PHOTOSHOP / ATMOSPHERIC FX

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R/Evolution

Reflection XLII

Contents

Introduction

For eons man has revered the power of weather, often attributing divine will to the state of the heavens. Naturally, artists have always looked to the skies for inspiration and celebrated the power of weather. The four seasons excited the musician Antonio Vivaldi to produce his most widely know masterwork. The painter Leonardo da Vinci advanced representation by combining the principles of linear perspective with atmospheric perspective. Time and time again, the Transcendentalist poet Walt Whitman returned to the cyclical changes he found in nature. The sculptor James Turrell often produced works with only changing light, in a variety of spaces.

More than almost any other kind of artist, photographers are at the mercies of the weather. They are also uniquely able to capture and reproduce it's specefics; as well as the effects it produces on other things.

Sonata XVI

What would Alfred Stieglitz's Equivalents be without a changing sky? What would Ansel Adams' Yosemite, Clearing Winter Storm be without a storm? What would Richard Misrach's Golden Gate book be without constantly changing weather?

Photographers learn to make the most of the weather. They plan to be at locations at specific times of year and times of day. We're constantly checking the weather and the light. We wait. We hope. Sometimes we move very fast and on rare occasions the magic seems to last forever. Sometimes we don't move fast enough and the moments don't last long enough. The worst moments are when we see it, but can't reach it. Sometimes we get lucky. Sometimes we don't.

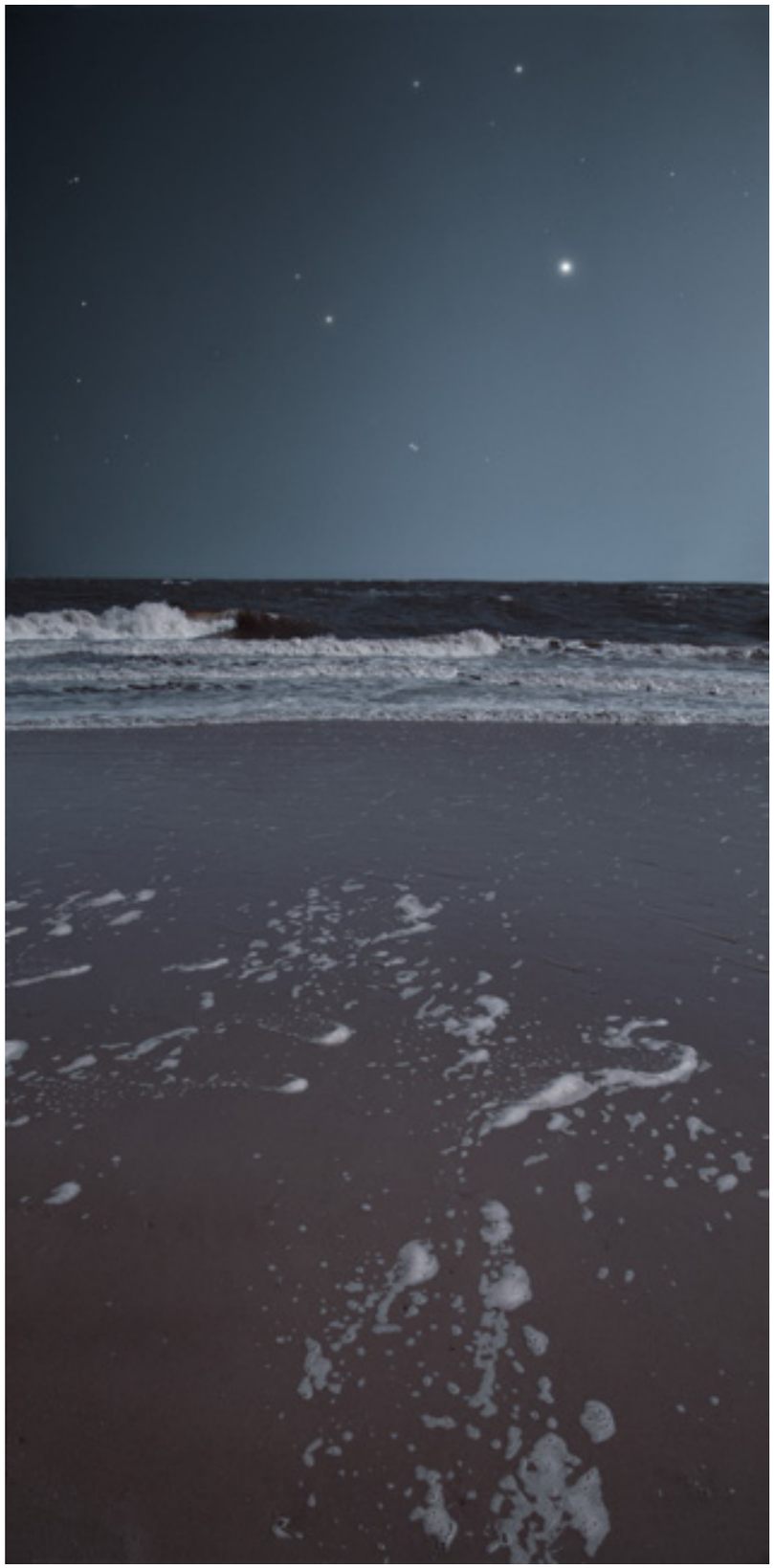
Today, the possibilities have expanded — dramatically. Now you can also make the weather; with Adobe Photoshop. You no longer have to wait for the perfect moment, you can create it. Learning to do this will greatly expand your creative possibilities.

