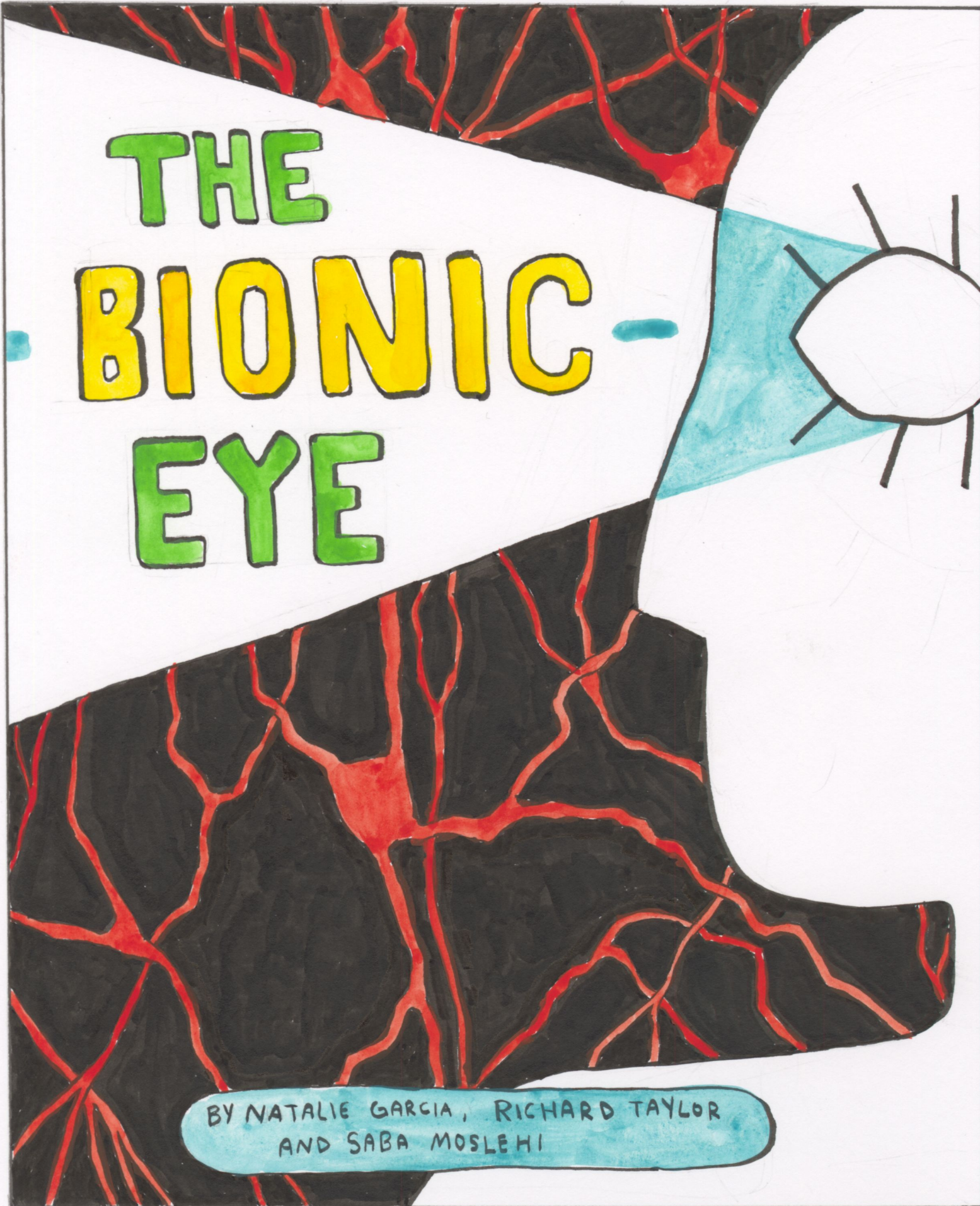
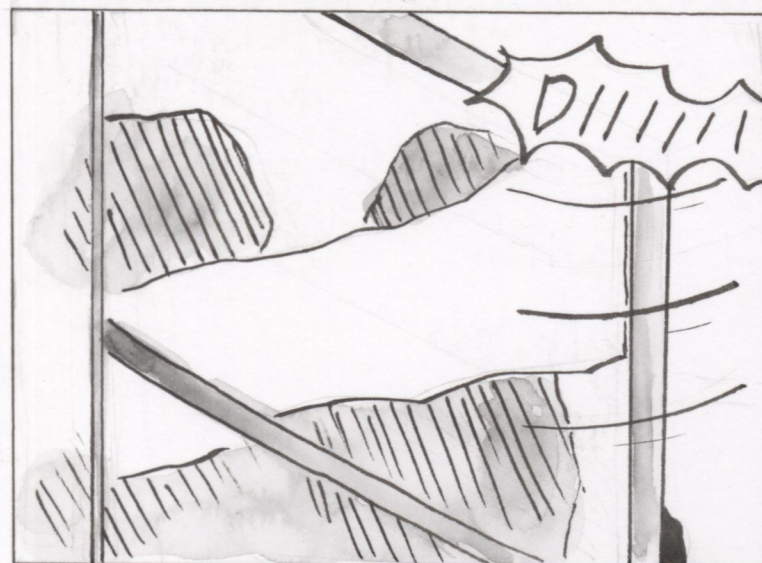
