

To the Ladies and Gentlemen of this Committee, to the guests and officials who are joining us today. I am Royce Black and I would like to speak to you today on making Celestine the Official State Mineral of Pennsylvania.

First I would like to talk about Celestine and Pennsylvania's place in history. The first sample ever found in the world was in Franks Township, Huntingdon County. Today, that place is known as Bellwood.

It was found by naturalist Andreas Gotthelf Schutz in 1791, when he was exploring North America. The Celestine sample was analyzed by Martin Heinrich Klaproth in 1797. Mr. Klaproth found Celestine to be a Strontium Sulfate. Later, Abraham Werner published the chemical analysis and description, including its name *Caelestine* in scientific journals.

These 3 men put Pennsylvania into the history books. We should be proud that Celestine was first found in our beautiful state. We should claim the glory of our heritage by naming Celestine as the Official Mineral.

Second, I'd like to point out that Celestine has been used in our daily life. When televisions had cathode tubes, Celestine was part of the glass front of the television. Celestine was used to absorb the x-ray radiation that the cathode tube produced. Millions could have been poisoned by this radiation if it weren't for the Celestine. Celestine is also used in fireworks and red flares. It is what gives them the red color.

Lastly, it is the human factor that makes Celestine so important. According to Mr. RJ Harris, who is a well-known mineralogy enthusiast, "The Eastern Federation of Mineral and Lapidary Club has its annual convention in Harrisburg. Over 10,000 hobbyists are represented by this club and there are hundreds of other mineralogy clubs in the State of Pennsylvania." There are multiple gem and mineral shows, and an annual open house at Meckley's Quarry that bring in tourists and hobbyists to Pennsylvania. Mr. Harris also told me that the Carnegie Museum of Science in Pittsburgh is a major tourist attraction that has multiple Celestine samples on display, and people come from all over the world to see these.

Dr. Jeffrey Post, the Curator of the Smithsonian's Mineralogy Department commented that "state minerals are most important for their educational value." I agree with that completely. This started off as an extra credit science project. I did not need the extra credit, but I was intrigued by the topic. My science teacher, Mrs. Elizabeth Troxell of Commonwealth Connections Academy asked us, "If you could name a state mineral, what would it be?"

Dr. Post also stated "When resources are designated to represent states, they serve as a way of teaching young people about natural resources that our state offers." He was right. Had it not been for my science paper, I would never have known about Celestine and how important Celestine is to the State of Pennsylvania.

The most influential person I've met during this is Professor Heaney, who has been a great mentor to me. I would like to quote him, as I do not think I can say how truly important Celestine is for Pennsylvania any better than he said in an email to me. Professor Heaney stated "Naming Celestine would be a celebration of Pennsylvania's contribution to science in an early Republic, when chemistry was transforming into a modern science, and new minerals presented the only way of discovering new elements." He also stated, "The point is to celebrate Pennsylvania's natural heritage, which includes a rich and diverse geological history."

I know that I am very interested in the geology of Pennsylvania; I want to be a geologist one day. I am interested in the preservation of our state's place in history, but also in conserving our natural resources.

By designating Celestine as the state mineral, we can take our place in history as a statewide community. We should be proud of our heritage, our place in history and our geology.

Thank you for your time.

According to the DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES (DCNR) Written in 2004 by John H. Barnes, there has already been an attempt to pass a bill through the State of Pennsylvania Legislature to name a state rock, but no action was completed. There is still no state mineral for Pennsylvania.

While thinking about the type of mineral that I would think would be a good state mineral for Pennsylvania, I realized that I picked the same mineral, Celestine, that has already been requested to be the state mineral.

I choose Celestine for a state mineral of Pennsylvania, because it was a mineral found in Pennsylvania that had never been seen anywhere in the whole world. In 1791, a German man, by the name of Schutz found a sample of Celestine in South-Central Pennsylvania. He took it back to Germany with him. It was found in Blair County. The best samples of Celestine was found in the sedimentary layers along a southwest to northeast axis from the Johnstown area up to the State College area. The first sample was found in Blair County. Some of the best samples were found in Blair County and Northumberland County. There was a lot of Celestine found while the Erie Canal was being dug out. Celestine is found usually in Limestone, but not in metal ore veins. A mineralogist by the name of Martin Heinrich Klaproth studied the sample of fibrous Celestine and posted the results of his study in 1797.

Celestine is a strontium sulfate. It is a pale blue material and its name comes from the Latin word for sky because of its color. (1)

Its element symbol is (SrSO₄). One of the few other places this is found is in Madagascar. Most Celestine or Celestite is found in crystal form, but, the sample that was found in Pennsylvania was in a fibrous form. It is a type of Sedimentary rock. Below are some facts about Celestine: (2)

Color: Colorless to white, pale green to pale blue, even pale brown to a pale black.

Crystal Habit: Tabular to pyramidal. It can also be fibrous, or have a massive granular habit.

Crystal system: Orthorhombic


Cleavage: Perfect on some specimens, poor on other specimens

Fracture: Uneven

Tenacity: Brittle

Mohs Scale: 3 - 3.5 (hardness)

Luster: Vitreous, pearly on the cleavages



Streak: White

Specific gravity: 3.95 - 3.97

I think Celestine would be a perfect state mineral for Pennsylvania, not because it's the mineral that is found in the most abundance, but because its rare, and the first finding of this type of mineral was found here in Pennsylvania in 1791.

Geologically, most of what is Pennsylvania used to be sedimentary beachfront and undersea land. With the tectonic plate movement that created the folds and the volcanic action in the south mountains gave our state a very unique sedimentary rock outlay. The coal mines of the Appalachian Mountains were once swampland with decaying debris that became covered in sediment. Over time, this sediment became rock, and the swamp became coal. There are areas of Pennsylvania that through folding and volcanic action this coal became anthracite coal. Coal and Calcite are the minerals that are most abundant in the state, but, I don't think it is the most unique. The fibrous and crystal forms of Celestine had to be created because of heat and pressure of either the folds of the mountains or the volcanic action almost making it a pre-metamorphic rock.

Celestine is a beautiful stone, that can be polished into gems, but it is extremely beautiful in its natural form. Minerals do not have to be abundant to be considered a state mineral. I think they should show something special about the state, and what Celestine shows that is special about the state of Pennsylvania is that we went from being a beach front and undersea area to beautiful mountains and healthy lush valleys.

I think that we should name a mineral that represents this beautiful action and land.

Royce A. Black

To Representative Stephen Bloom

for consideration of a Pennsylvania state mineral.