid credits and a professional 8 by 10 headshot attached, it will get you noticed. If you happen to have a short reel (no more than 4-5 minutes), I suggest including that as well.

2. DO NOT call agents' offices to follow up. Agents are extremely busy people and receive hundreds of headshots and resumes weekly. They do not have time to personally thank you for sending yours. "Don't call us we'll call you" is the way it works. They will call if they are interested in setting up a meeting.

3. Make your mailing stand out: typed labels, brightly colored envelope. Call attention specifically to the person running the department you are interested within the agency. For example, if you are trying to get a commercial agent address the envelope with the name of an agent in the commercial department. You may want to try including the assistant's name, as he/she is usually the first person to open the mail.

4. Should you land a meeting with an agent treat it like a job interview. Dress to impress, have extra headshots and resumes with you, but don't offer them unless asked. Be well groomed and well rested. An agent wants to see how you will present yourself

in an audition. If you look like a starving artist who stayed out too late the night before in their office, they will most likely not want to send you to castings.

5. The best time to do a mass mailing is when you are in a show that the agent could actually come and see you in. Mail an invitation and announcement of your upcoming work. It may be a good idea to avoid doing mailings during an agent's busiest season (typically fall and spring during pilot seasons). Agents are less likely to sign new people at this time because they are consumed with a larger number of incoming breakdowns (casting listings).

6. A great resource to find a complete listing of all the East and West coast talents agents is called *The Ross Reports*. You can find it at most bookstores or newsstands, and a new publication comes out every three months.

7. If you are a student enrolled in a performing arts program, inquire if and when the school holds auditions for an agent or industry showcase, as well as any other industry opportunities they may offer throughout the year.

Finally, the best advice that holds true with most pursuits in life is be persistent. Be patient. And know that luck (especially in the acting industry) always has something to do with it.

Vanessa Daniels' credits include *Law & Order: Criminal Intent*, *Boiling Point* (MTV), *Trackers* (Oxygen Network), *The Difference* (Nickelodeon), and the recently completed feature, *The Sandpiper*, as well as numerous commercials, student films, and regional and off-broadway shows.

Quick Tips for Selling Your Film at the Cannes Market

Negotiating with Sales Agents

by Stacey Parks

Cannes Film Festival is approaching, filmmakers are getting their films ready to go sell there, and I've been speaking with producers lately about the deals they've made with various sales agencies. Here are a few quick pointers: things to look out for and be aware of when working with sales agents.

First of all, when a sales agent agrees to bring your film to the Cannes Film Festival market, you are not IN the Cannes Film Festival. You are at the Market. Big difference!

Also, when a sales agent brings your film to the Cannes Market, you do NOT have distribution; you have a sales agent. The job of the sales agent is to find you distribution deals; they sell your distribution rights to various distributors around the world and take a commission for their efforts.

In addition to your negotiated commission with them (usually somewhere between 10% and 25%), they will want to take a fee for marketing expenses (which can be anywhere from \$5K to \$50K).

Now here's where things get tricky. For example, if the sales agents are out there selling your film to distributors, and they get to keep the first \$50K of sales that come in to cover their marketing expenses, and then start taking a 25% commission on all the sales after that, when do you think you'll actually get paid? Can you say... NEVER?

Okay, I'm being cynical. Anyway, it will take a long, long time unless your film starts making hundreds of thousands of dollars in revenue right off the bat... which I would never plan on because you want to play things conservatively.

One solution to this little conundrum is to negotiate with the sales agent that they are allowed NO MONEY in marketing expenses. Tell them you want to negotiate with them just a percentage commission that they'll take off the top of every sale, and no more.

Stick to your guns, and if they really want your film, they'll concede. After all, why should you be responsible for their overhead costs?

It's something that always got under my skin when I was working as a sales agent – taking all these huge fees from filmmakers to pay our marketing expenses... It just doesn't seem fair.

That is why I think, ultimately, the sales agency is a dying business model.

Stacey Parks is the author of the "Inside Guide to Independent Film Distribution." Stacey has worked in independent film for over 10 years, and is currently a sales executive at the BBC Worldwide in Los Angeles. She was previously a foreign sales agent for many years. Her website is www.FilmSpecific.com.

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Profile: [MalibuCarey](#)

Location: Whitefish Bay & Malibu, Wisconsin, US

<http://networking.studentfilmmakers.com/MalibuCarey>

Filmmaker and Entertainment Lawyer Carey Borth, has been an attorney since 1986, and Real Estate Broker since 1981. She lives in Los Angeles and Wisconsin, depending on where her work takes her. "I am producing Mark Borchardt's (*Coven*, *American Movie*) feature film, *Scare Me* currently and editing my surfer film. After that I have a few shorts to finish and then it is on to editing biker and racecar footage."

