Beauty in a Foucault Pendulum - David Di Gregorio – 2020

I love the poem by Eli Siegel entitled “Seem to Do Most” / Thumb on paper / Is something felt. / Thumb and you / Seem to do most of it. I love this poem because it has me think more deeply about otherness. A Foucault Pendulum, when understood, might be the cause of a similar way of thought.

Foucault’s pendulum was the first physical demonstration that proved the rotation of the earth. Jean Bernard Léon Foucault was a French physicist born in 1819. Among many other important discoveries, he became known for his demonstration of the Foucault Pendulum. It was a cause of great interest to a large cross section of the public. The Foucault Pendulum swings gracefully and with certainty. The simple movement shows something large. I think the movement itself is beautiful – something heavy moving gracefully, effortlessly, – and with certainty. I often feel clumsy and unsure – and seeing the opposites as one in this simple device can be instructive in its logical operation!

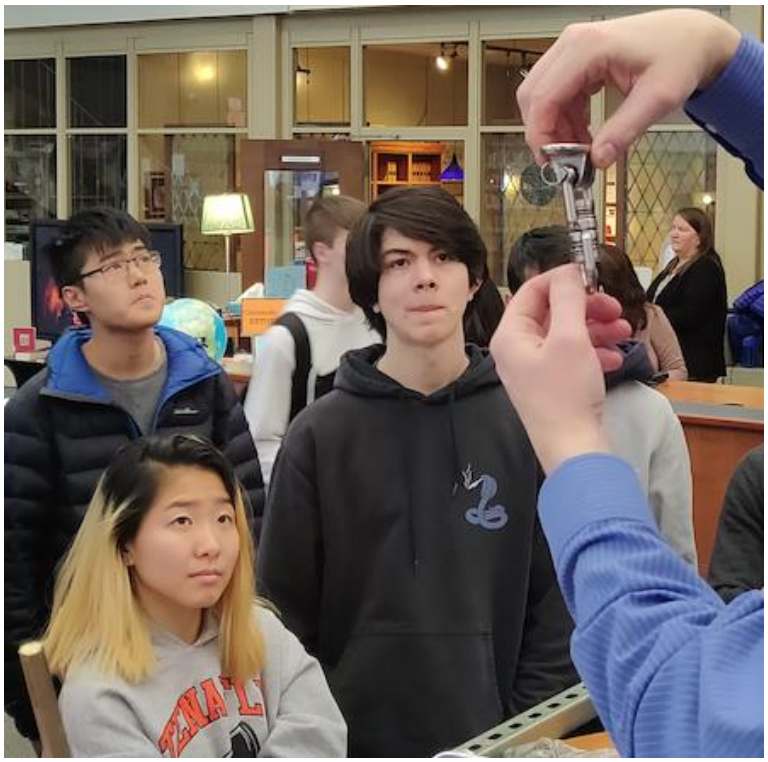
Recently while in conversation with AP Physics instructor, Ms. Helen Coyle, the subject of Foucault’s Pendulum came up. By luck, it fit into her current unit of study concerning oscillation. We agreed to try to build a Foucault Pendulum at the center of our high school library which has a 27-foot-high ceiling.

After a few trips to the hardware store, and a few visits by Ms. Coyle’s class - mixing and pouring mortar for the bob, cutting and crimping aircraft cable, we were almost ready. After hours, I drilled the ball bearing swivel into an I-beam above. Finally, students threaded the cable through the center of the bob. 7” dowels were placed in a bag each with a student’s name printed on it. Ms. Coyle picked one out of the bag with AP Physics student named David on it - he would bring our pendulum into motion. Prior to the first swing, students placed their dowels around a circle drawn with chalk and a string. With great anticipation the pendulum was set into motion. After a while, the pendulum struck a dowel and the class erupted.

