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STICKY WICKET

# Corona X – yesterday and tomorrow and the day after that

**Mole**


Original artwork by Pete Jeffs - www.peterjeffsart.com

Another be-a-utiful day! And it's Saturday! Or maybe Thursday. I'm not sure until I go online and my computer tells me. Yeh, it's all blending together here in the CoVOID. Maybe it is for you, too. Did I remember to eat breakfast today? I'm sure I must have, and maybe I'm just hungry again. Today I read an interesting paper, or yesterday, and when I was half-way through it, I realized I had read it last week, or maybe this week? It's just one big muddle. I have been sheltering in place for sixty, or fifty, or ten days, no, not ten. I think sixty. Maybe you have, too.

But that isn't what I wanted to talk about. ("Really, Mole, you're going to talk about something?") I wanted to talk about Isaac Newton. Hopefully, you have heard of him. (If not, why are you reading *this*? Go read about Sir Isaac.)

When I was a very small molet, I knew that Isaac Newton had 'discovered' gravity, apparently when an apple fell from a tree onto his head. I now know that several bits of this are not true: Newton did not discover gravity, but rather formulated the law of gravitation and later published it in his *Philosophiæ Naturalis Principia Mathematica* in 1687. But at least he *said* that the "notion of gravitation was occasion'd by the fall of an apple," as he "sat in a contemplative mood." Newton was a student at Cambridge University, when, in 1665, bubonic plague ravaged England, and he returned to his father's home (really, a small manor house in the village of Woolsthorpe, north of Cambridge) for the duration. And it was there that the famous apple incident apparently occurred. He told the story to William Stukeley 61 years later (shortly before he died), and Stukely subsequently published it in a biography of Newton, 26 years after hearing the story.

So, is the story true? Does it matter? Actually, I suspect that something else was happening here. It involves another hero of science, Robert Hooke. It was also as a molet (but a little older) that I learned all about Robert Hooke's discovery of cells. My whole scientific career is based on that discovery, and maybe yours is as well. Hooke discovered a lot of other things as well, including Hooke's law of elasticity (among many others). He was not only a member of the Royal Society, which was founded in 1660 (and to which Newton also belonged), but was its 'chief experimenter.' I didn't know all this when I was a molet. It was *much* later, though, that I found out that Isaac Newton and Robert Hooke absolutely *hated* each other. This had to do with gravity.

For nearly a century, scientists (natural philosophers) had puzzled over the findings of Johannes Kepler, who had made rigorous calculations on the motions of the planets. In the 1680s the astronomer Edmond Halley (of the eponymous comet) realized that these could be described by an inverse square law. He approached Robert Hooke (we will see why in a bit), who said he had a proof that confirmed this, but could not find it. After a time, Halley went instead to Newton, who also said he had a proof he could not find. But create one he did, and published it a year and a half later.

Hooke had spoken to the Royal Society long before this, about the 'System of the World.' In his words, "1. That all the heavenly bodies have not only a gravitation of their parts to their own proper

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centre, but that they also mutually attract each other within their spheres of action. 2. That all bodies having a simple motion, will continue to move in a straight line, unless continually deflected from it by some extraneous force, causing them to describe a circle, an ellipse, or some other curve. 3. That this attraction is so much the greater as the bodies are nearer." Halley knew of Hooke's interest in gravitation, and therefore approached him first.

This lecture was delivered in 1666. So, it may not be surprising that Newton remembered coming up with his fundamental discoveries in 1665. But the proof required the invention, by Newton, of the calculus needed to complete it. It is possible that Newton did, indeed, discover the inverse square law and its proof after watching an apple fall from a tree that summer. But perhaps it is also possible that his memory (or, indeed, that of his biographer, many years later) was, um, convenient. There is no doubt that Newton was the first to present the proof, but this did not stop Hooke from accusing him of plagiarism, and they engaged in a long and bitter battle. Newton also had an ongoing battle with Leibniz over the invention of calculus – it was a dog-eat-dog world.

So why did I want to talk about this? Until recently, science has always been a dog-eat-dog world, only now it is litigated in courts over patent disputes. But something seems to be happening right now. Over the last 60 days (or 70? - definitely more than ten), I have read innumerable papers (70? - definitely more than ten) posted prior to peer review, most of which appear to have been so posted in order to circulate discoveries on SARS-CoV2 and COVID-19. Many of these are excellent (some, perhaps less so), but the message is clear. We are in this together, and the more quickly we share our findings, the more quickly we may be able to get out of this mess. And right now, we really don't care who finds what *first*, we just need to *get there*.

Is there a chance that this will continue? I do think that will happen throughout this Terrible Pandemic (TP), with so many lives on the line (not to mention the global economy). But there are so many other, pressing problems to solve, even after this one is (hopefully) gone. And every delay in getting vital information out there slows down our efforts. Perhaps the tomorrow after the last day of the COVOID, we will turn such shared efforts to these other problems. I know that the day after that, we will return to issues of priority and recognition; these will always be with us. But maybe we are finally learning that we are all in this together. Not only this, the TP, but all of it. Maybe, we are finding out what it feels like to join forces, and let the credit sort itself out later.

It is still a gorgeous day, and I'm going to go for a long walk (with 'tea' afterwards). Oh, but give me credit, I'm definitely the first insectivore to have written about this. And on a Saturday! Or maybe Thursday…