LOOKING FOR PRECIOUS METALS WITH THE VREELAND. September 2011

For thousands of years prospectors have been searching for silver and gold and when not easily finding these illusive metals the rocks are thrown away. Now, instead of casting aside suspicious rocks I examine them with the Vreeland Spectroscope to discover what possible treasures lay hidden within them.

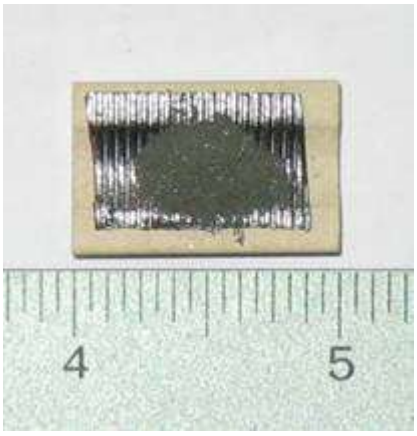
I know of no instrument that is as user friendly as is the Vreeland Spectroscope. It allows me to quickly determine what elements are present, without the stress of waiting on expensive laboratory analysis. Thus, exciting new mineral horizons have opened-up.

Example—recently, I was asked if there was any gold or silver in the rock shown below. After doing a fast check and seeing the normally rare gold spectrum line light up I decided to go a few extra steps and include supporting evidence for the person who sent this sample.

Visually this rock appears to be quartz mixed with pyrites, a powdery black mineral, with a sprinkling of copper oxides.

This small representative specimen was broken off the above fist-sized specimen and will be crushed to a powder.

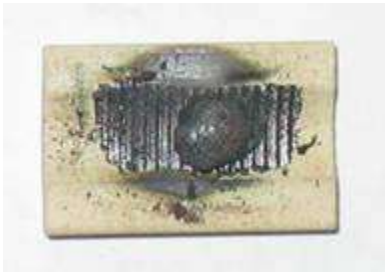
8x – A magnified view of the previous image.
This rock fragment has been pulverized with a pre-cleaned Ceramic Mortar & Pestle and then loaded onto the crucible shown in next image.



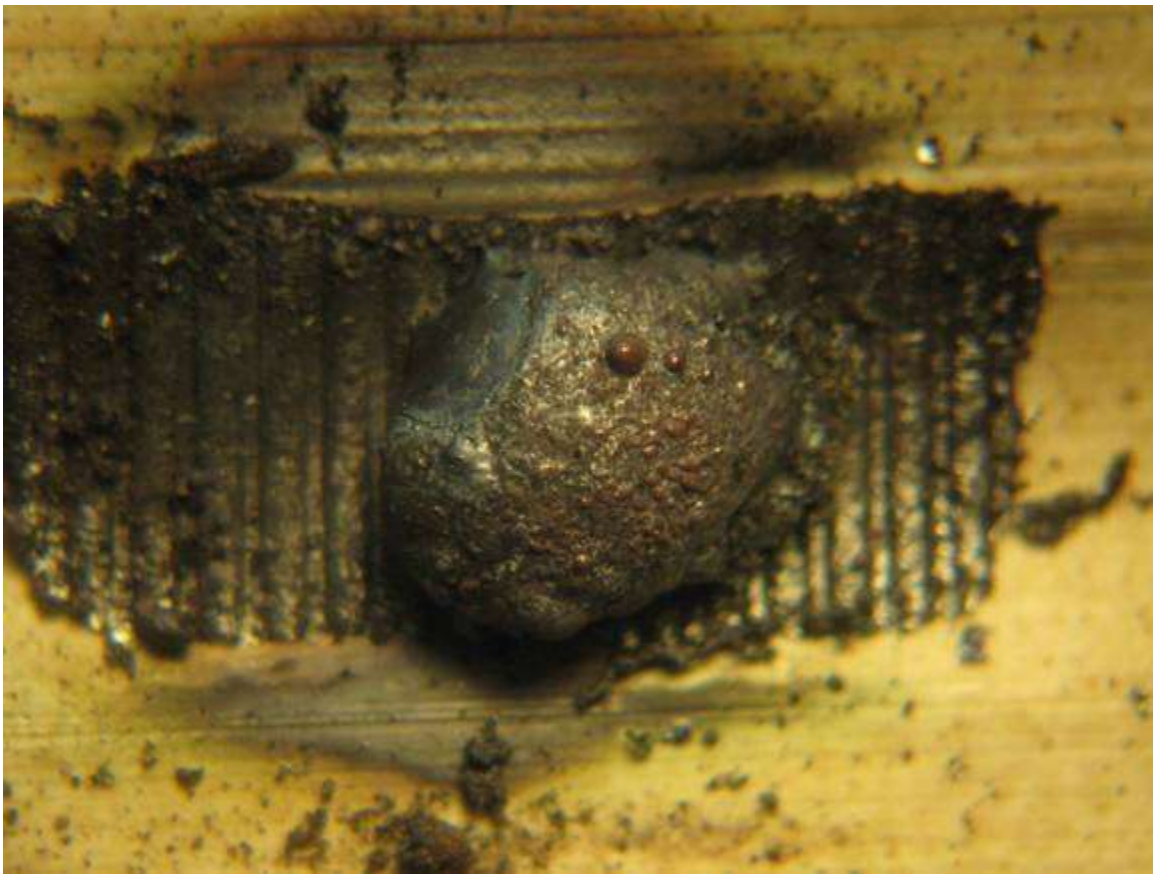
A small amount of the pulverized sample is placed upon a graphite pad that rests upon a ceramic crucible (boat or hearth) and is now ready to be subjected to intense heat of the electric arc.