I'm not suggesting that Photoshop is a substitute for nature. There's no doubt that you'll make many wonderful images enhaned by atmospheric effects without the aid of Photoshop, as I do. I am suggesting that thinking this way and learning these practices can bring you in closer contact with nature and your own experience of it, in a way that photography alone may not. To render naturalistic effects you'll have to look much more closely than you ordinarily would. You'll notice more; in your images, in other people's images, and in the world.

If you're like me, you'll find every moment of this marvelous process inspiring.

I hope this collection of essays and techniques will both inspire and empower you. I hope Atmospheric FX will help you appreciate nature more deeply, help you see more clearly, help you make more successful images, and help you make some of your existing images even better.

Selva Obscura IV



Nocturne IV

9
Stars

There was a galaxy spread before my feet. But, it was day. I knew what the metaphor was in Nocturne IV; I had only to heighten it. The constellations I created here have no heavenly equivalent. They echo patterns found below them. As above so below. As below so above.

The majority of the constellations found in my images are created rather than captured. Infrequently I will trace an existing constellation or the shape of a significant object. More frequently, the patterns I place in the heavens are drawn from another source, often a pattern found within the existing composition. One series of images traces the beauty marks from my wife's body. At other times I try to create an uncommon sense of balance within the composition, trying not to make the pattern fix the attention of the viewer on it by drawing obvious geometries or

recognizable shapes. There are all sorts of strategies you can adopt. Whatever strategy you adopt, it will change the content of your images.

Unlike viewers who aren't consciously familiar without constellations, viewers who are familiar with our constellations are sometimes disoriented when looking at my images. Because of what they know, they are able to probe deeper here. They can take these stars as a clue that the image has been altered. I often leave traces of the process as clues for the viewer in this game of looking and seeing. What we see changes what we know. What we know changes what we see.

I've always been fascinated by photographs of the night sky. Telescopes are able to bring back details I could never have seen with the naked eye. Film exaggerates the colors of the stars, which are faint to the human eye. The lens often eliminates the tiny flares we see. When we draw stars, we don't use circles, we usually use pentagrams. There's a reason. I can understand that the twinkle and shimmer of the tapestries above would disappear in a photograph. Time is frozen in photographs. But that the photograph would be significantly different than what the human eye sees is fascinating to me. We're taught to think that the camera records things as we see them. It does to a degree. But there are many points of divergence. It's almost standard for us to defer to the photograph over our own experience. That's something I'm wary of — or let's say instead, acutely aware of.

Initially I tried to approximate the halos I saw in the night sky. My first efforts were more evocative than analytical. Over time I've continued looking closely and trying to refine this technique. I've been comparing notes with others about the way they see stars. Not everyone reports the same experience. These conversations have been wonderful.