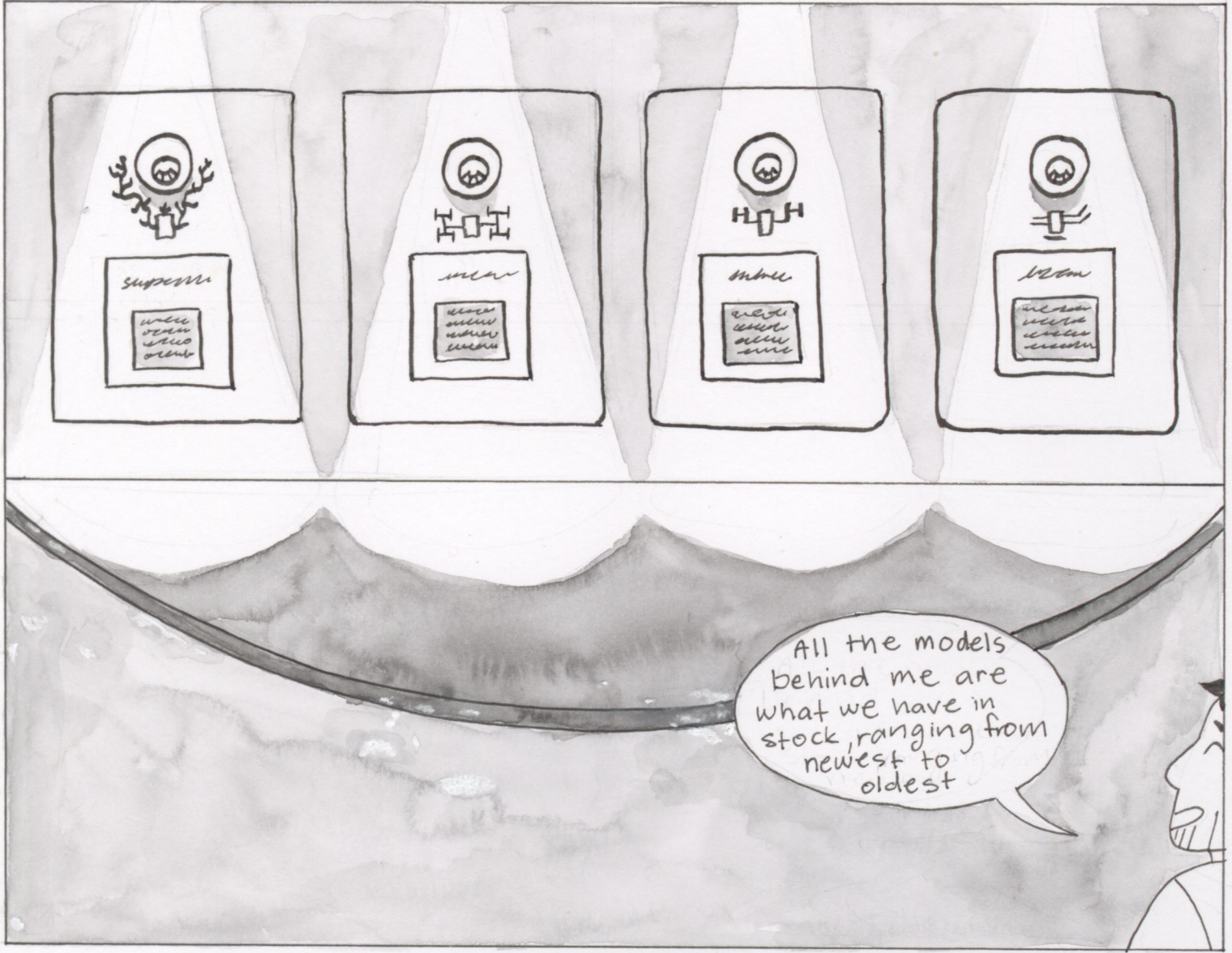