8x – A magnified view of the preceding image.

Prior to conducting a Vreeland spectroscope burn the copper-coated carbon arc electrodes are sanded and wiped clean with a paper towel to remove any potential contaminates from previous use.

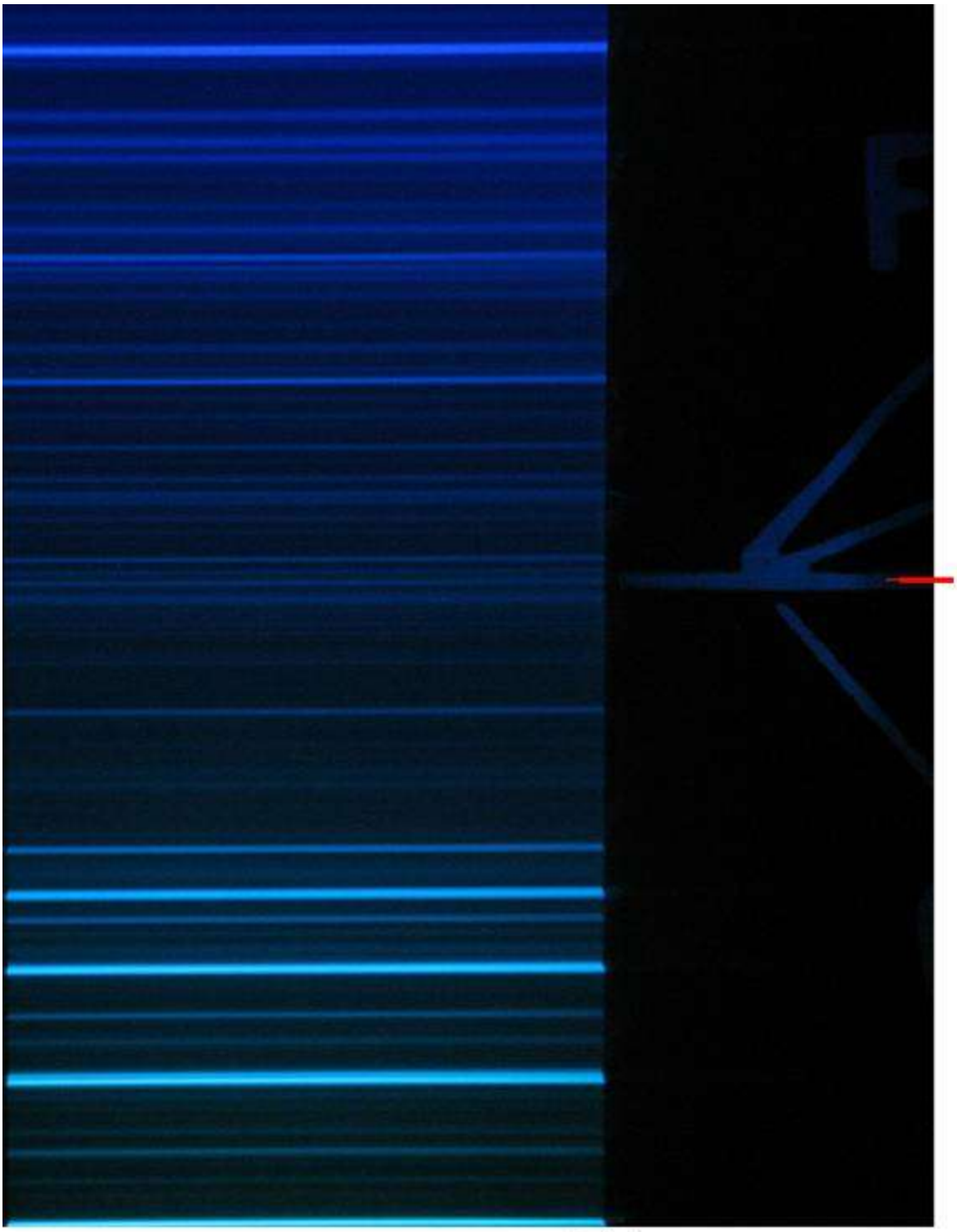


This image illustrates the completed burn of the pulverized sample that has resulted in a solidified semi-metallic bead, which is strongly attracted to a magnet.

