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# **TRADITIONAL PHOTOGRAPHY; THE SPOTTING MICROSCOPE**

**FROM THE [jbhphoto.com](http://jbhphoto.com) BLOG**

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**MUSINGS, OPINIONS, COMMENTARY,  
HOW-TO AND GENERAL DISCUSSION  
ABOUT TRADITIONAL WET DARKROOM  
PHOTOGRAPHY TAKEN FROM THE PAGES  
OF THE [jbhphoto.com](http://jbhphoto.com) BLOG.**

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# Table of Contents

<b>SPOTTING MICROSCOPE.....</b>	<b>1</b>
<b>MORE SPOTTING MICROSCOPE INFORMATION.....</b>	<b>2</b>
<b>SPOTTING MICROSCOPE UPGRADE.....</b>	<b>4</b>

# SPOTTING MICROSCOPE

This entry was posted on January 21, 2011.



If you are like me, you really hate having to spot prints. You especially do not like spotting negatives. I struggled for years trying to come up with a good way to spot prints. The problem is getting a good look at what you are working on, with enough detail to accurately guide that hair-fine spotting brush to just the right spot. I used a loop. . . tried magnifying glasses. . . used a magnifying viewer for some time, but nothing gave me a really good view of what I was working with.

Somewhere along the way someone suggested using a stereo microscope. What a stroke of genius! After doing some research it became clear that a high-quality inspection microscope, with magnification in the 8x to 10x range was perfect for spotting both prints and negatives. A good stereo microscope with zoom was exactly what is needed. The ideal setup would have a long boom stand so you can swing the head out over the work area, and for spotting prints you need an illuminator. I was able to find an entire microscope package including a zoom stereo head, eyepieces, long boom stand with heavy base, and illuminator on eBay.



The microscope head that I have has a zoom range of 0.70 to 3.00 x. Using a set of eyepieces that are 10x, I have a zoom range of 7.0 to 30.0 x. This is perfect! Most of the time 7x is fine, but if I have a really tiny pinhole I can zoom in even more. The microscope illuminator is necessary for working with prints, while you will need a light box for working on negatives. This is why you need a good, adjustable, boom with a heavy base.

It takes a little getting used to, but a stereo microscope is the Rolls Royce of spotting magnifiers. Well worth the expense. This type of microscope setup is used in manufacturing quality control to inspect small parts and comes up in the used market frequently. Searching out a good microscope will save you a lot of headaches and make that unpleasant chore of spotting a little more tolerable.

JB

# MORE SPOTTING MICROSCOPE INFORMATION

This entry was posted on February 26, 2013.



Since I had posted my original piece titled "[SPOTTING MICROSCOPE](#)" I have received numerous additional questions. Seems everyone is looking for an easier way to spot prints, and I will tell you one thing; there is nothing better for print spotting than a good stereo microscope! There just is no better way that I have found to see and eliminate those pesky spots we all have to deal with.

First a little information on what to look for. The microscope is a modular device and you can configure it to suit your needs. There are five main items you will need.

1. **POD:** this is the main body of the microscope
2. **EYE PIECES:** these are where you look into the unit and their design sets view and magnification (I use the Wide Field 10x)
3. **FOCUS MOUNT:** this holds the POD and allows you to move it up and down in order to focus the unit (like focusing a view camera)
4. **STAND:** the stand holds the entire microscope assembly
5. **ILLUMINATOR:** a concentrated light source you will need for spotting prints

Most of the questions I have received pertain to what microscope I use. I had to do a little research as to the exact model I have. What I use is not the latest model and is probably at least 30 years old. The good news is quality microscopes are well made and will last a lifetime if taken care of properly.