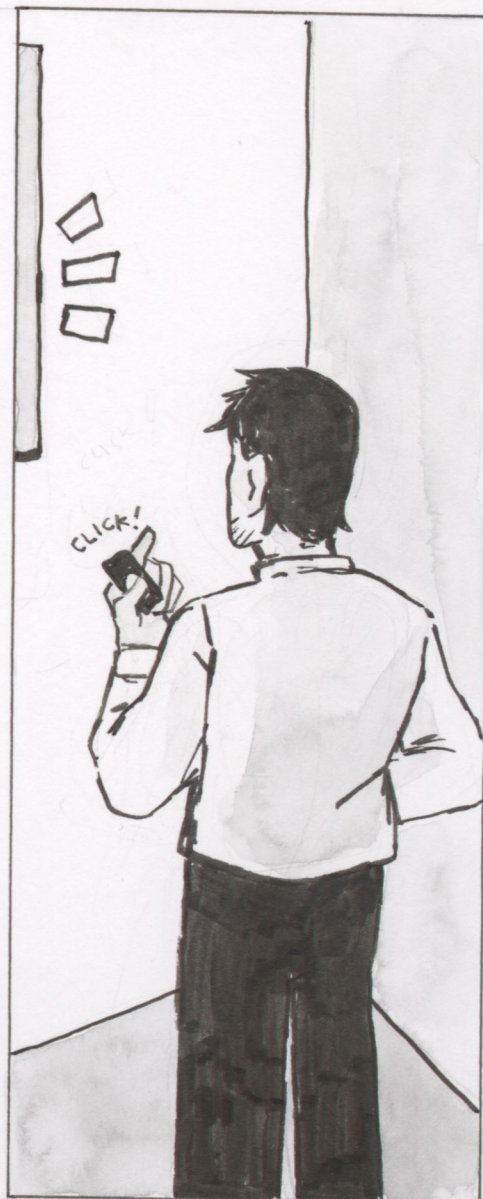


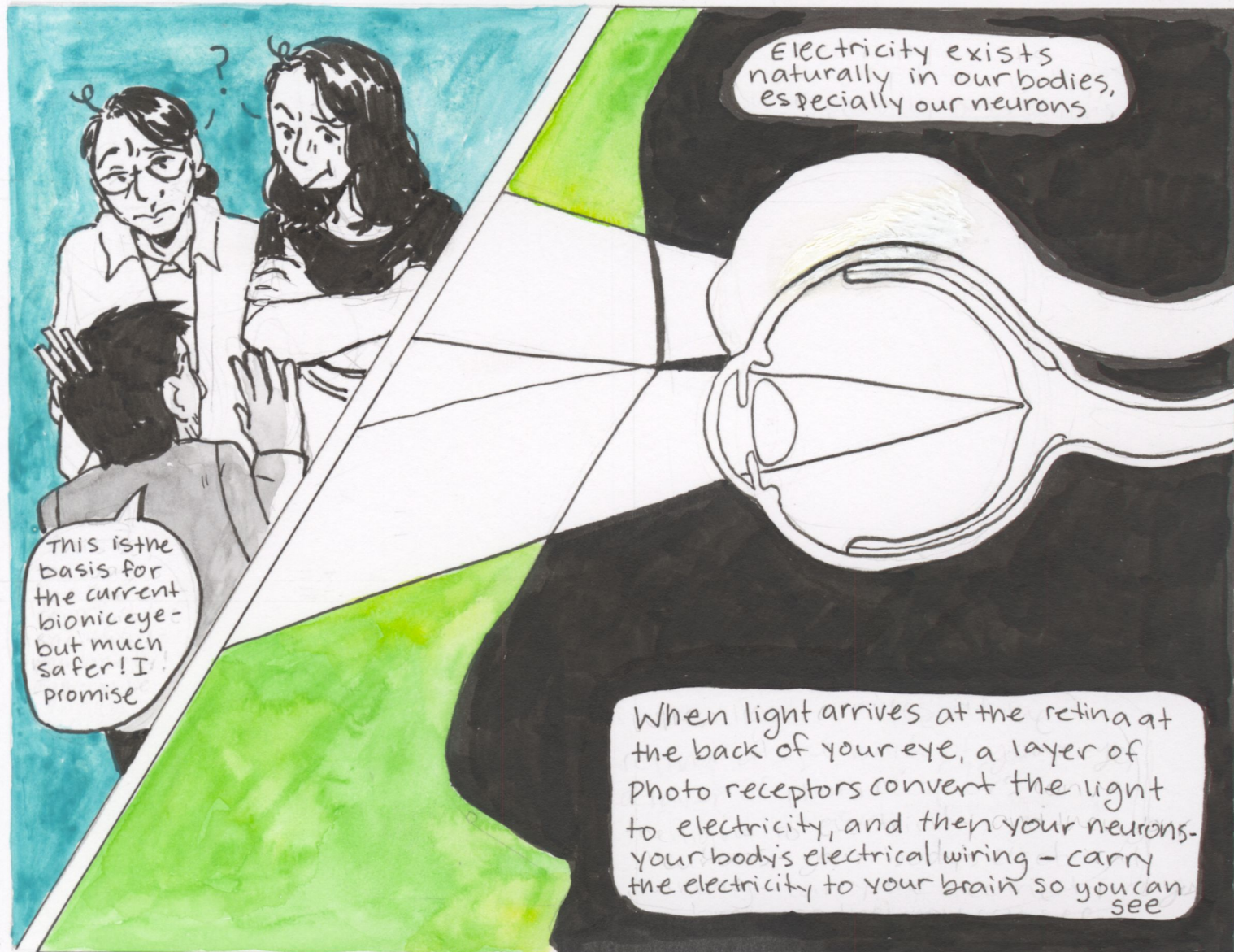
