



Lensbabies: Shooting In The Sweet Spot

Cinematographer Art Adams reveals how to create focus vignettes in real time with the Lensbaby 3GPL
By Art Adams



Plate 1



Plate 2



Plate 3



Plate 4



Plate 5

Plate 1: This tabletop setup was shot with a Lensbaby 3GPL on a P&S Technik Pro35 adapter. The Pro35 focal plane is 15 inches from the subject. The effective focal length of the Lensbaby is 50mm; the stop is $f/4$. The sweet spot is reasonably sharp, while the outer edges of the frame show a lot of distortion and softness. Each earring is approximately one inch across. **Plate 2:** The same shot as plate 1, except that the f -stop is now $f/8$. Overall sharpness is vastly improved, although the "Lensbaby effect" is still obvious at the outer edges of the sweet spot. **Plate 3:** The Pro35

Most people don't pay much attention to composition. Their oblivion provides us, the cinematographers, the opportunity to play with our greatest tool: the frame. This is where we organize objects and construct relationships, assembling the extraordinary from the ordinary. The cinematographer creates visually what the story does narratively, thereby exposing the audience to a perspective they have yet to experience.

Photoshop, After Effects and Telecine give us the power to enhance or exaggerate a shot later, once it has been captured, but the ability to affect and distort images in-camera brings feedback to the process that draws the image-maker deeper into the experience and frequently improves the quality of the image.

Enter Lensbabies.

Lensbabies is the brainchild of still photographer Craig Strong. He sought

what was to him the "perfect" style of photography: free of shallow focus, motion blur or any other visual trickery. By 2000, he had almost perfected his technique and was starting to get a little bored when he bought his first digital SLR.

"After my transition to digital capture, I felt my images were sterile," recalls Strong. "Digital is very clean, very neat. I felt the need to make the images messier, to make them less perfect."

Strong started experimenting and, one day, shot through a generic 0.42x wide-angle adapter designed for a consumer video lens. His 28mm prime lens suddenly became the 35mm equivalent of a 17mm fish-eye with very soft edges.

He was immediately hooked and bought old lenses on eBay to take apart and play with their elements. Eventually, he devised the Original Lensbaby: a resilient plastic tube with a lens mount at

one end and a simple lens at the other. Focus was achieved by stretching or compressing the tube with one's fingers.

"The beta versions were too sharp, and our testers wanted something really impressionistic," explains Strong. "For the Original Lensbaby, I ended up using a simple magnifying glass as the lens. It just came out of trial and error; there wasn't any real optical design until we developed the Lensbaby 2.0."

The Original Lensbaby has a sharp center and soft, distorted edges. The sharp area is moved around by bending the tube, and the degree of distortion varies depending on the f -stop, set by placing round plastic Waterhouse stops in front of the lens element. Wide f -stops cause more distortion; smaller f -stops cause less.

Layered composition is a great way to demonstrate the Lensbaby's conical field

of focus, known as "the Lensbaby effect." This three-dimensional field of focus makes a sweet spot of sharp focus possible, while the rest of the frame grows progressively softer and more distorted the farther it is from the sweet spot.

Almost immediately after launching the Original Lensbaby, Strong received positive feedback from an unexpected market: newspaper photographers.

"An old friend who I hadn't heard from in 10 years called out of the blue. He was a photographer in the White House Press Corps, and he saw a fellow photographer shielding his camera to

upon locking the tube, a fine adjustment ring allows the user to dial it in perfectly.

THIRD-GENERATION PL MOUNT

It wasn't long before the motion-picture industry noticed the Lensbaby. "ARRI bought a couple of Lensbaby 2.0 units and put PL mounts on them," says Strong. "They were used in the film *The Diving Bell and the Butterfly* [DP Janusz Kaminski, A.S.C.] for shots from the point of view of a disabled person in a hospital bed."

A large number of those shots were done with swing/tilt lenses, but the ini-

before they become too common. Any new look goes through a period of addiction, where it appears everywhere before it finds its niche, where it really makes sense to use it. I hope that's what happens. When half the music videos on MTV are shot with Lensbabies, people will think a little harder about when to use them; that's when we'll see them used in more judicious and compelling ways."

LENSBABY 3GPL IN ACTION

Upon the release of the Lensbaby 3GPL, I was immediately intrigued by the possibilities of macro photography

focal plane is now 12 inches from the subject, and a +4 diopter has been added. The f -stop is still $f/8$. **Plate 4:** The Pro35 focal plane is now nine inches from the subject, with a +10 diopter and an f -stop of $f/8$. From side to side, the image area is approximately 1.5 inches across.