Points Of Light

"The stars are gods dreams, thoughs remembered in the silence of the night."
— Henry David Thoreau

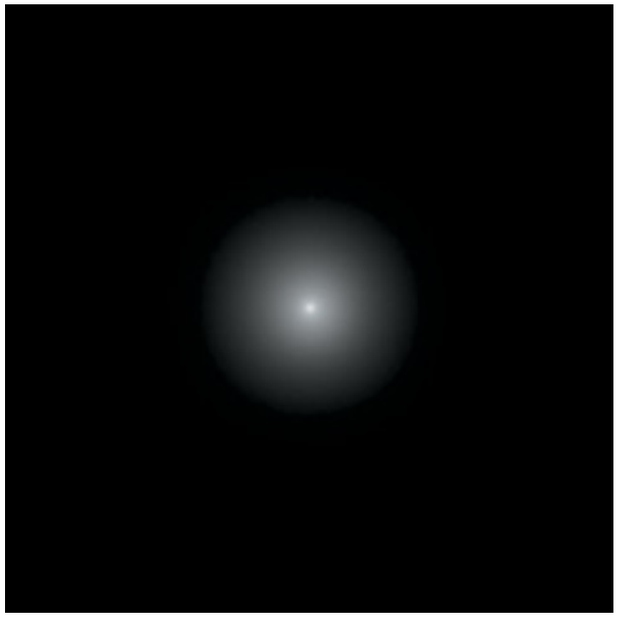
The night sky provides a window into space and time. A shimmering history of scientific discovery and cultural fantasy, replete with fanciful mythological figures from multiple traditions and spare utilitarian numbers, is cast across a velvet backdrop. Astrophotography has played a key role in the advancement of our understanding of the universe, the origins of life, and our own evolution. Our own sun, Sol, is the closest star to us. Whether we focus on it or on one or more of its billion distant companions, we tell time by the stars. We measure the cycles of the days, the seasons, the years, the ages by the shifting patterns above us. We measure the stars photographically. Curiously, in many ways, the photographic records

we make of these celestial wanderings don't always match our own experience of them. We look to technology to advance our perception and we often defer to the recordings it makes over our own experience. The hard, multi-colored points of light rendered by a lens are quite unlike the sparkling jewels seen by the human eye, frequently described by the poet and lover alike. This is particularly true given extended time for consideration. Like the Navajo Coyote, you can shape the constellations above in the images you create.

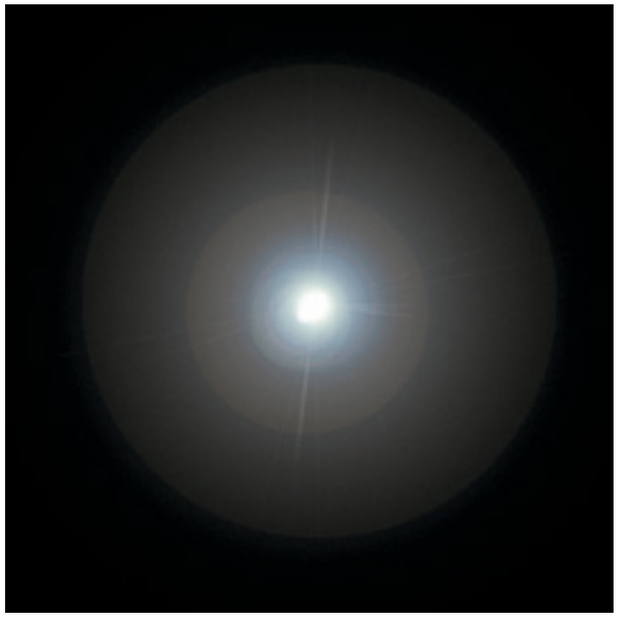
First you need a template for the pattern you intend to render. Using Photoshop, you can produce a variety of patterns to simulate constellations in a variety of ways. You can scan or sketch constellations from astronomical charts. You can scan or sketch constellations from photographs. You can sketch patterns from the contours of objects or patterns you wish to immortalize in the night sky. (Western cultures tend to see figures in imagined lines drawn between points of light, yet several South American cultures imagined figures seen in the dark spaces between them.) You can simulate random patterns by hand, with Photoshop's powerful brush engine, or by filter. (Apply the Noise filter to a layer filled with 50% gray, blur slightly, increase the contrast dramatically, and you'll produce a starry random pattern. If you're tempted to use this to simulate a starry sky, take care with the edges of these white points; if they are not blurred they will appear square, while if they are blurred too much they may become irregular.) Whichever course you choose, if you're going to create new celestial patterns, it helps to create a blueprint for the final design you intend to create. Create one or more new layers and a small white paintbrush can be used to find the final coordinates you desire, without disturbing the Background layer.

