

# Macro Photography on a \$100 Budget

## An description of how to set yourself up

I'm interested in adding macro capability to my image taking in order to get close-up images of flowers and insects. To get a feel for the differences between macro lenses and extension tubes, I got some help from a couple of Nortel Photography Club (NPC) members. Norm and Chris came to my office over lunch and we played with various macro options. I decided that what I really want is a 100mm macro lens... but that and a flash will cost \$\$\$ and I'll need to wait a bit. During our Macro Lens Play we tried out Norm's reversed 50mm lens mounted on a 200mm telephoto rig shown at:

[http://normlyon.homeip.net/photos/gallery/Macro%20Photography/snowflakes/227-2746\\_img.htm](http://normlyon.homeip.net/photos/gallery/Macro%20Photography/snowflakes/227-2746_img.htm)

I figured I could do the same thing with my Canon EF 70-300 f4-5.6 IS lens, and rig up some cheap lighting for tabletop macro photography. Making the reversing mount for the 50mm lens is very simple. Look at Norm's instructions at:

<http://normlyon.homeip.net/photos/gallery/Macro%20Photography/>

Canon%20A60%20Extreme%20Macro%20Photography This book describes my cheap and cheerful tabletop macro setup. Dive in!

This book has been automatically generated using a template I wrote for Breezebrowser to generate a photobook XML file which is then converted to XSL-FO using an XSLT stylesheet. The Apache fop converter is used to convert the FO file to PDF. (Its actually easier than it sounds!)

**This book was created on: Monday, April 10, 2006**

**This book is available on-line at <http://www.bashd.ca>**

## The Macro Lens

*Bill Bourne*



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*Sunday, April 02, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon PowerShot S45*  
*1/60 sec @ f3.2, ISO 50*

I bought a used Canon FD 50mm f1.8 lens for \$30 and a pair of Cokin filter adaptors for \$10 each to make the coupling ring. (The coupler is made by gluing the two adaptors together by their faceplates) Total cost about \$55 with tax. This picture shows my macro rig set up to photograph the tiny diamond in my wedding ring. The actual image is coming up later.

## The Macro Rig

*Bill Bourne*



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*Sunday, April 02, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon PowerShot S45*  
*1/80 sec @ f3.2, ISO 50*

For lighting, I bought two clip-on desk lamps for \$15 each each, filled them with 100W equivalent compact fluorescent natural daylight bulbs for \$6 each. Both were bought at Home Depot. The bulbs have a color temperature of 5,200K (I think). I set my camera's white balance setting to auto, and the color looked fairly close to natural daylight

## The Macro Rig

*Bill Bourne*



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*Sunday, April 02, 2006  
32 Bell St., Stittsville, Ontario, Canada*

*Canon PowerShot S45  
1/80 sec @ f2.8, ISO 50*

I used a removable bench vise to hold my subjects, my regular tripod, and a remote shutter release. The shutter release is also handmade. Its resting on the camera strap near the top of the tripod.  
Summary: to my existing Canon Digital Rebel XT and Canon EF 70-300mm IS zoom, I mounted a reversed Canon FD 50mm f1.8 lens [\$55] and added a pair of CFL lights [\$49]. Lets see how it works!

## Penny at 70mm zoom

*Bill Bourne*



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*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

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*Canon EOS DIGITAL REBEL XT*  
*1/4 sec @ f32, ISO 100*

With my Canon 70-300 IS Zoom set to 70mm, we get terrible vignetting. YUK! Magnification here is about 1.4 (plus the 1.6 crop factor of my Canon Digital Rebel XT).