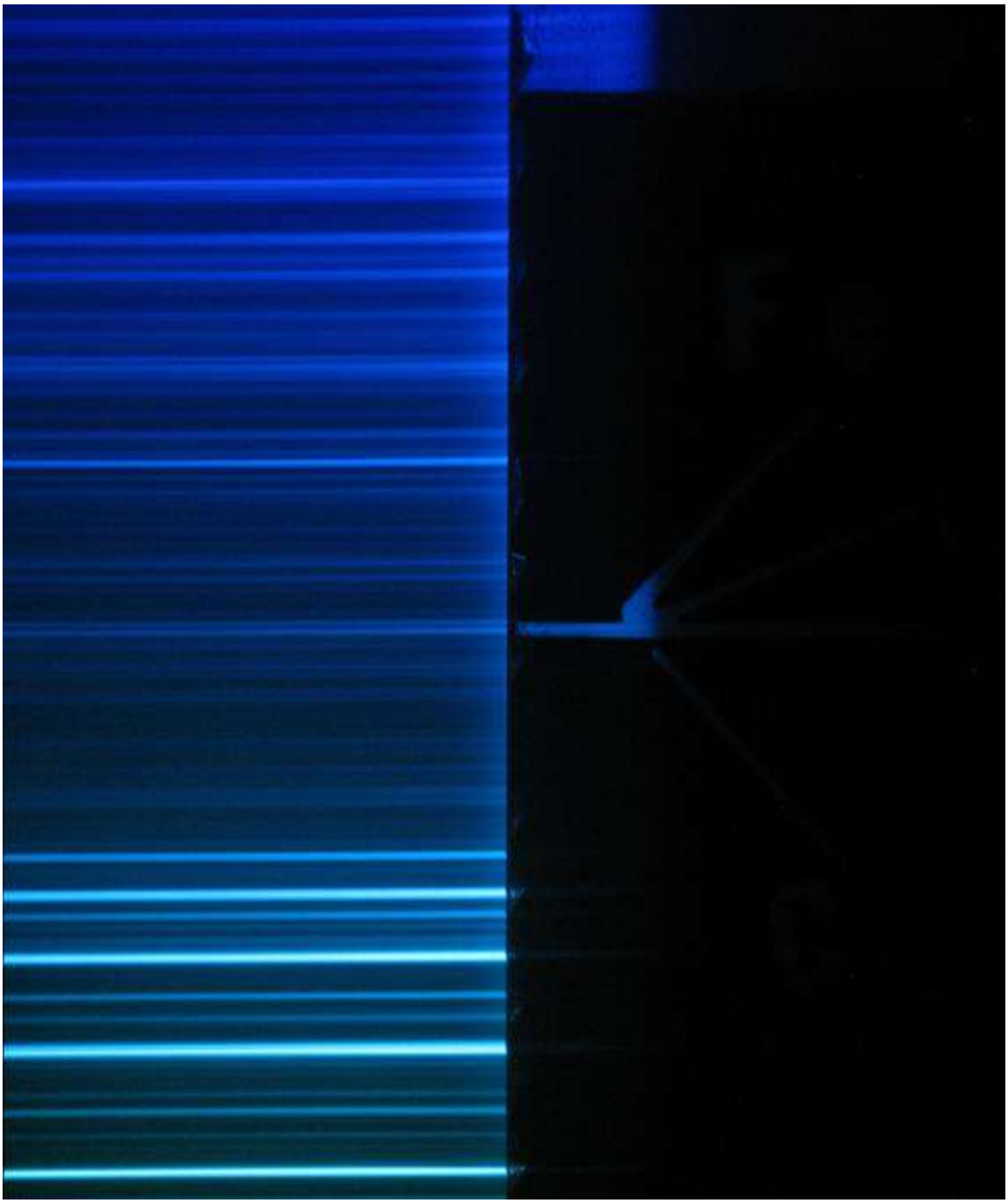


8x – A magnified view of preceding image.

The next two images (spectrograms) illustrate the gold line that I rarely see.



The injected red line at middle right denotes the gold line on film within the blue spectrum. The left film has been edited-out to make this area easier to view.
This faint, yet impressive gold line (left) is becoming more pronounced as the intense heat from the electric arc melts the minerals on the ceramic crucible.



The gold line at left is now easily seen and aligns with the film gold line at right.
The other visible blue lines (at left) are other elements that become known as the right or left films are properly aligned for each specific element.

Because the main mineral constituent of this pulverized sample appears to be zinc a short video is provided to illustrate how easy it is to see each element when present.

Video (Zn2a).

I have also included a short video of some potential silver ore from another source. Notice how the silver lines flicker indicating, from my perspective that the silver is spotty within the mineral matrix.

VIDEO (AgA1x)

In addition to dirt and rocks the Vreeland allows me to examine all the plants, thus broadening my perspective of the potential in the areas of interest.

In conclusion—the rock pick, shovel and microscope are some of my best mechanical friends, whereas the **Vreeland Spectroscope/Spectrograph is an indispensable partner.**

Respectfully,
Joseph Cummins
9-20-11