There are a variety of nuances to explore when rendering the effect of stars. In general, I try and keep any effect on a separate layer. Doing this makes it much easier to modify the effect in the future and in some cases makes it easier to control when creating it. In order to be rendered, most effects require pixels. But pixels may obscure the underlying image, unless they are invisible. You can use a layer's blending mode to create "invisible pixels". Most blending modes have a neutral color, typically white, gray, or black. If you fill a layer with the blending mode's neutral color, those values become invisible. The blending mode Hard Light is particularly useful for rendering starry effects.

The filter Lens Flare does an impressive job of simulating stars. Photoshop renders three settings when render-



1. A star rendered with a paintbrush.



2. Photoshop's 105mm prime lens flare.

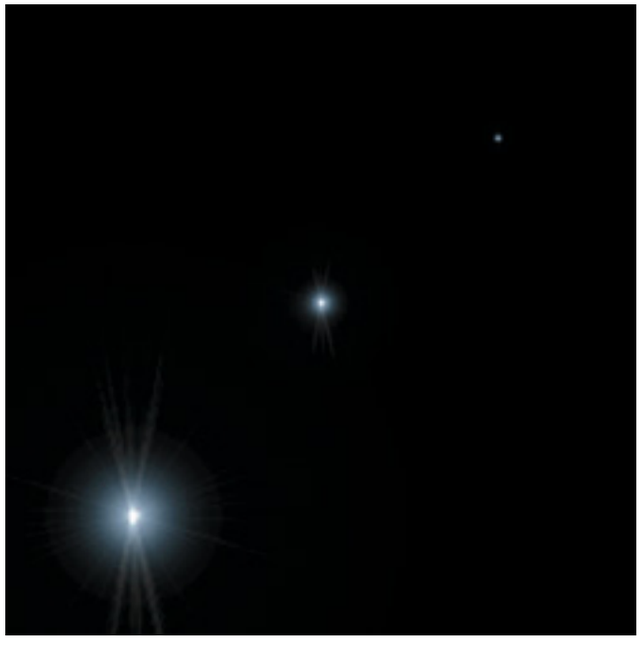
3. Knoll's Light Factory 105mm prime (without additional artifacts).

ing lens flares; 50 — 300mm Zoom, 35mm Prime, and 105mm Prime. There are two ways to control the effect. Brightness controls the size of the effect and position controls the distance and direction of lens artifacts. Positioning the effect in the center will reduce the number of artifacts to a minimum, but it will not eliminate them entirely. In some cases you can remove the artifacts after rendering the effect by adding a layer mask and painting over them with a black brush. If you render the effect at a relatively small size and place it to one corner, you can often push the artifacts away from the main effect so that they can be masked more easily. Once rendered, these effects can be rescaled and repositioned. For maximum control and flexibility, I place each single effect on a separate layer that can then be scaled and repositioned indefinitely. You can further control the scale and position of an effect by making a selection first. The effect will then be rendered inside the selection. Be careful, if you render the effect with a high Brightness inside a selection you may produce hard edges at the borders of soft halos, if the effect does not fall off before the edge of the selection.