Plate 5: At 6½ inches from the subject, and using both a +10 and +4 diopter, image reproduction is approximately 1:1. The sweet spot is remarkably sharp, with a hint of the "Lensbaby effect" toward the left and right edges of the frame.

hide the lens," says Strong. "It turned out he was using a Lensbaby. "Press photographers have strict guidelines regarding the type of manipulation they perform on their image-using software, but they can use a variety of unique cameras and lenses to achieve compelling looks. The White House Press Corps shoots similar subject matter day after day, and they want a unique look created in-camera."

FROM 2.0 TO 3G

Lensbaby 2.0 uses a doublet that's sharper in the sweet spot than the Original Lensbaby, with a wider aperture: $f/2.0$ instead of $f/2.8$. Whereas the Original Lensbaby lens is noncoated, the 2.0 is coated and shows fewer prismatic color shifts. The next generation, the Lensbaby 3G, adds a locking mechanism that holds the tube in place after the sweet spot is placed. If the focus isn't perfect

"The 3GPL boasts an ingenious locking mechanism, consisting of three equidistant rods that pass through a ring near the front element at one end and are mounted to the base of the unit via gimbals at the other."

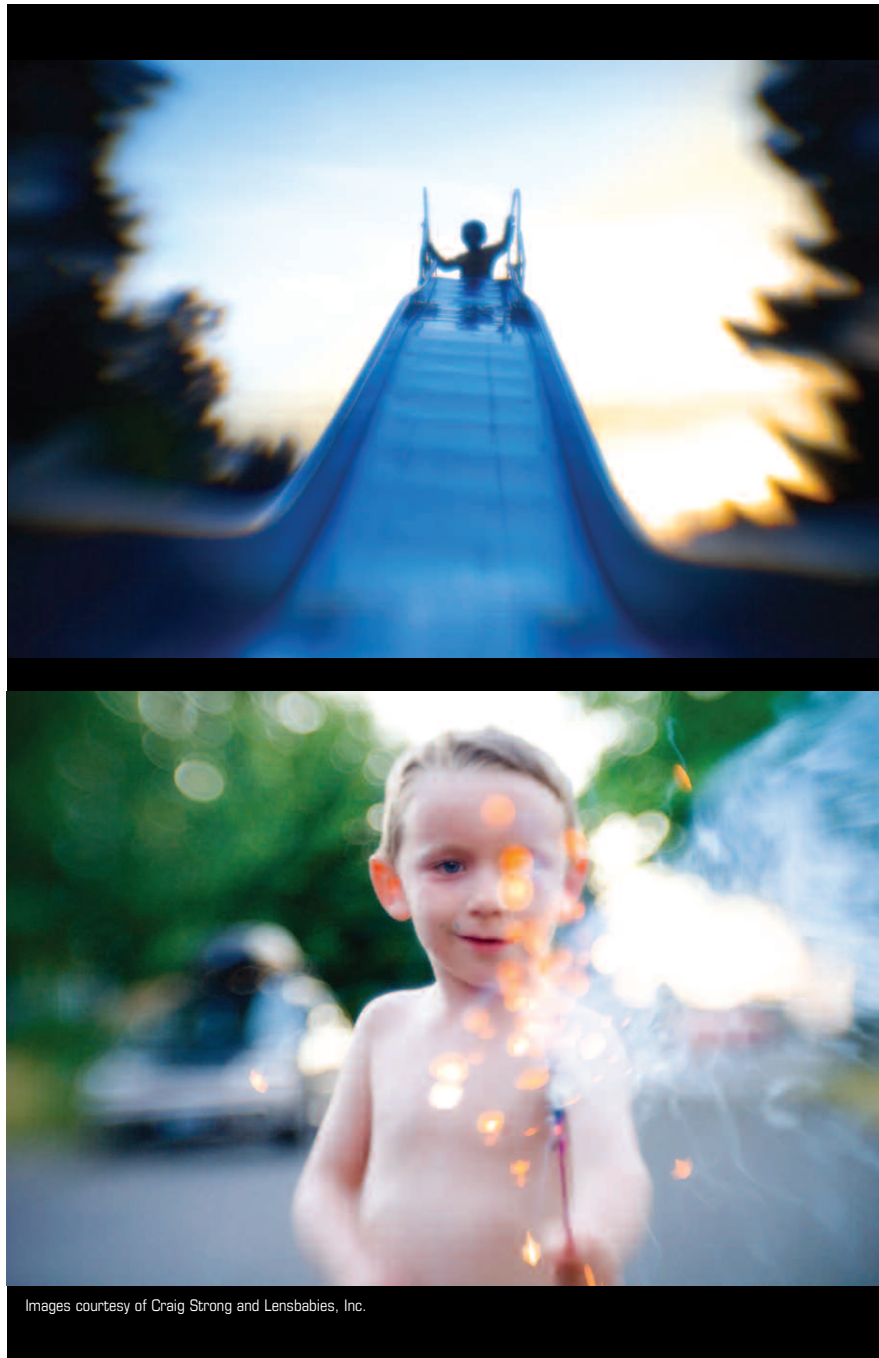
tial shots—where the focus and sweet spot move around frenetically as the subject awakens from a coma and tries to focus on his surroundings—were hand-operated Lensbaby shots.