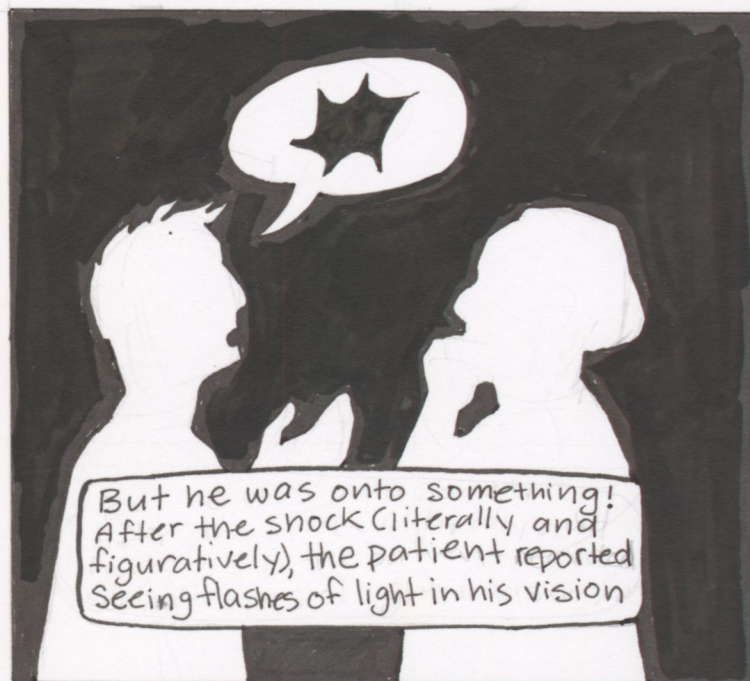
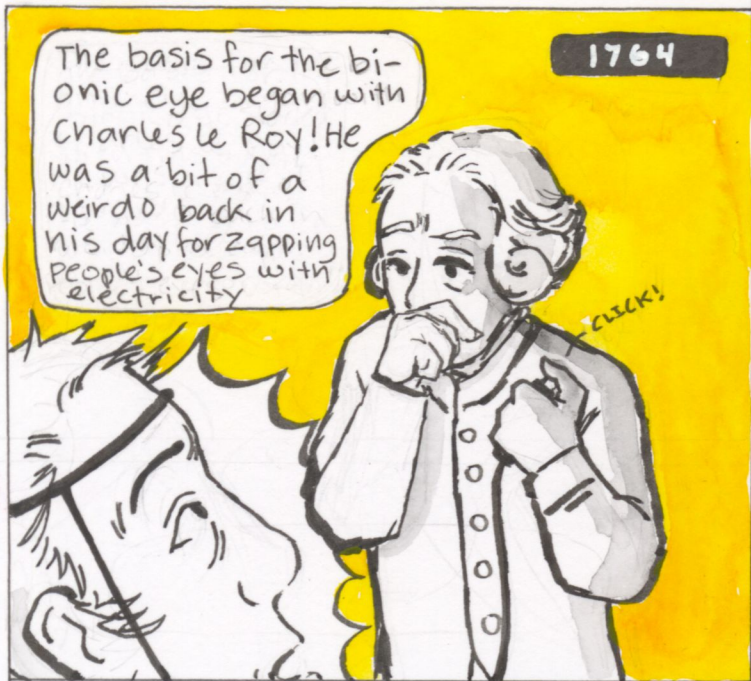
THE BIONIC- EYE