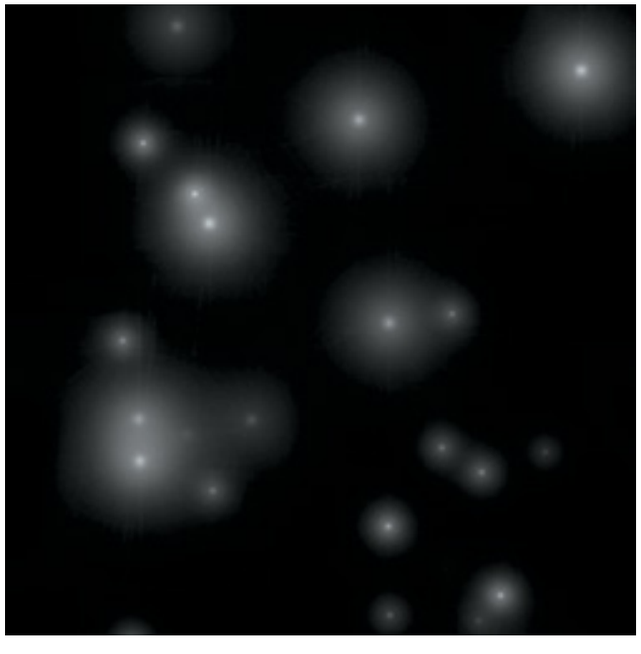
There's just as much variety in the intensity and color of stars as there is in scale and position. Intensity can be easily controlled by opacity. If the stars are on separate layers, the opacity of each layer can be modified. If you've

placed many stars on a single layer, you can use a layer mask painted with shades of gray to produce varying degrees of opacity for each component. Color can be added to any effect after it is rendered. You can keep color on a separate layer. Create a new layer and set its mode to Color. Pure black and white won't shift color but all the other grays will. Then use a brush to add the tint of your choice. This color layer can also be masked. Group the layer (hold the Option key and click on the line between the two layers) on Color mode to the Hard Light layer to contain color to the star effect only. Film renders stars with a great deal more saturation than the human eye sees at night. Different films even render the color of the same stars differently. Your choices here will communicate a particular point of reference to the viewer.

One Photoshop plug-in package, Knoll's Light Factory, does an even



4. A custom lens flare created with Knoll's Lens Flare Pro.



5. A brush defined from a lens flare with placement and luminosity randomized with the brush settings: This constellation was created in a single brush stroke.

more impressive job of rendering stars than Photoshop. It comes with dozens of presets that render a variety of effects. What's more, each element in the effect can be edited or eliminated. You can even create new effects by combining different presets. While few of us see stars the way photographs record them, we all see the tiny flares and halos around stars slightly differently. All lenses are not created equally, even the lenses of our eyes. While there are comparisons to be made between the camera lens and the lenses of our eyes, the two are not the same. I've customized a filter to simulate what I see and what the camera eye does not see. You may want to do the same.

Photoshop's sophisticated brush features enable you to define a pattern

for a new brush (Edit: Define Brush) to create a star brush. Brushes are defined as black-and-white patterns. Black defines where the color you choose is placed. If you want to create a star brush, you have to create a black star. To do this, with a white background, simply invert a lens flare rendered on a Hard Light layer — the neutral color 50% gray will remain unchanged when you invert the effect. Next, make a selection. Be careful to exclude any simulations of lens artifacts if you do not wish to include them. Then define the brush (Edit: Define Brush). A new brush will be created and placed at the bottom of your list of brushes. You can then use the Brushes palette to customize the settings of the brush. For instance, you can randomize placement (Scattering) and size (Texture) to quickly create multiple stars, randomly placed, with a single stroke. You might also consider changing color (Color Dynamics) and opacity (Other Dynamics) at the same time. You can create entire constellations with a single stroke. And, of course, any brush can be enlarged or reduced. A combination of a few precisely placed stars (a brush without complex dynamics) amid a field of randomly placed stars (a brush with complex dynamics) may be just what you're looking for. Again, for flexibility's sake, render these effects on a separate transparent layer.

On the other hand, you may want to simulate the way the camera eye portrays stars. Typically, stars captured by the camera eye are seen as hard-edged points of light. These are easily rendered with a brush; a filter is not needed. The softness of the brush will control the degree of halo produced around each point. Photographically speaking, this halo is typically very small.