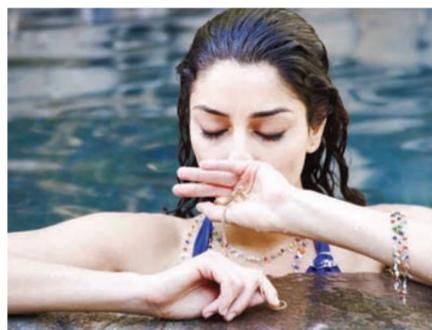
She has an MFA in Film from UCLA and Juris Doctor from Pepperdine Law School. She also has three business degrees from UW-Madison, several Art/Computer/Culinary/Design Professional Degrees from UCLA Extension, and has also attended Art Center College of Design in Pasadena, CA.



Profile: [HD_Postfacility](#)

Location: Los Angeles, California, US
http://networking.studentfilmmakers.com/HD_Postfacility

Lewis Lipstone is a professional editor with over 30 years of production and post-production experience. After a successful tenure as an editor with The Landsburg Company in the 80's, he founded Westside Post and Rentals in 1990, and later expanded his facilities and editing capabilities for high-end production, video duplication services, and DVD services. He is the president of Westside Media Group (WMG).



Profile: [StephanieSchmidt](#)

Location: Los Angeles, California, US
<http://networking.studentfilmmakers.com/StephanieSchmidt>

Stephanie Schmidt has a BFA in Film, and graduated Cum Laude from Virginia Commonwealth University. She was granted a fellowship from the Virginia Museum of Fine Arts for her second year as a cinematographer at the AFI Conservatory. Her Master's thesis film is *In Another Life*, shot in Los Angeles this past December.



Profile: [JoeyDee](#)

Location: Ottawa, Canada
<http://networking.studentfilmmakers.com/JoeyDee>

Joseph Abboud is from Ottawa, Canada, and just finished his third year in Film Studies. He says Krzysztof Kieslowski is his biggest influence in Cinema. Joseph has completed six short movies, two on film (16mm & Super 8mm) and four on digital. His most recent shorts include *A Man Reflecting Thoughts* (Super 8mm) and *The End* (16mm). "For now I am only interested in short format, simply because I feel an artist is free to explore and express so much in a very direct way, meaning in such a short time frame. Until I have developed my skills and crafts, I will continue to make short films."

His favorite tools are a pen and paper: "I like to construct text, work with it until I visualize it in my head. I want to get to know my characters inside out, learn from them and their environment..."

What he loves most about making movies: "I am curious about destiny and chances and interconnecting people through coincidences in our lives. I'm interested in addressing to the audience the non-physical human emotions, meaning emotions that we cannot see on the outside, and I try my best to empower or deconstruct a helpless character, that's if I can..."

Check out this month's featured filmmakers online at networking.studentfilmmakers.com. Don't forget to sign up for your own free networking page!



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(2) Nature of Business (select one):*

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- 05 Broadcast or Cable Network
- 06 Equipment Rental House
- 07 Equipment Manufacturer
- 08 Software Development
- 09 Ad Agency
- 10 Film or Television Commission
- 12 Independent Film Company
- 13 Student at Film School
- 77 Other: _____

(3) Profession as: *

- 01 Cinematographer
- 02 Camera Operator
- 03 Director
- 04 Editor
- 05 Producer
- 06 ScreenPlay Writer
- 07 Equip. Manufacturer
- 08 Rental Executive
- 09 Marketing Executive
- 10 Studio Executive
- 11 Advertising Executive
- 12 Instructor
- 13 Student
- 77 Other: _____

(4) Which statement best describes your role if any in hiring or purchasing production and/or post production services, hardware, or software?*

- 01 Approve/Authorize
- 02 Initiate Request
- 03 Research Services or Technology
- 04 Specify Services
- 05 None of the Above

(5) Category of content you or your company produce? *

- 01 Feature Films
- 02 Independent Productions
- 03 TV Productions
- 04 Commercials
- 05 Web-Distributed Content
- 06 Documentaries
- 07 Music Videos
- 08 Cable and Pay-TV
- 09 Other: _____

(6) Are you working with film or digital production? *

01 Film 02 Digital 03 Both

(7) What Production Tools you

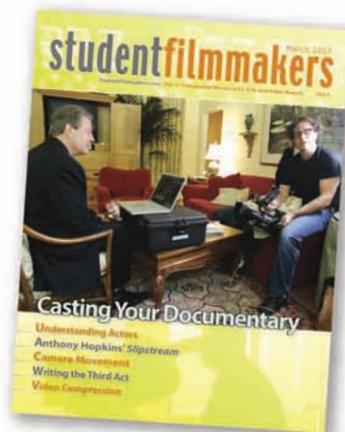
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| 07 Video Monitors | <input type="checkbox"/> | <input type="checkbox"/> |
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| 09 Editing software | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 Lights | <input type="checkbox"/> | <input type="checkbox"/> |

