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## Digital Film and Workflows: An Interview with David Stump, ASC

David G. Stump, ASC, well known for his DP work and mastery of VFX, has an impressive and lengthy list of credits that includes *X-Men*, *Hollow Man*, *Men of Honor*, *Stuart Little*, *Batman Forever*, and *Batman & Robin* to name a few. He's also amassed a good deal of experience and knowledge in how digital film, as well as the new digital workflow and hybrid tools, is affecting the art and craft of cinematography. As Chairman of the American Society of Cinematographers' camera subcommittee, Stump's role is two-fold: to build awareness of the capabilities of cameras within the film industry and to remind camera and system manufacturers what kinds of time-saving tools are needed by DPs. He recently shared a few of his thoughts with ASSIMILATE.

**Q:** You're at the forefront of digital cinematography with several projects, which include "What Love Is", starring Cuba Gooding Jr. and due out in 2006; Director Robert Englund's "Killer Pad," releasing in early 2007; and ESPN's Original Entertainment mini-series "The Bronx Is Burning," wrapping up shooting now. Why have you embraced digital filmography?

**A:** Quite simply, digital filmography is the inevitable future of filmmaking because of its quality result, time savings in the creative process, and ultimately its cost savings. I see it as the continuation of evolutionary steps in filmmaking that pump the creative juices of directors and DPs to make more compelling imagery. This in turn propels audiences back into the theaters for the exciting or emotionally compelling viewing experience. Combine this with the economic factor that enables more directors and DPs to have access to very good tools for making high quality films, and you have a formula for revitalization within the movie industry.

From a creative perspective, digital enhancements to film have come a long way since I started using computers in the 80s for motion control of dollies and cameras. For example, in the early 80's the ABC miniseries "The Day After," depicted Russia bombing America. For the VFX work on that show, we used computers to create sequencers for driving the compressors and injectors, which would pump hot red dye into a water tank to create mushroom clouds. Since those early days, digital technology has evolved so that we can achieve even greater and more realistic images using computers, digital cameras, and data workflows. And digital technology will continue to evolve, driving the creativity



David Stump (left), ASC and DP/VFX Supervisor, during the shoot of "What Love Is."

and impact of our imagery in filmmaking.

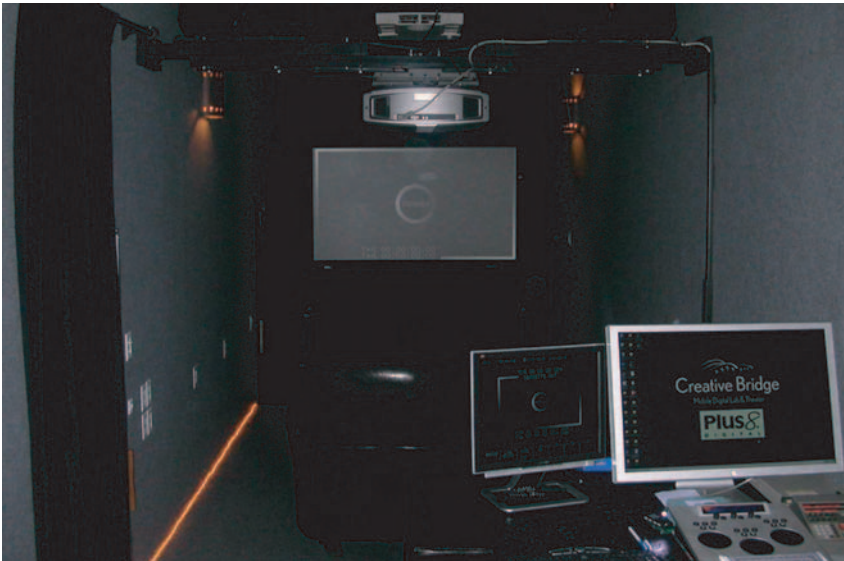
From a business perspective, those same digital tools enable a significant increase in efficiency and time savings for the filmmaker, DP, and post process. Working on a movie usually means working against the clock, and the functionality of digital workflow tools like SCRATCH speed the post process and provide quality output.

**Q:** You were an early adopter of digital film with "Red Riding Hood". What was your impetus for trying this new medium?

**A:** The film industry is driven by innovation, so as a cinematographer you're duty bound to push the envelope for the next unique method or look that

challenges your creativity, and subsequently brings a new level of excitement to filmmaking. Early on I used the Sony F900 (1080P) for shooting TV video and commercials. The next logical step was to take digital technology into film production and so I made the leap

on the stage. The digital camera has limited high and low speed capability. Over and under cranking is better done with film so we switched to 35mm for this scene. In this case, a hybrid mix of media - digital film, 35mm, HD - provided a solution with impact, while meeting the time and cost saving factors as well. The finished delivery to theater was 35mm film.