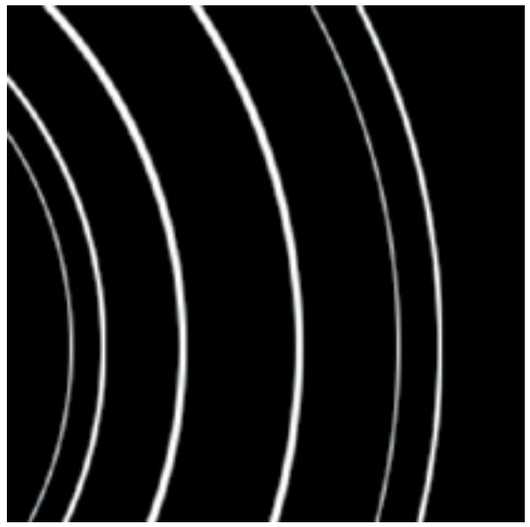
The halos, lines, and flares that we see in stars are largely a product of lenses (and to some degree, the atmospheric conditions we see them through). Our eyes have lenses that produce artifacts that are different than the ones that camera lenses produce. Now, you can choose between the two or even invent something completely new.

Arcs

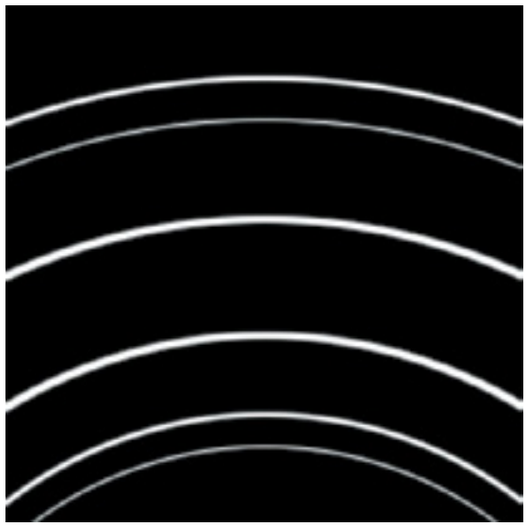
Photographically speaking, time has profound effects on the way stars are rendered. One of the difficulties in capturing stars photographically is setting exposure long enough to capture the dimmest stars but not so long that trails begin to appear. Things may look still, but in reality, everything is moving at fantastic rates. The earth, the solar system, the galaxy all move at greater and greater speeds. The velocities are stunning. Given this phenomenal rate of motion, it's a wonder we can perceive stars as stationary at all. The motion we see in long exposures is due to the rotation of the earth; we're

6. Simulation of the arcs created when looking north during time exposures in the northern hemisphere — circles form around Polaris, the North Star.

7. Simulation of the arcs created when looking east — up and to the right.



8. Simulation of the arcs created when looking west — down and to the right.



9. Simulation of the arcs created when looking south — approximately horizontal.

moving, not the stars. And, we're moving in a particular direction. The earth turns with its axis pointed almost directly at the North Star, Polaris. This star displays the least amount of motion, appearing to be stationary. All the stars around it appear to move in ever widening concentric circles with Polaris as their center. This has several interesting consequences. Given time, a constellation will transform from a set of points to a set of arcs. If a long enough exposure is made, full circles will be formed. Depending on how wide an angle of view you take, in the northern hemisphere if you face north, the stars will circle the north star; if you face east, the stars will arc up and to the right; if you face south, the stars will arc horizontally; if you face west, the stars will arc down and to the right. Atmospheric phenomena, such as passing clouds, may create interference with these lines, either dimming or breaking these lines for a time. Anything that gets between the lens and the light will create a dark obstruction. You may encounter other lines of light in the night sky, either continuous or broken at regular intervals. Satellites and airplanes also produce trails of light, usually straight lines, but an airplane's course may be irregular and wobble or suddenly veer off at a new trajectory. Typically, satellites produce continuous lines while airplanes produce regularly broken lines, often seen as a dotted line.

How then can we simulate these phenomena? Stroke a path. (You might think, "Why not use the Radial Blur filter?" While this will create the arcs you're looking for, the point of light will quickly diminish into gray smears. You can restore luminosity by increasing contrast, moving the white point only, once the effect has been merged to black. But, restoring hard edges proves difficult and end points need modification.) If you press the Option and Shift keys while using the Elliptical Marquee tool, you can create a perfect circle around a central point. This selection can then be turned into a path. If you choose Make Work Path in the Paths palette while the selection is active, you will likely find that the path generated charts a less-than-perfect course.