(8) Annual production budget? *

- 01 under \$50,000
- 02 \$50,001 to \$100,000
- 03 \$100,001 to \$500,000
- 04 \$500,001 to \$1 million
- 05 \$1,000,001 to \$10 million
- 06 \$10,000,001 to \$50 million
- 07 \$50,000,001 and above

(9) What aspects of studentfilmmakers interest you? *

- Acting
- Audio/Sound
- Cinematography
- Directing
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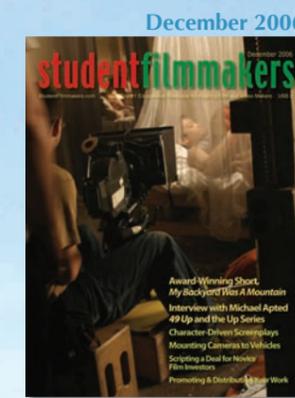
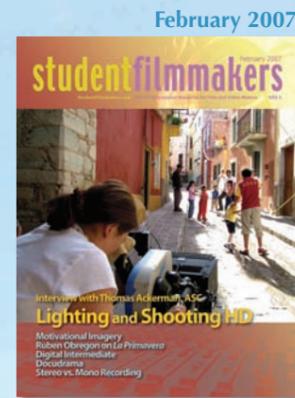
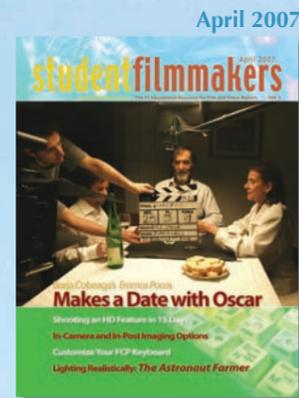


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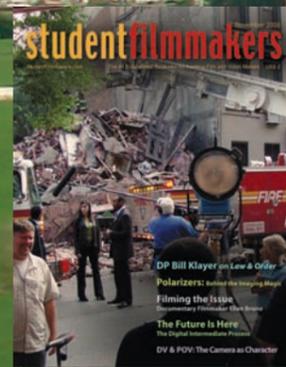
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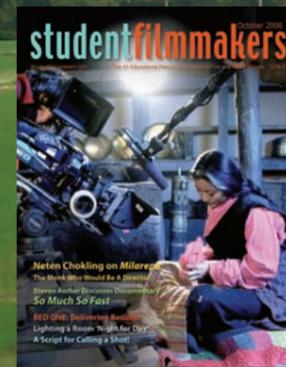
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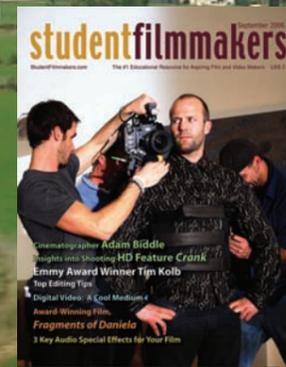
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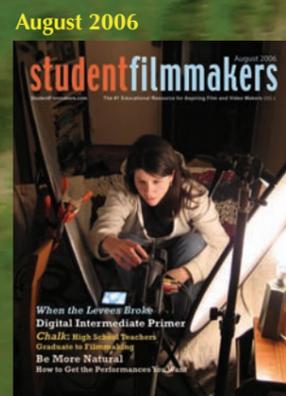
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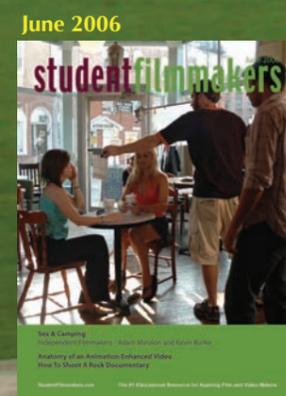
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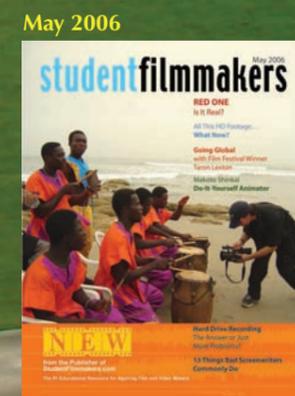
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Many Thanks



Ira Tiffen



Leonard Guercio



Vanessa Daniels



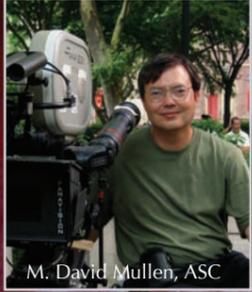
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