BY NATALIE GARCIA, RICHARD TAYLOR
AND SABA MOSLEHI





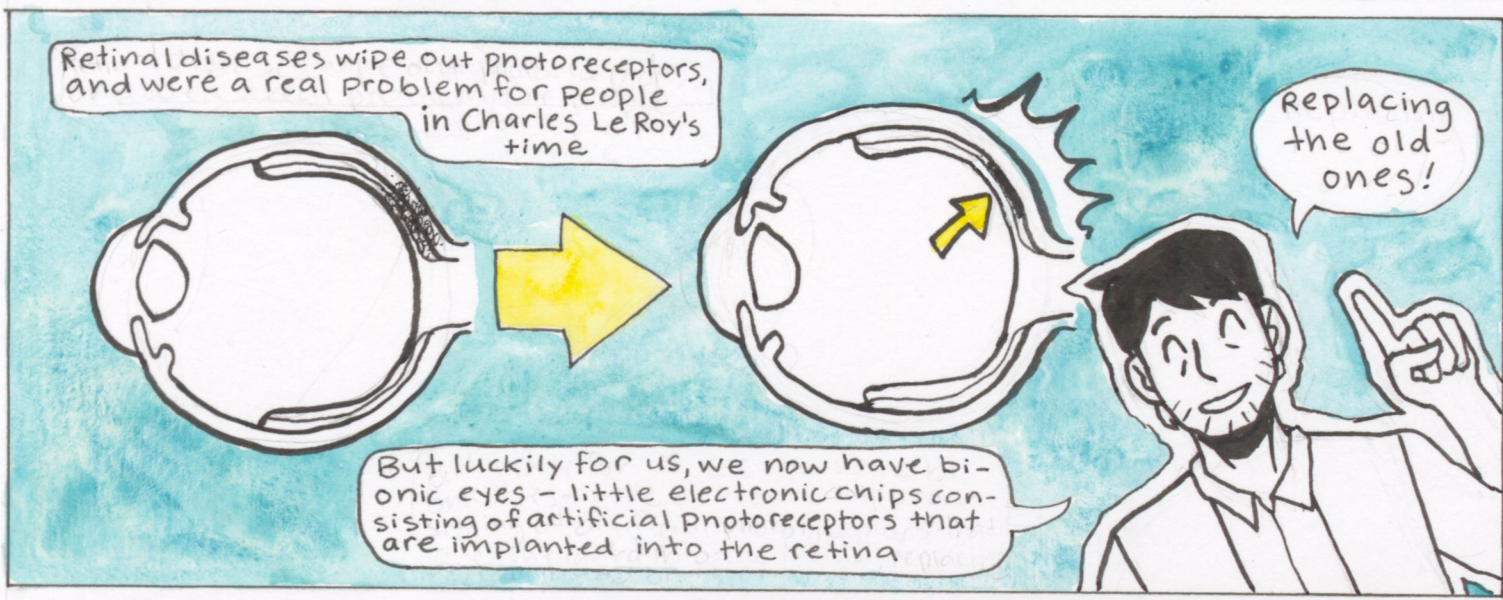




Retinal diseases wipe out photoreceptors, and were a real problem for people in Charles Le Roy's time

Replacing the old ones!

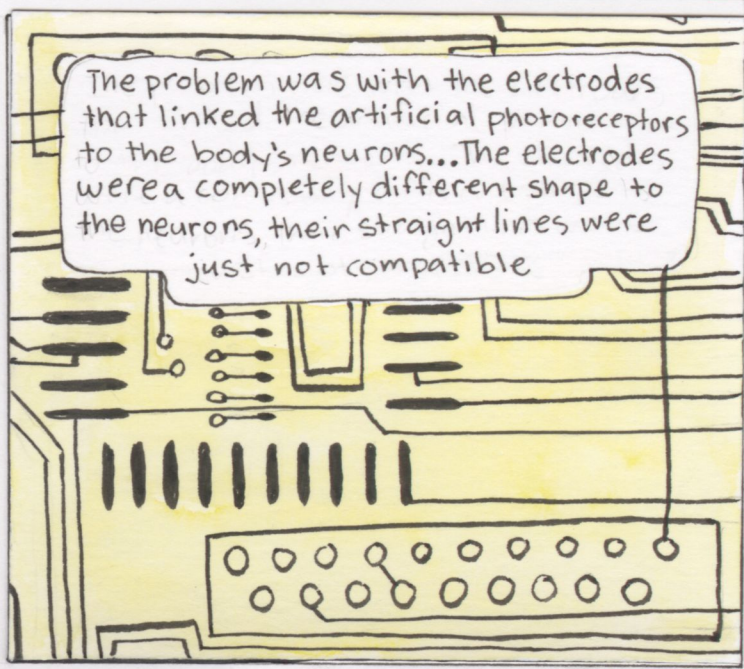
But luckily for us, we now have bionic eyes - little electronic chips consisting of artificial photoreceptors that are implanted into the retina



Around 15 years ago, researchers at the University of Oregon began looking into bio-inspired implants to elevate the standard implants of the time



The problem was with the electrodes that linked the artificial photoreceptors to the body's neurons...The electrodes were a completely different shape to the neurons, their straight lines were just not compatible



Fractals are key to the development of the bionic eye. They're just about everywhere in nature.

