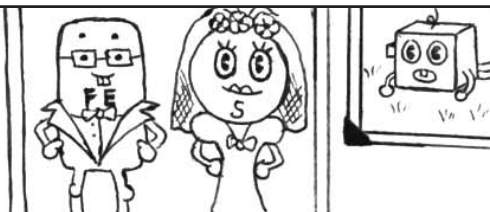


Well after the civil war farmers were scraping by.



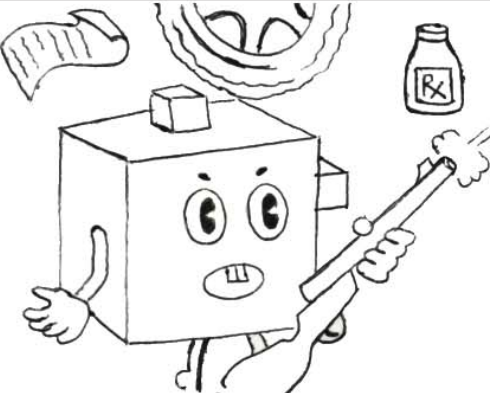
Fed their families, but not much more.

With industry growing, and the pyrite discovery here on Quantico Creek, things changed fast.



Pyrite is sulfur and iron. Mining pyrite to extract sulfur allowed people to make a living.

Sulfur?
That rotten egg smell?
What good is sulfur?

Why, without sulfur paper, tires, gunpowder, and some medicines couldn't be made. Back then, pyrite was the cheapest way to get sulfur.

But it was by no means the easiest. Mining pyrite was dark, dank and dangerous. Miners had to blast it out.



I love this job.

blah!

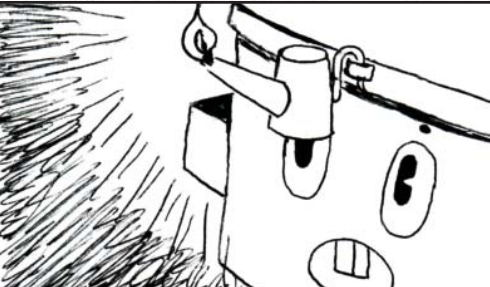
Men and teenage boys spent 10 hours underground, 6 days a week. They came to work in the dark, ate lunch in the dark, went home in the dark.

It couldn't have been that dark.

There were light bulbs, right?

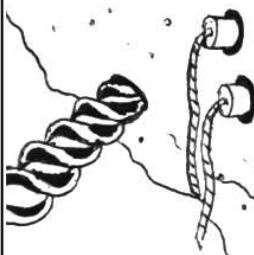





In the early days miners had a small oil lamps.




Which didn't hold a candle to the sun in the sky.

Everyone was assigned a crew...

<p>Drillers</p>  <p>Bored holes for dynamite.</p>	<p>Powdermen</p>  <p>Carried and set the dynamite.</p>	<p>Muckers</p>  <p>Loader ore into wagons.</p>	<p>Timbermen</p>  <p>Built wooden supports.</p>
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Blaster supervised the process and were paid by the distance they progressed.




Three shifts a day, for \$4 a day. Just shy of \$7.50 in today's money. And men always knew a cave-in, gas leak, or explosion could kill you quick.



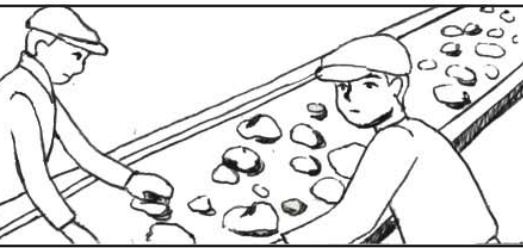
If it was so dangerous, why would people do it?

This was the only place to work. Everyone - Italians, Irish, freed slaves all worked here.



And the Cabin Branch Mining Co. had ways of keeping them here. Namely, debt bondage. Miners were paid mostly script-money only good at stores owned by the mine. The mine also owned the houses so they collected rent.

As for the miner's children...