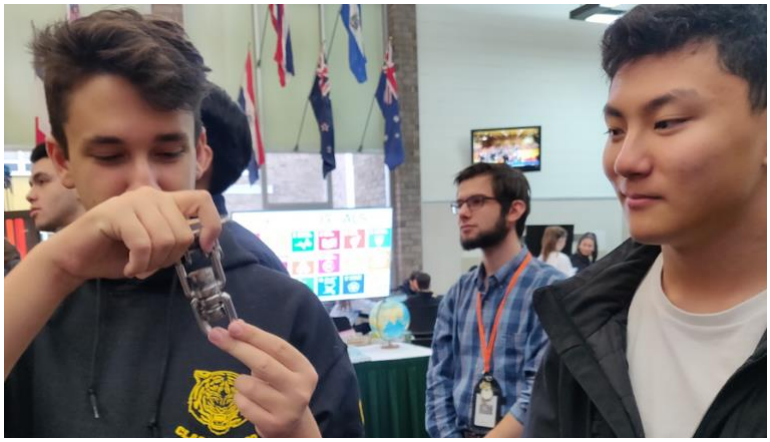
As the pendulum gracefully swung, it combined Newton’s first law and the force of gravity. It made for surprise as to what it proved; the cause of a day – and night – or the Earth’s rotation. Newton's First Law states an object will remain at rest or in uniform motion in a straight line unless acted upon by an external force. I think the law is beautiful because it shows a consistency in a bustling and at times confusing reality. The pendulum, drawn down by gravity – swings freely with order to its oscillation - there is freedom and order. Newton’s law providing order as the pendulum always remains in its plane. Surprisingly, the pull of gravity provides freedom for the pendulum to oscillate back and forth. All the while, the Earth turns and moves the dowel into position to be knocked over by the pendulum that remains consistently in its plane.

Foucault’s invention makes more visible, more felt, what the Earth, under our feet is doing as we walk, stand, think and talk. When Ms. Coyle carefully explained its function in more detail, students seemed surprised and pleased and so was I. We were in the midst of freedom and order, heavy and light, regularity and surprise, motion and rest. We were seeing and feeling more about the world and its motion and the opposites as the Foucault Pendulum made it more visible and felt.

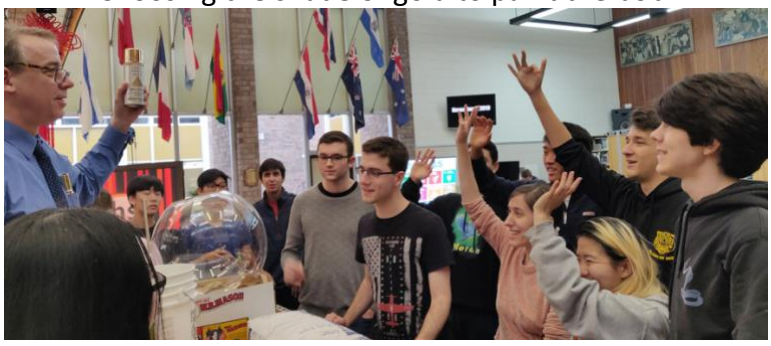
Being encouraged to think more deeply about the world through seeing where the opposites are one - in any subject - is very kind – this way of mind gives a sense of well-being as I see it. I will always be grateful to Aesthetic Realism for enabling this to be more so in my own life –I am grateful to be in this class and so glad to be learning more about the opposites both in reality and ourselves.

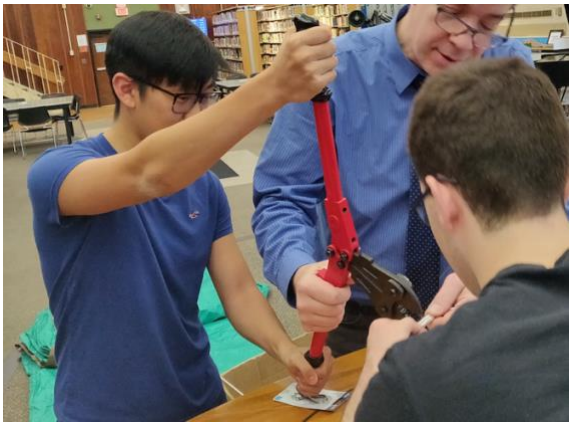


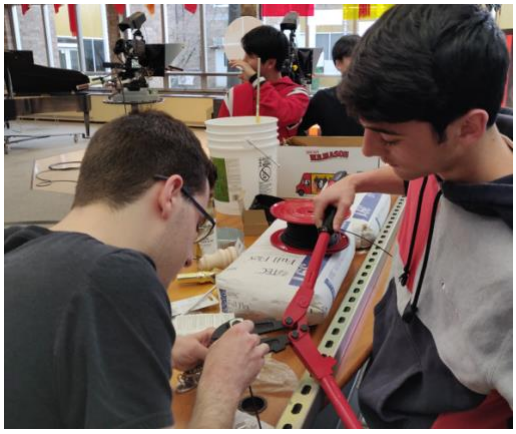
Swivel to be attached to the I-bam above.



