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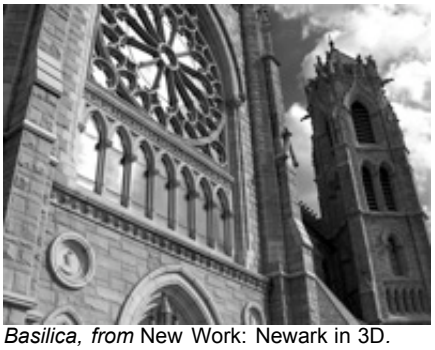
leitner's cinematography corner, no. 5

Nov 6, 2009 12:00 PM, By D.W. Leitner
EX3 x 2 = DIY 3D

Stereoscopy, or 3D imaging, has been around as long as photography, at least since1840, when the English inventor Sir Charles Wheatstone, who first explained binocular vision in 1838, fashioned his first stereoscope for displaying photos in stereo pairs. Stereoscopes were widely popular, even common, throughout the second half of the 19th century, as evidenced by their easy availability at flea markets today. I have two wooden models from that era on my bookshelf.


Basilica, from New Work: Newark in 3D.

By comparison, theatrical 3D movies enjoyed only two brief spikes of popularity, first in the early 1950s (*Creature from the Black Lagoon*, Hitchcock's *Dial M for Murder*), then in the 1980s (*Friday the 13th Part III*, *Jaws 3-D*). Regarded as curiosities, they never achieved mainstream status, either with production crews, audiences, distributors, or exhibitors. Loading and equally exposing two strands of motion picture film was never a picnic, never mind the added interaxial and convergence lens issues unique to 3D. Dual-strip projection (in the '50s) and funny glasses that induced headaches failed to endear the format to anyone.

But as virtually everyone attending movies today knows, 3D is experiencing a vigorous revival, propelled this time by digital technology. Compact HD cameras are easily mounted side-by-side at the human interocular distance of 55mm to 75mm (if appropriate to the image). For instance, you can strip down and slap together two **Sony** HDC-F950s as 3D innovator **Vince Pace** did for *Hannah Montana/Miley Cyrus: Best of Both Worlds Concert Tour* and James Cameron's forthcoming *Avatar*, or position a pair of **Flip UltraHD** cameras in your backyard, as you wish.

Since there's no film to load or process (twin rolls of film double the processing and transfer costs), it's now possible to view 3D results in real time—perfect for adjusting focus or reframing for a better stereo experience free of eye strain.

Digital technology will eventually erode 3D costs via the mass market. At NAB last April, you could hardly throw a stone in Central Hall without hitting a 3D camera system or 3D flatscreen display (plasma at Panasonic, LCD at Sony and JVC). As 3D-enabled flatscreens reach the market and their costs drop, demand for programming can only climb.

If filmed entertainment and consumer electronics are finally betting on the success of 3D, where does that leave independent filmmakers and artists?

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Ironically, the answer won't be found in Lenny Lipton's long-in-the-tooth tome from 1982, "Foundations of the Stereoscopic Cinema." Lipton, of course, is the renowned author of the do-it-yourself (DIY) bible of 1970s and 1980s independent filmmakers, "Independent Film Making". (Also author of lyrics to "Puff the Magic Dragon," set down as an undergrad at Cornell, my alma mater.)

Lipton, himself a long-time indie filmmaker, went on to found the StereoGraphics Corporation, a pioneer in electronic 3D display and precursor to **RealD** (which bought StereoGraphics in 2005), whose stereoscopic projection technology is found in almost every commercial 3D theater in the U.S.

No, I'd argue the answer is instead found at the **Newark Museum** in Newark, New Jersey, where two remarkable local filmmakers using nothing more than a pair of **Sony PMW-EX3**s and **Apple Final Cut Pro** have created a remarkable 6-minute paean to the city of Newark—in flawless 3D.


High-angle shot from Manhatta *(1921)*

The Newark Museum commissioned the filmmaking team of Marylou Tibaldo-Bongiorno and Jerome Bongiorno to make ***New Work: Newark in 3D*** in celebration of the museum's centennial. The Bongiornos decided to model their film after one of the first experimental films made in America, *Manhatta* (1921), a silent black-and-white salute to the urban dynamism of New York City by painter Charles Sheeler and photographer Paul Strand, with stirring intertitles lifted from Walt Whitman.

At 65 shots in 11 minutes, *Manhatta* depicts the brawn and bustle of Manhattan's harbor and streets from dawn to dusk, prefiguring better known "city symphony" films such as Walter Ruttmann's *Berlin, Symphony of a Great City*, or Dziga Vertov's *Man with a Movie Camera* by almost a decade.

Like *Manhatta*, *Newark in 3D* constructs visual rhythm and poetry from stunning B&W, high- and low-angled shots of Newark's built environment—statues, bridges, waterways, cathedrals, skyscrapers—as well as its river of people and their activities. In homage to the original film, the Bongiornos have assembled about the same number of shots as *Manhatta*, featuring structures and locations 100 years old, the same age as the museum.

Three things make *Newark in 3D* outstanding.


Jerome Biongiorno on a fireboat with dual Sony PMW-EX3s. Image courtesy of Bongiorno Productions Inc.

Jerome Bongiorno's 3D cinematography is masterful. On his jam-synced EX3s, he matched focus, iris, gain, and framing (using the viewfinder zoom scale from Z0 wide to Z99 telephoto). He worked out a system to determine the ideal interaxial distance, what he calls "stereo base," between EX3s, given the subject of each shot and its distance. Later, in Final Cut Studio, he tweaked, as need be, image size and position to obtain the best stereo effect.

If Jerome's powerful images appear Whitmanesque in exuberance, the effect is underscored by local poet Jon Curley's insistently syncopated verses (read by the poet himself). I watched *Newark in 3D* three times, and the rhymed cadences dug in deeper with each listen.

The museum's 3D installation is exemplary. *Newark in 3D* is projected, continuously looped, in a dedicated black-box gallery. The screen occupies an entire wall, from floor to ceiling. This gives the illusion that the fourth wall has simply vanished, and that, from wherever we stand (there are no chairs), we are gazing directly into 3D space, albeit black and white. If the ceiling is 9ft. tall, then the screen is 12ft. wide because the picture aspect ratio is 1.33, matching that of the original *Manhatta*, which, incidentally, also loops continuously on an LCD screen adjacent to the screening room.

Although cropped to 1.33, original images were captured at 1920x1080 in Sony's MPEG-2 **XDCAM EX** format at 35Mbps, edited in Final Cut Studio, and played to screen from a server. (Deliverables were files, not physical media. The times, they are a changin'.)

I admit to not being a fan of the anaglyphic separation used (requiring glasses with red and cyan filters), although I understand the lure of its simplicity compared to polarization or use of LCD shutter glasses.

Still, I wonder if Cameron's *Avatar*, produced with no expense spared, will measure up to the success of *Newark in 3D*, if only as art.

New Work: Newark in 3D runs continuously through Jan. 10, 2010, at the Newark Museum in Newark, New Jersey.

To learn more about the production and installation of *New Work: Newark in 3D*: **http://www.youtube.com/watch?v=5tlGET-W6YM**

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