The unit I have is made by Bausch & Lomb and is the StereoZoom 4. Here is a brief description; *"One of the most popular stereo microscopes of all time is the Bausch & Lomb StereoZoom 4 (SZ4), later taken over by Leica and also marketed under the Cambridge Instruments name. It was introduced in 1959 and made until 2000."*

They must have made many thousands of these units in many configurations. They are plentiful on the used market. Another question I get is how much do they cost? That depends on condition and where you find the unit. We have had ours for some time now and it seems we paid about \$450.00 from a seller on eBay including shipping. A reconditioned and fully guaranteed unit from a specialty company will be more expensive. Keep in mind that the stand is very heavy and adds to shipping cost. My best recommendation is to purchase a unit with a good return policy if possible.

Here is a great site with instructions on how to service and adjust the StereoZoom 4:

<http://www.covingtoninnovations.com/stereozoom>

**I will add a few more comments that might be helpful. When it comes to the Illuminator there are numerous choices. The unit we use is an incandescent-type that uses lenses to focus the light into a concentrated beam that illuminates the print surface. It mounts in the Focus Mount and works very well. You can also use a Ring Light mounted to the bottom of the Pod. There are numerous illuminators and some even use LEDs. I am going to try a Ring Light that I have to see how well, and evenly, it lights the print surface. Another thing I have not tried so far.**

**Another thing to consider is the Stand. There are times I wish the arm of the stand was longer when working on larger prints. I have been seriously looking at an Articulating Boom mount that attaches to the wall. Wall mounting will free up work table area and the boom has a reach of about two feet. Just something else to consider.**

**Hope this helps to clear up some of the questions. As I said in my [PREVIOUS POST](#), “. . . a stereo microscope is the Rolls Royce of spotting magnifiers.”**

**JB**

# SPOTTING MICROSCOPE UPGRADE

This entry was posted on March 13, 2013.



I have been doing some upgrades to my spotting microscope and due to the interest this seems to have generated, here is more of the story of what I use for spotting prints and negatives and what I have learned.

## STAND

The boom stand that came with the original microscope was more than adequate when spotting smaller prints, but the large base sitting on the table top was always in the way when working with larger mounted prints. I was forever having to turn the print to get to the area that needed work. The large, heavy base was always the problem, even though the boom arm reaches out 16 inches. I toyed with several ideas that would have attached the boom I had to the wall, but it still would not have been long enough, nor have enough range to be very workable. What I wanted to do was to get the

stand off the table, and make the microscope more mobile.

I did some research and found that you can purchase an articulating boom for microscopes that can be clamped to a table edge or bolted to the wall. The articulating boom arm I found has a reach of 36 inches and will support loads up to twenty pounds. Certainly robust enough for my setup. I found the dimensions of the arm on the manufacturer's web site and made a quick mock-up from wood to see exactly how the boom would fit on my table. The wall mount version turned out to be exactly what I was looking for. We ordered one and had it in hand by the end of the week. It was a simple matter to locate the appropriate place to bolt the mount to the wall and the entire installation took less than an hour.

The articulating boom is certainly robust enough, it weighs nearly 20 pounds and is made of very heavy steel. This is exactly what I was looking for. It provides a stable support that allows the microscope to cover most of the work table. Positioning the unit is extremely easy now.

## ILLUMINATOR

One thing I really wanted was a more even illumination under the microscope. The Bausch & Lomb 31-35-28 Microscope Light Nicholas Illuminator that came with my setup is a simple miniature spotlight. It is certainly bright enough, but the light is very harsh and directional. The unit fits into an angled hole in the back of the Focus Mount and illuminates a small circle of light just below the work area of the microscope. I found that I had to remove the print from under the microscope, find the spot under another light, mark it with the end of my gloved finger, then return the print under the microscope to complete the spotting process.

I replaced the B&L Nicholas Illuminator with a 144 LED ring light. What a difference! The print surface is now evenly illuminated. I can see spots without moving the print by looking around the microscope, then move that area into view and start work on the area. This is much better for sure.

The LED ring light is dimmable and generates little to no heat. The lighting is extremely bright, even, and easy to work under.