As with trees, the branches of neurons are great examples. If you look at the big branches and compare them to the small branches, their patterns look just alike.

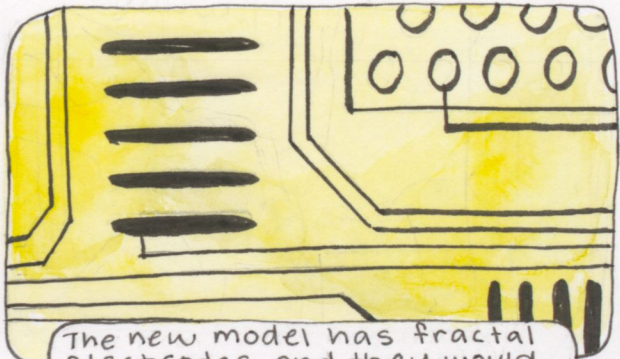


Now
lets see
those
neurons!

Here are your neurons -
beautiful fractals!



And - wow! This is a really old
model you have! The straight
lines are so different from the
fractal neurons



The new model has fractal
electrodes, and they would
really help out with your vision

That sounds
great... But
what will I
gain from the
new fractal
model?

I mean, how
will it help my
blindspot and
my vision?

Haha,
great point!

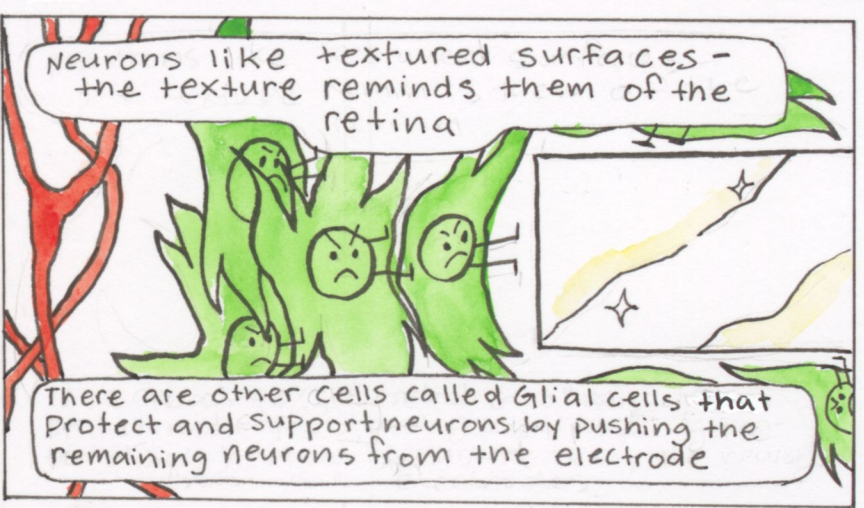
Lets see
some of the
details of the
fractal model





A big issue with the previous models is that most of the neurons wouldn't attach

The neurons have to attach to the electrodes so they can pass electricity to the neurons. And, less than 20% of neurons adhere to smooth surfaces