*Inside the Creative Bridge Mobile Digital Lab trailer (MDLT) on location at the Sonalyst Studios in Waterford, CT; post production for ESPN's mini-series, "The Bronx is Burning."*

and photographed an all-digital virtual reality film, "Red Riding Hood."

**Q:** What have you learned about digital cameras that could be useful to other DPs?

**A:** The early digital cameras of the late 90s were really not up to my expectations. With plug-ins and other software tools, digital VFX and quality imagery were still way ahead of the cameras. Steven Spielberg, James Cameron, and others were by then already doing amazing work. But the kinks have worked out and there's a huge improvement in ease of use with the new breed of digital cameras like the Viper Filmstream Digital Cinematography Camera. Since 2000, I've worked as the DP or VFX Supervisor on over a dozen projects using the Viper, including "What Love Is," "Killer Pad," "Primal Scream" (in production), and of course "The Bronx is Burning."

**Q:** What major differences or advantages are you seeing in the use of hybrid digital film workflows?

**A:** My role as the DP for a project is to determine the shooting methods that enable visually striking results. I like to use the best tool for the job and digital film certainly has its place. For example, "What Love Is" was shot entirely in HD 4:4:4 (10-bit) using the Viper, with the exception of a middle sequence that required high-speed slow motion. The scene was a strip bar where money was thrown into the air, and we then see it raining down

The digital film hybrid workflow in itself allows for time and cost savings, which in the film industry means break out the champagne. For example, "The Bronx is Burning" is an all digital mini-series being shot on location using an HD 4:4:4 digital workflow. The project is being shot using the Viper so there is no film cost. The Creative Bridge Mobile Digital Lab trailer (MDLT) is on location outside the Sonalyst Studios in Waterford, CT. Within this studio-on-wheels, ASSIMILATE's SCRATCH is set up for the digital post-production pipeline - data management, assemble, edit, review, color correction, output -- which means a huge savings for a complete, real-time, high-quality data workflow.

The 50+ director-approved LUTs or looks are previsualized in SCRATCH and then saved as lookup table (LUT) files, numbered and written on the slate at the head of each scene. They're simultaneously loaded into the Thomson Grass Valley LUTer boxes that feed the onset viewing monitors, exactly replicating the look achieved in the screening room/color correction suite.

Colorist and SCRATCH artist Jeff Olm of Los Angeles is on site to do the color correction tweaks and refinement on all incoming dailies, which are based on the pre-determined looks reflected in the LUTs. With the MDLT and technical talent on site, the post process and client reviews can be wrapped up in about one-third the time of the usual post process.

These new digital tools close the feedback loop for the director and DP. We get instant gratification, knowing that what we're shooting and what we'll see on a monitor or big screen is no longer a leap of faith. And of course, the client wins - the project is produced quickly and the results are immediately evident.

**Q:** Do you have any plans to use the new Red Digital Cinema 4k camera when it's available?

**A:** I did the U.S. objective and subjective tests for the Olympus 4k camera that included day and night photography in the Hollywood Hills. We then showed images and film out using the Sony 4k projector. Once you've seen 4k imagery on the big screen it's very evident how good 4k can eventually be.

I'm currently doing testing with Jim Jannard's new Red 4k camera. I see the Red camera as a very solid, viable tool

for the film industry. Not many people have seen the images - raw or on the color corrector. I have, and this is about to become a really good camera.

**Q:** What do you like about 4k?

**A:** One word: clarity. It harkens back to the beauty you saw achieved in the first print from 65mm or Vista Vision - strikingly crisp and clear. With all the talk of 4:2:2 color space I expected to be disappointed with the Olympus camera, but wasn't. I was astonished that the resolution was so good, and they're headed toward 4:4:4. I expect the clarity and resolution of the Red 4k camera to be just as good. The results are so striking that studios will now be willing to take the risks to achieve more resolution, more color space.

**Q:** Do you think digital film will become the mainstream medium for feature films and TV productions in the future?

**A:** Absolutely. It's an economical means to get a high quality movie on the big screen. The clarity has such impact and beauty that audiences will respond to it - family films, action films that draw men and teenage boys, and date movies. It's all about what will draw larger audiences into the theater, and a more engaging viewing experience will do that.

**Q:** How will digital film affect the larger movie studios and the independent film makers?

**A:** Economics drives the film industry. And every market adapts to, and gains from, advances in technology. In this case, it's the filmmakers that gain from advances in hybrid,

digital-film workflow tools. Digital film is moving the industry into bigger possibilities and different kinds of projects. With lower production costs, more of the budget can go into the content. We'll see different kinds of projects from both studios and indies. Resolution independence will be the norm since workflow tools like SCRATCH make it possible to incorporate digital film, film, HD, or any mix thereof.

**Q:** And finally, what makes you tick?

**A:** Curiosity. My mind feeds on curiosity and that sparks my creativity and imagination for both the technical and artistic aspects of any project.



*David Stump (center), ASC and DP/VFX Supervisor, during the shoot of "What Love Is."*