

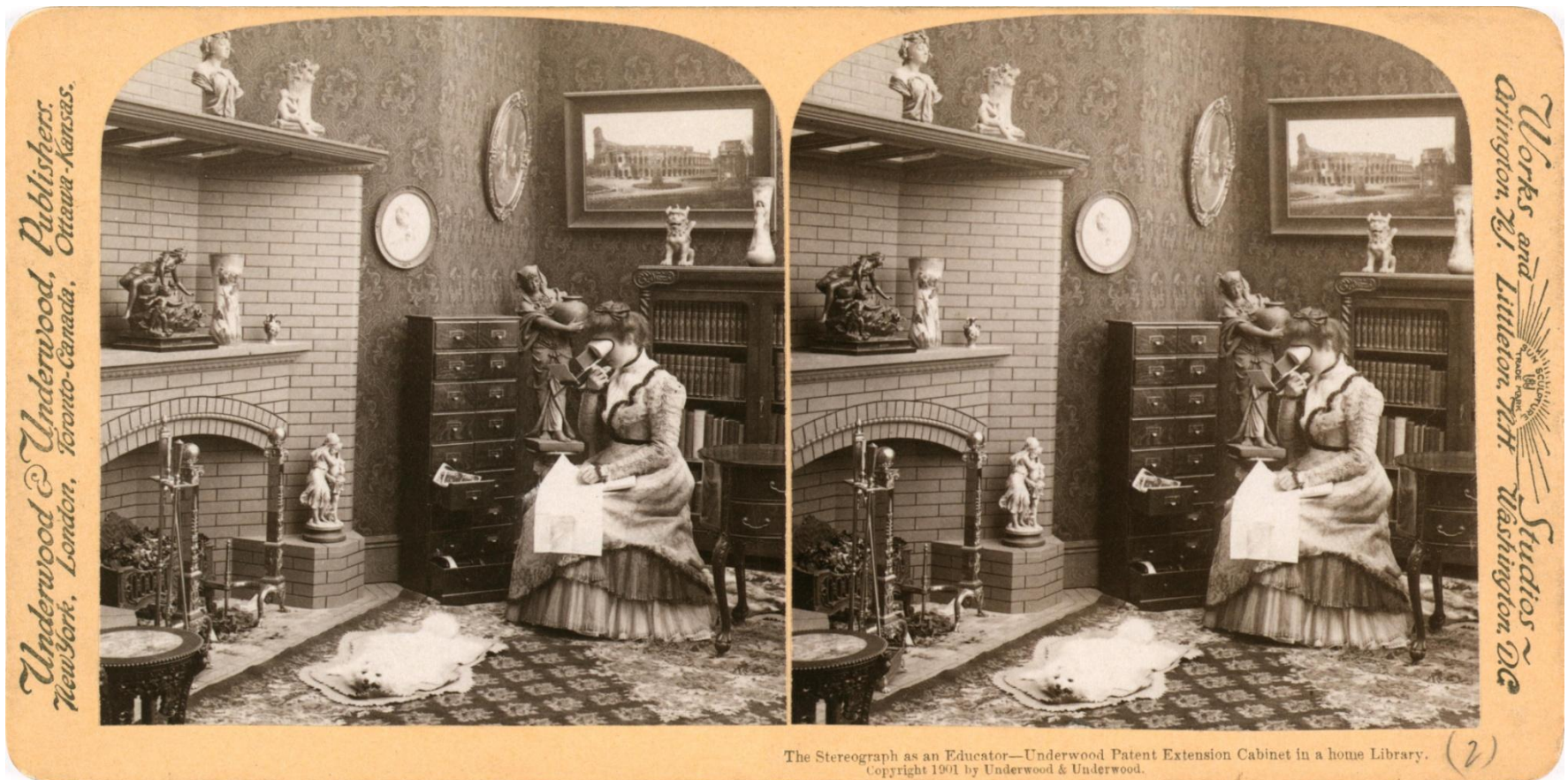
# Stereo Images

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*Based on work by J. Ben Schafer*

# What is this?



# Old-fashioned “stereograph”

- Two images from *slightly* different perspectives
- If you can get one eye to see one photo and the other eye to see the other photo then you can create a 3D effect

# Left Eye





# Right Eye



# Viewmaster



# But how would a computer scientist do this with our tools from Myro?

- Answer:
  - **Anaglyphs!**
  - Make one photo that can be seen as two
    - One eye sees one image
    - One eye sees the other
  - But you need those funny glasses!

# But how would a computer scientist do this with our tools from Myro?

- Answer:
  - **Anaglyphs!**
  - Make one photo that can be seen as two
    - One eye sees the **red channel** (normally the left)
    - One eye sees the **cyan channels** (blue/green) (normally the right eye)
  - But you need those funny glasses!





# Sidebar: Why is red on left?

The 2 color light system on a plane or boat allows you to immediately know your position relative to the path of the plane or boat, depending on what combination of lights you see. The **green light is on the right** (starboard) and the **red on the left** (port).

So if you see a green light on the left and a red light on the right, the plane or boat is heading directly toward you!



# What would the algorithm look like?

- Get a **left** and **right** picture
- Make a **new picture** that is the same size as left and right
- For every pixel in the new picture:
  - Get the red part from the left picture
  - Get the green and blue from the right

# So what would the code look like?

```
def anaglyph(left, right):  
    output = makePicture(getWidth(left), getHeight(left))  
    for x in range(1, getWidth(left)):  
        for y in range(1, getHeight(left)):  
            target = getPixel(output, x, y)  
            left_pix = getPixel(left, x, y)  
            right_pix = getPixel(right, x, y)  
            setRed(target, getRed(left_pix))  
            setGreen(target, getGreen(right_pix))  
            setBlue(target, getBlue(right_pix))  
    return output
```

# Sources for images

- Several Websites
  - <http://www.studio3d.com/pages/anaglyph.html>
  - <http://www.studio3d.com/pages/stereophoto.html>
- Take them yourself
  - Take two photos with one slightly to the right of the other
  - Gee, where could we get two cameras?