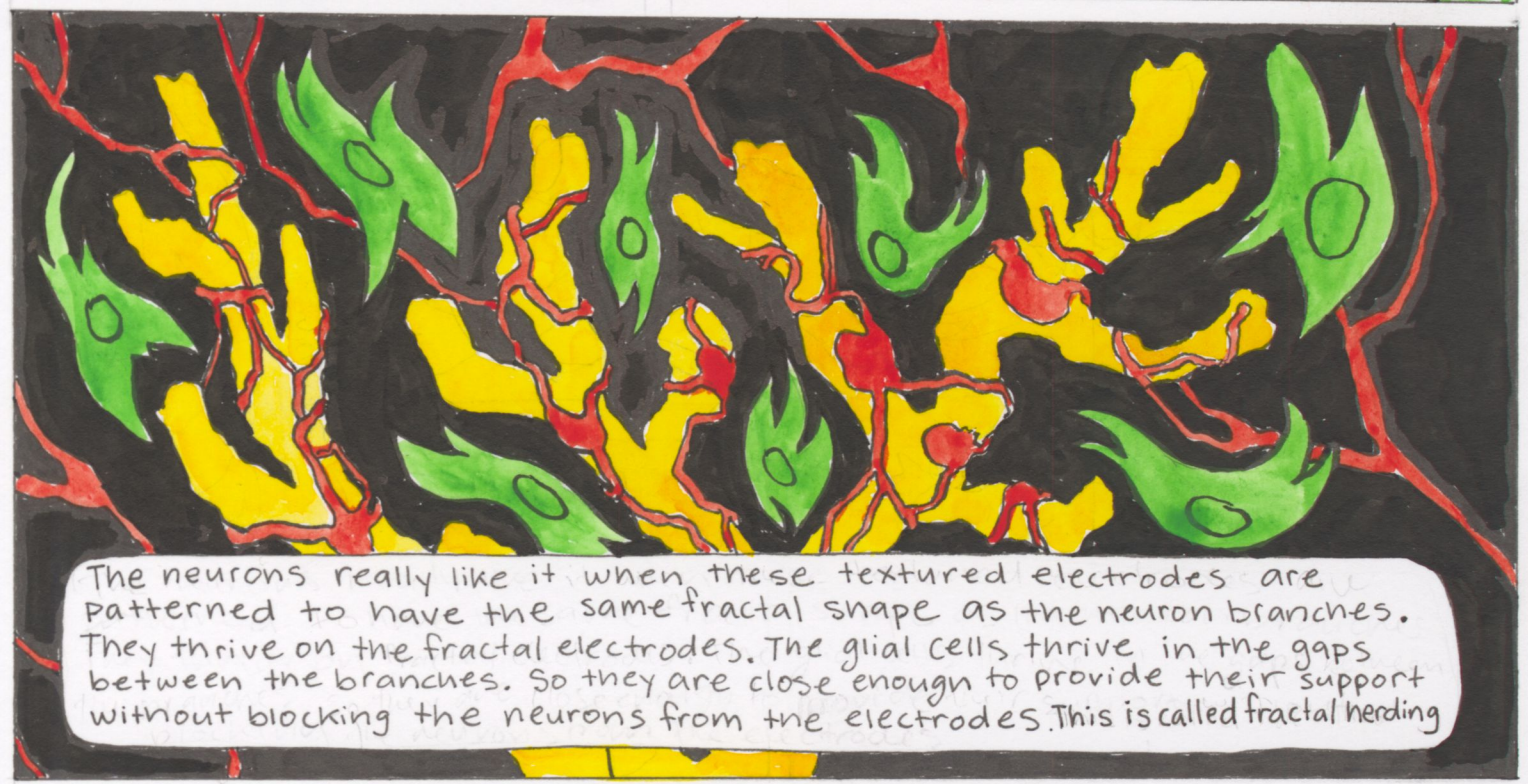


Neurons like textured surfaces - the texture reminds them of the retina

There are other cells called Glial cells that protect and support neurons by pushing the remaining neurons from the electrode



The electrodes of the new model have a surface texture that matches the texture the neurons find in the retina



The neurons really like it when these textured electrodes are patterned to have the same fractal shape as the neuron branches. They thrive on the fractal electrodes. The glial cells thrive in the gaps between the branches. So they are close enough to provide their support without blocking the neurons from the electrodes. This is called fractal herding

8

That's where our new model, The Super Herder, comes in

Our older models don't have as high of an acuity compared to our newest because they don't herd as well as the fractal design

And some are only available in greyscale

In a way, the fractal electrode convinces the neuron that it is interacting with another neuron!

So, would you like to purchase The Super Herder?

And, if purchased with with insurance, we'll give you a 20% discount at the Bionic ear shop down the street!

Or if you wait, next year's model will beam the internet into your eye!

FRANK
MARY SHELLEY

Ha! Now, all of this seems too monstrous for me