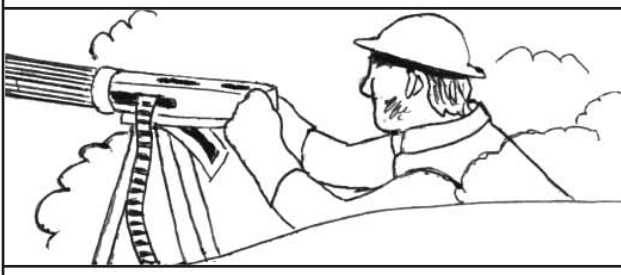


They went to school over in Batesville, a town of mostly freed slaves, and Hickory Ridge. But this was a poor mining community. School didn't pay so even kids sorted ore for 50¢ a day.




50¢? I would strike.

Eventually, they did. America entered World War I in 1917. Cabin Branch produced 1/3 of this country's pyrite used mostly for gunpowder. After the war, the price dropped.



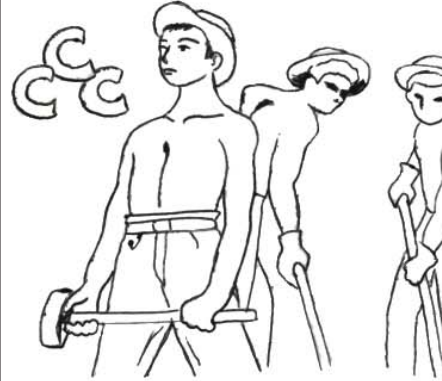
The miners went on strike for a 50¢ raise.

The mine decided that, since pyrite was becoming less valuable, they would shut the mine down instead of giving the miners a raise.




The mine superintendent is reputed to have said: I'll let the shafts fill with water and frogs jump in before I reopen the mine.

Things here were quiet 'till after the Great Depression of '29. FDR formed the Civilian Conservation Corps to give people jobs.




Men built roads, buildings in parks and made other improvements on public lands.

This was Chopawamsic Recreation Demonstration Area. Area farmers were paid for their land and were able to move to less depressed areas.



Over 2,000 men with the CCC were paid to build cabin camps, roads, lakes and dams. In the end it was summer camps for under-privileged city kids.

Things here for the kids were good. But the land and creek near the site of the mine were dying.



The mine left behind piles of tailings - waste from the refining process.

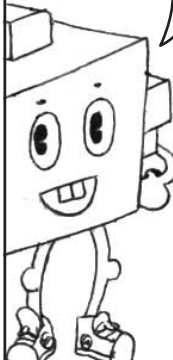

Remember I said that pyrite is rich in sulfur? Well, when pyrite is exposed to air and water, it starts to change.

First the sulfur oxidizes:
 $2 \text{FeS}_2 + 7\text{O}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{Fe}^{2+} + 4\text{SO}_4^{2-} + 4\text{H}^+$
 (pyrite) (air) (water) (iron) (sulfate)

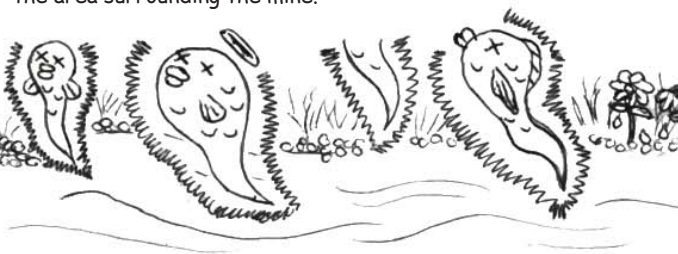
Then the iron oxidizes to ferric iron:
 $4\text{Fe}^{2+} + \text{O}_2 + 4\text{H}^+ \rightarrow 4\text{Fe}^{3+} + 2\text{H}_2\text{O}$
 (iron) (air) (ferric iron) (water)

Then, rain reacts with ferric iron to make ferric hydroxide:
 $\text{Fe}^{3+} + 3\text{H}_2\text{O} \rightarrow \text{Fe}(\text{OH})_3 + 3\text{H}^+$
 (iron) (water) (ferric hydroxide)

Finally, it turns to sulfuric acid.

Sulfuric acid lowered stream pH levels to that of vinegar. What's worse, some seeped into the water table underground and polluted the area surrounding the mine.



Runoff of iron hydroxide blocked out sunlight and covered the streambed with a nasty, thick, red blanket.

Back then folks just didn't know about water pollution.

The Clean Water Act of 1977. They started testing the South Fork of Quantico Creek and discovered that it was full of copper, iron, sulfate and zinc all from the pyrite.

The water looks OK to me. What changed?