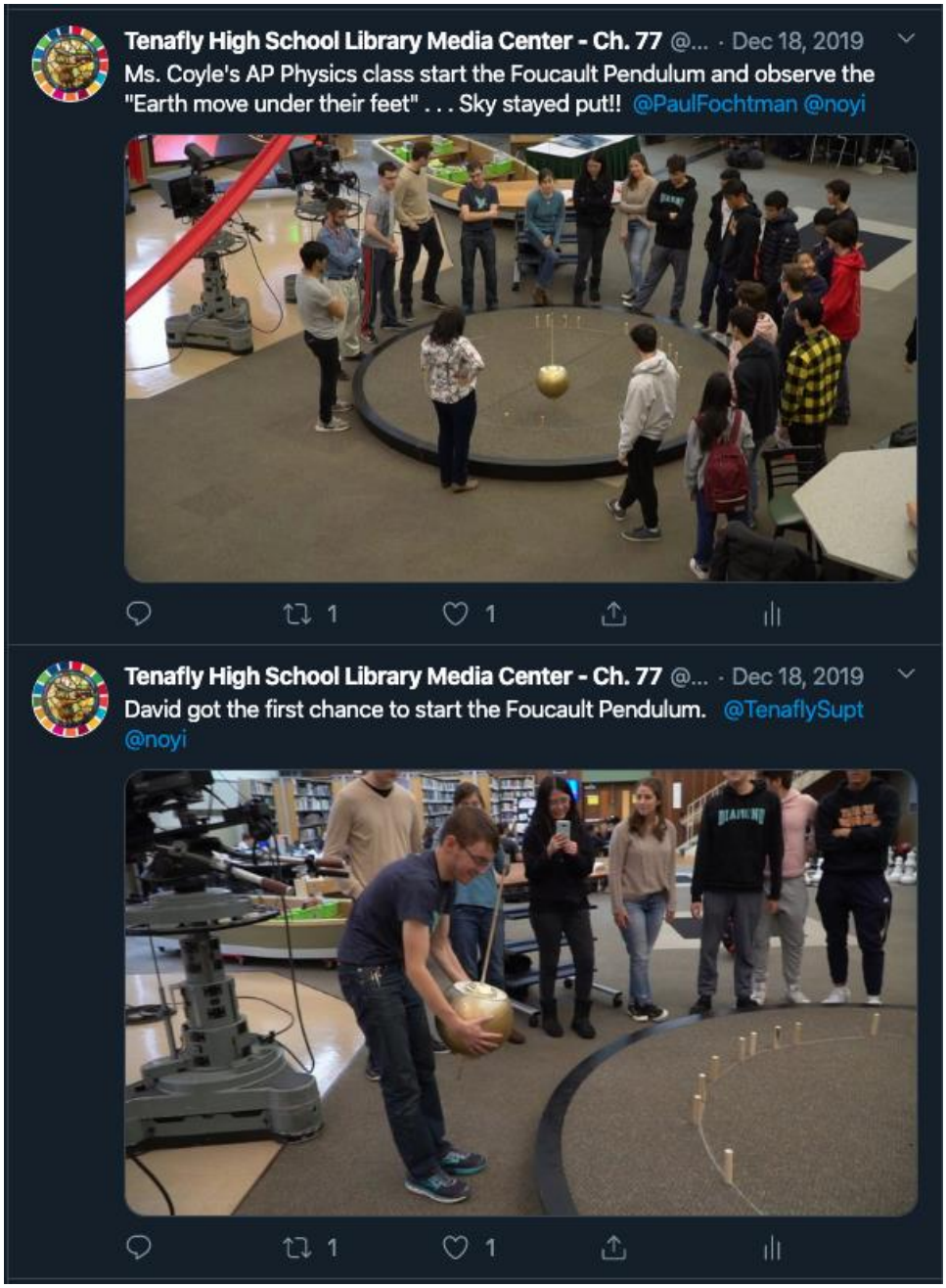
Choosing the shade of gold to paint the bob.







Crimping sleeves on aircraft cable



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Ms. Coyle's wonderful AP Physics students!

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