## Penny at 100mm zoom

*Bill Bourne*



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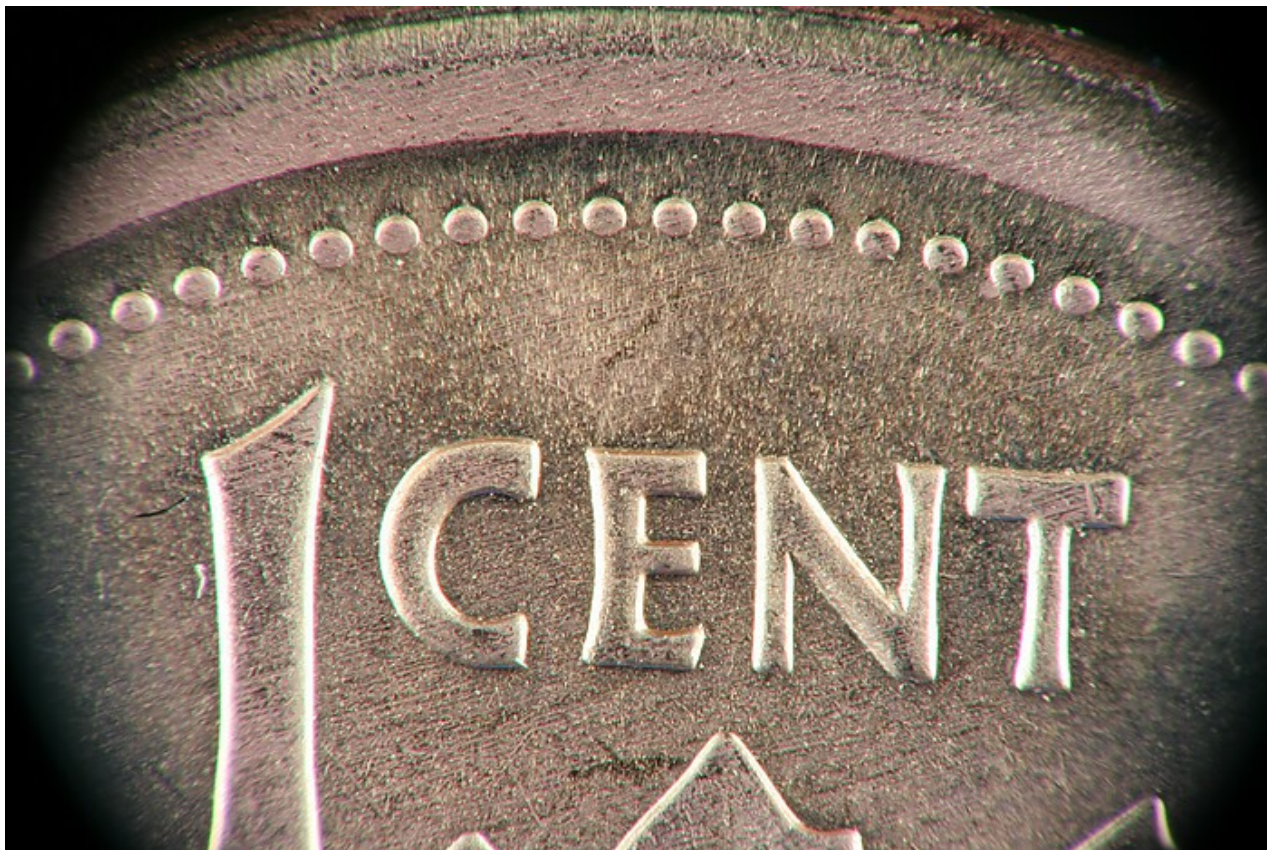
*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*1/8 sec @ f32, ISO 100*

At 100mm zoom the magification is about 2, and the vignetting is still awful.

## Penny at 135mm zoom

*Bill Bourne*



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*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*1/5 sec @ f40, ISO 100*

At 135mm zoom the magification is about 2.7 and the vignetting is starting to pull back a little.

## Penny at 200mm Zoom

*Bill Bourne*



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*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*0.5 sec @ f40, ISO 100*

OK... still a little vignetting, but usable. The magnification is now at about 4. Focusing is very tricky. The slightest movement of the lens or tripod will throw the image out of focus. You have to use mirror lock-up and a remote shutter release. Simply touching the shutter on the camera can move the rig enough to put the image permanently out of focus.

## Penny at 300mm Zoom

*Bill Bourne*



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*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*0.8 sec @ f45, ISO 100*

About 6 time magnification. Making a step on the floor within a couple of feet of the camera causes significant movement of the image. The manual focus on the Canon zoom lens has enough play that it seems downright sloppy when trying to focus. It can take 5 minutes of playing around to get an image in focus. Depth of field is a fraction of a mm. (Gee, do I focus on the raised "1 Cent" image or on the background of the penny... )

## A Tiny Diamond

*Bill Bourne*



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*Sunday, April 02, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*1/8 sec @ f45, ISO 200*

This is the tiny diamond set into my wedding band. The diameter of the diamond is about 2mm. To get some semblance of depth of field I shoot everything at the smallest f-stop possible. The 50mm lens is kept fixed at f1.8 and a focus of infinity. I do a gross focus by fiddling with the tripod, and then a fine focus with the manual focus on the EF 70-300 Zoom lens.