After getting a lot of requests from cinematographers, Strong launched the Lensbaby 3GPL, a locking Lensbaby 3G unit with a PL mount.

"They're selling great," says Strong, "because a lot of people are trying to incorporate Lensbabies into their projects

in HD. A look through the Lensbabies website showed that there were macro kits for the other Lensbaby products but not for the 3GPL—a situation quickly remedied when I asked a Lensbabies salesperson for such a kit. Within a week, I had +4, +10 and a combo +10 and +4 macro kit in hand.

I quickly made arrangements to shoot an HD test at my favorite rental house, Chater Camera of San Francisco. When a Panasonic HPX500 and a P+S Technik



Pro35 adapter became available, I headed over with my new Lensbabies kit in one hand and a bag of props in the other.

I set up a small still life of antique jewelry, resting in a finely detailed cloisonné tray, the texture of which would betray the edges of the field of focus. After lighting the setup with a medium Barger-Baglite and some bounce cards, I shot tests at two different *f*-stops using different combinations of macros.

I found that at *f*/4, the look was surreal, with reasonable focus in the sweet spot and edges that softened and

smear outward from the sweet spot. At *f*/8 the smearing effect was much less pronounced, and the sweet spot was much sharper.

With a +10 and +4 diopter stacked on the Lensbaby, I saw what appeared to be 1:1 reproduction while shooting a section of an earring that was approximately the size of the camera's $\frac{1}{8}$ -inch chips—not bad for a \$500 lens system. At that magnification, the edges were a little soft, but the overall look was perfectly acceptable. I suspect that if I had stopped down further, I'd have been

pleasantly surprised by the Lensbaby's overall sharpness.

The 3GPL boasts an ingenious locking mechanism, consisting of three equidistant rods that pass through a ring near the front element at one end and are mounted to the base of the unit via gimbals at the other.

Manipulating the Lensbaby is like working a small swing/tilt lens. The photographer grabs the ring and moves it about until the subject is in focus and centered in the sweet spot. Lightly pressing a button on the ring locks it to the rods, where it remains firmly seated until the release lever is tripped. Fine focus is adjusted by a small ring set into the front of the Lensbaby.

It's extremely easy to use. The unit played well with the Pro35 adapter, and I was able to make fine exposure adjustments using the Pro35's built-in iris, in addition to using the Lensbaby Waterhouse stops.

The Lensbabies website states that the Lensbaby's built-in focal length is approximately 50mm, and my own tests show that's roughly the case. I tried the separately offered wide-angle/telephoto kit and confirmed that the additional focal lengths of 35mm and 85mm are roughly correct, although they might be a touch longer.

Strong is optimistic about the Lensbaby's future in the film industry. "More and more indie films and low-budget projects are using nontraditional optics, and that excites me. Digital acquisition can look very 'video'—it doesn't look like film, and it's very easy to have infinite depth of field. To have real control, you need different optics that weren't intended for that format."

Strong is tight-lipped about what his company is working on next. "We have several new products in the works that will create unique and nontraditional imagery," he says. "If we give people the ability to easily create new looks in-camera, they will always find a time and place to use them." HDVP

Art Adams is a San Francisco Bay area-based DP who makes a living distorting reality. To view his full-sized Lensbaby macro tests, visit www.artadams.net/lensbaby. To learn more about Lensbaby products, visit www.lensbabies.com.