The B&L SZ4 pod is threaded on the bottom to accept 38mm attachments. In order to mount the ring light you will need an appropriate mounting collar that fits the pod. The ring light I purchased came with a 48mm mounting ring, so I was off to the shop to spin out my own 38mm version. Found a hunk of aluminum and a couple of hours later I had my custom mount ready. Note: You can purchase a 38mm adapter if you prefer not to machine your own.

## EYE PIECES

The last thing I did was to upgrade the eye piece set. The original unit came with a pair of very old B&L 10x eye pieces that I really wanted to replace. I have to admit the originals work extremely well, but after replacing them with a new set of wide angle 10x units, the difference was well worth the expense. The newer ones have a larger size that makes it easier to use wearing glasses.

## AUXILIARY LENS

So, once I had everything setup one concern I had became reality. The ring light was in the way of my brush due to the very low proximity of the bottom of the microscope to the work surface once focused. I measured the distance from the lip of the ring light to the work surface and found it to be only three inches. But, there is a fix for that also. There are auxiliary lenses that screw into the bottom of the pod case that change the magnification ratio. I purchased a 0.50x lens which does three things. First; it acts as a mounting collar for the ring light (so much for my custom-made ring, oh well). Second; it reduces the magnification of the unit by one half. Third; and most important, it doubles the height of the unit above the work surface.

I now have plenty of room to work under the microscope without bumping it with my brush. Cutting the magnification by one half is not an issue, since I nearly always used the unit at its lowest magnification anyway. Cutting the magnification by one half now gives me a range of 3.5 to 15 x. The single most helpful thing about using a stereo microscope for spotting is not high magnification, but the ability to really see the area you are working on and precisely place the spotting dye on the spot and not the surrounding area.

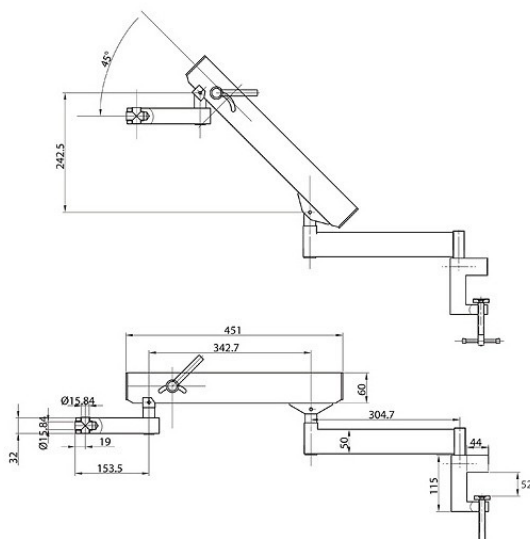
## FINAL THOUGHTS

For most users the tabletop boom stand will be more than adequate for working with prints up to 8×10 inches or even larger. If you have a deep enough work table, placing the base directly in front of you will allow you plenty of working room. My work table is not that deep, so I needed something different, hence the articulating arm and wall mount were my best choice. The tabletop boom stand weighs 34.5 pounds and is very stable. The bulk of the weight is the 0.50 inch thick steel base plate. You can see from the photo below that it supports the microscope at full extension without any danger of tipping over. I have used that setup for years on both prints and negatives.

My new setup is much more user friendly for my work space. The boom swings against the wall, out of the way when not in use and is easily swung out when needed. One more thing you need to do is cover your microscope when not in use. Dust is the worst enemy of all optics. I use a small plastic bag that fits around the microscope body and works well to keep nasty dust away.

I would like to thank [Christopher Burkett](#) for his help. He was the first photographer I saw using a microscope and was very helpful in answering my questions and helping me select a unit suitable for print and negative spotting.