## 40 Grit Sandpaper

*Bill Bourne*



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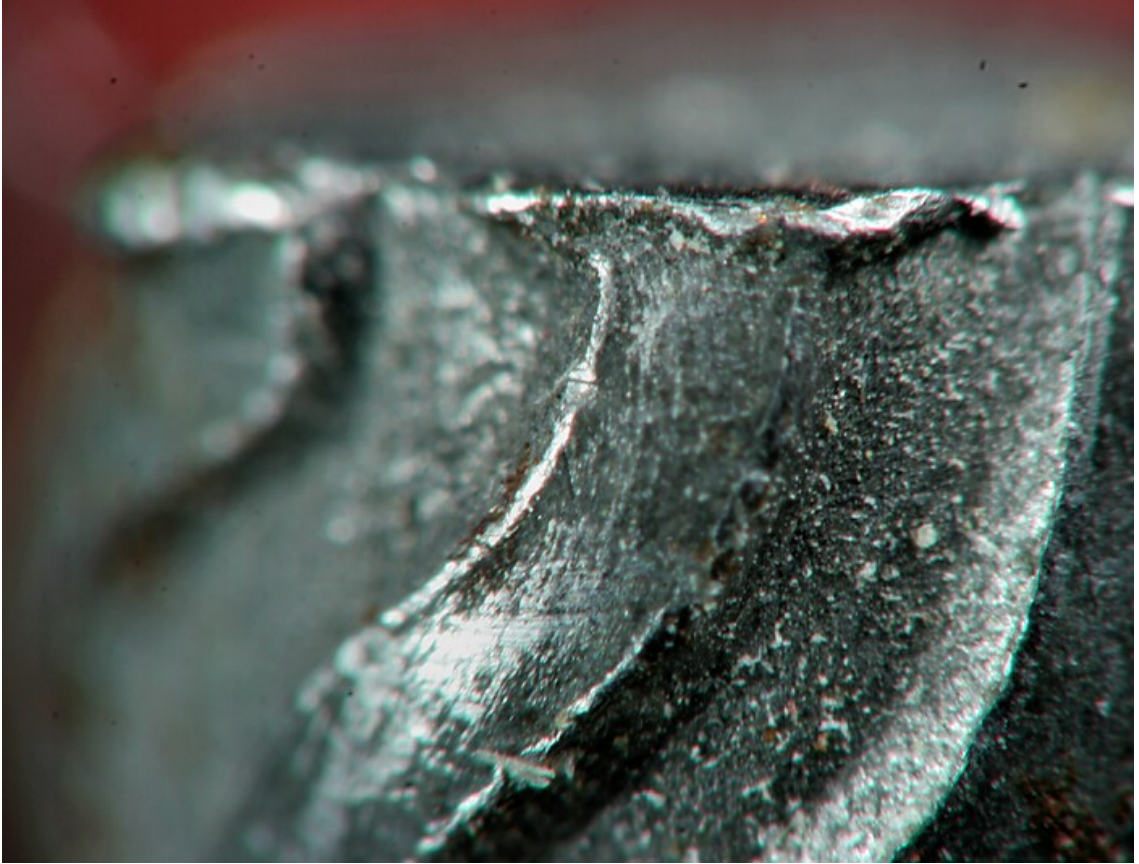
*Saturday, April 01, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*0.6 sec @ f45, ISO 100*

Yup... 40 grit sandpaper. Its really important to get the plane of the lens exactly parallel to the plane of the object you are trying to photograph. The depth of field is so small any variation will show up as an out-of-focus area.

## Spiral Finishing Nail

*Bill Bourne*



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*Saturday, April 01, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*0.6 sec @ f45, ISO 100*

I kinda liked the abstract quality of this image. Its the head of a small spiral finishing nail. This shows up the tiny depth of field, even at f45.

## Box Elder Beetle

*Bill Bourne*



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*Saturday, April 08, 2006*  
32 Bell St., Stittsville, Ontario, Canada

*Canon EOS DIGITAL REBEL XT*  
0.6 sec @ f40, ISO 100

I had to try an image of a bug. I found this unfortunate one outside my house, and it was sacrificed for the cause. It was killed in a bottle with alcohol fumes and mounted on a pin. The camera lens is not in the best position to get a reasonable depth of field though.

## Box Elder Beetle

*Bill Bourne*



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*Saturday, April 08, 2006*  
*32 Bell St., Stittsville, Ontario, Canada*

*Canon EOS DIGITAL REBEL XT*  
*1.3 sec @ f40, ISO 100*

OK.. this is a bit better, I think. I repositioned the lens above the head in order to get it in a better plane for more depth of field. Personally, this is my favorite image of all the macro shots I've taken so far. OK... off to find more tiny objects to explore!