However, if you create a new layer and fill the selection, you will have an excellent template to create a circular path by hand. As always, try to use as few anchor points as possible for the smoothest result. Once saved, the new path can be duplicated and scaled at will. Simply duplicate the path, use the Direct Selection tool to activate all of the points in the path, and scale the path (Edit: Transform: Scale). Press the Option and Shift keys while enlarging or reducing the path to keep its center precisely registered with the others. Finally, stroke duplicate paths of varying circumferences with a variety of brush sizes on a new layer. This series of concentric circles can then be used in multiple images. Drag and drop this layer into any destination. Scale, position, and mask the arcs appropriately. You may want to render the arcs with relatively small brushes. These lines can be expanded or contracted using the filters Maximum and Minimum. Examine the result carefully, as these filters may make lines slightly uneven and typically shrink horizontal and vertical lines less than lines at other angles. For the crispest lines, you may want to render the effect at varying resolutions for files with very different resolutions.

The hard points of light, the stunning colors, the magnificent geometric arcs traced in the heavens are all products of photographic vision. More and more we use photography to extend our ability to see in shorter or longer spans of time and into dimensions we cannot see with the naked eye. The photographic artifacts we produce can be used to further our understanding of the external world or our ability to communicate our experience expressively. Momentarily, our point of reference becomes the viewer's. In these moments, all our horizons are widened.

Method I

Sketch

Create a new layer and trace or create (by filter or by hand) a desired pattern.

Stars Without Halos

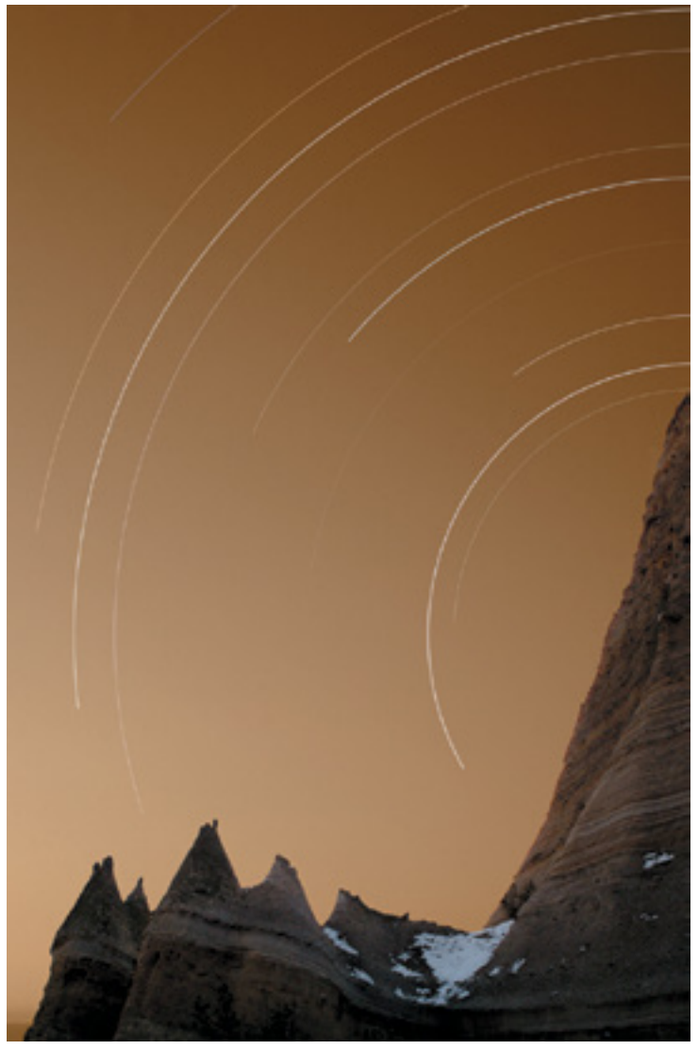
For photographic stars, use a hard-edged brush and place points of varying sizes on separate layers. Or use Photoshop's brush engine to randomize placement and size with a single stroke on a single layer.