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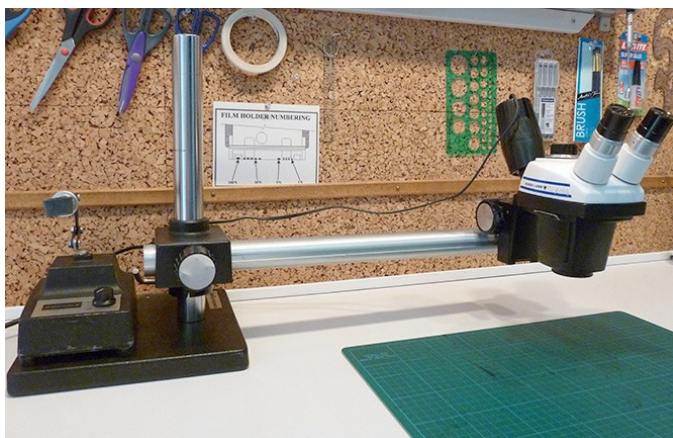
can highly recommend the B&L SZ4, since that is the unit use. There are many other stereo microscopes that are more than suitable for the photographer. The used market is full of units that have been taken out of service in laboratories or manufacturing. A search on the Internet should find more info on what to look for and what to avoid when purchasing a stereo microscope.

As always, a very good place to look for used microscopes and accessories is the old standby, eBay. There are several instrument sellers that deal in used equipment that have stores you can browse. Again, a Google search will turn up even more used and reconditioned equipment.

Keep in mind that what I have done is upgrade my original microscope that has been in service for over five years and has been very useable in its original configuration. You do not need anything but the basic unit as described in my two previous posts titled “[SPOTTING MICROSCOPE](#)” and “[MORE SPOTTING MICROSCOPE INFORMATION](#)” to get started.

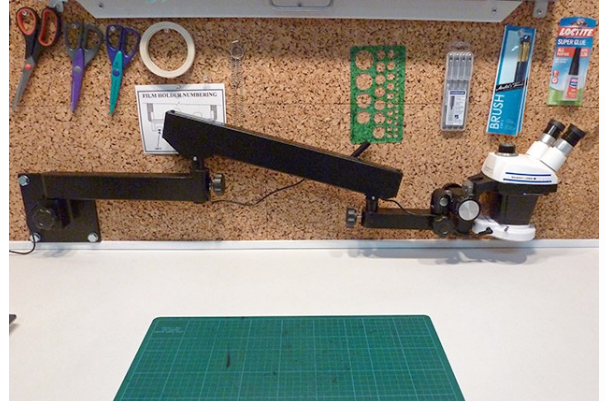
These are the refinements that I have found that make things easier and more convenient for the way I work. Be good to yourself and your eyes, let alone your art. I keep saying the same thing over and over, you can't go wrong using a stereo microscope for spotting prints and negatives! Any microscope is better than none, or struggling with another type of magnifier. Hopefully this information will help get you started.

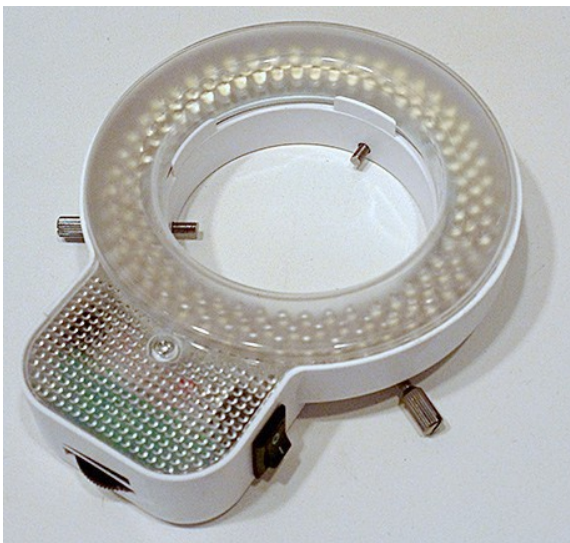
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THE SPOTTING MICROSCOPE  
From the jbhphoto.com BLOG





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Each volume of TRADITIONAL PHOTOGRAPHY is derived from years of past writing on the jbhphoto.com BLOG. These are short articles about advanced wet darkroom, film and view camera techniques. Each volume contains selected writings about a specific topic.

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