Stars With Halos

1. Create a new layer, set its blending mode to Hard Light, and check Fill with Hard Light-neutral-color (50%) gray.

2. Render a lens flare on the new Hard Light layer (Filter: Render Lens Flare). (I prefer the 105mm prime or, better still, the lens flares found in Knoll's Light Factory) You can make a selection to contain and direct the lens flare. A smaller selection will render a smaller lens flare. The flare will be rendered in the center of your selection unless you move it in its preview window. You may want to hide the selection outline (Command H) to better see the results, as the selection outline can be visually distracting. Repeat this process for each star. Change filter settings as desired. For the utmost flexibility, you can render separate lens flares on separate layers. Eliminate surrounding pixels that are not visible to reduce file size. Once you've defined several differently sized stars, you can quickly duplicate any layer by dragging it to the Make New Layer icon in the Layers palette.

3. Selectively reduce the intensity of specific stars to create a less uniform luminosity between stars. If stars are on the same layer, add a layer mask and use varying shades of gray to reduce opacity selectively. If stars are on separate layers, reduce the individual layer's opacity or



10. The final result — Arcs 1.

place the stars in a layer set and mask the layer set to mask all the stars in it with a single layer mask.

4. If you wish to incorporate color in select stars in your image, create a new layer set to Color (Mode) and paint the color you desire on this separate layer.

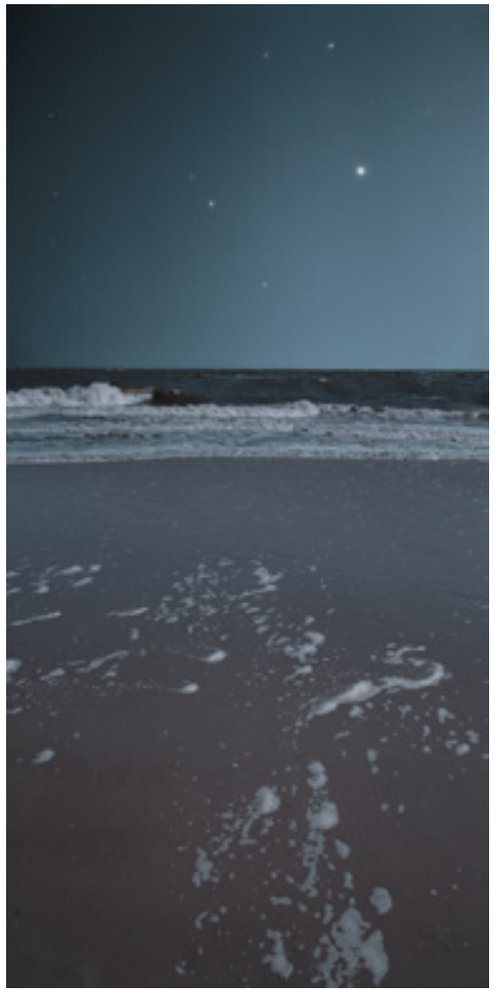
5. Optionally, create a brush from a lens flare. First render the lens flare on black, then invert the effect, select it, and define a brush (Edit: Define Brush). Finally, change the brush dynamics for placement and size in the Brushes palette.

Method II

Arcs

1. Using the Elliptical Marquee tool, hold the Option and Shift keys down to create a perfectly round selection.

11. Stars are placed randomly to balance a composition but not to draw attention to an obvious pattern.



12. Stars are placed to echo an existing pattern within the image — the foam on the beach.

2. On a new layer, fill the selection.

3. Use the Pen tool to create a path around the circle, with a minimum number of points.

4. Save the path.

5. On a new layer, stroke the path with a desired brush.

6. For another star trail, scale the path by first duplicating it, then highlighting all the points that define it, and finally using Edit:Transform: Scale. Hold the Shift and Option keys to maintain proportions and scale it from its center.

7. Once the effect is rendered, drag the layer into its final destination, rescale, and position appropriately.

8. Finally, add a layer mask and hide portions of the arcs as desired using a black Paintbrush.

13. Stars are placed to trace the contour of an object — a valve.

14. Stars are placed to trace the pattern from another image — an image of the beauty marks on my wife's body.

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