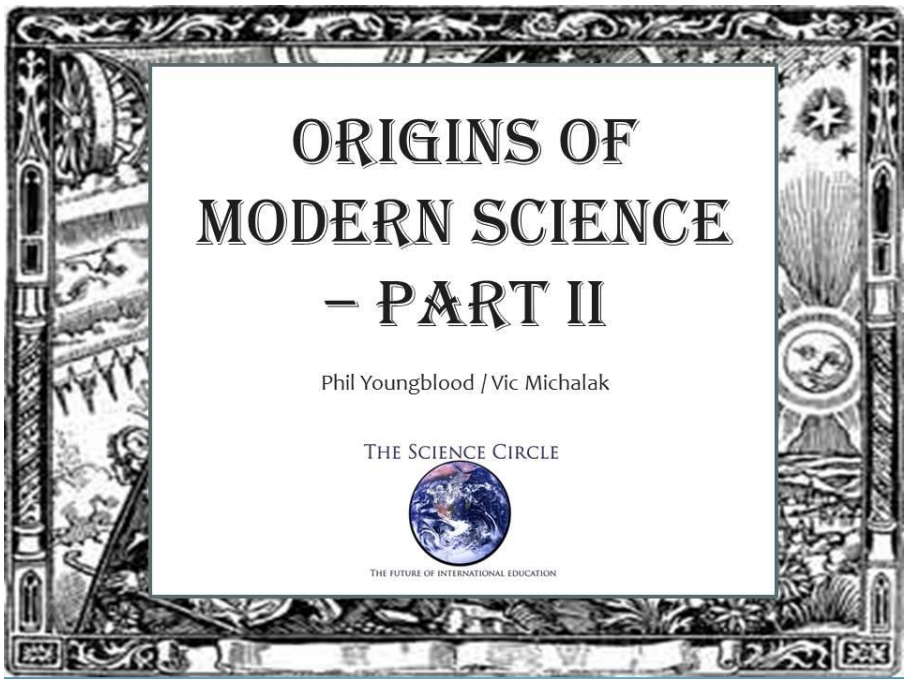
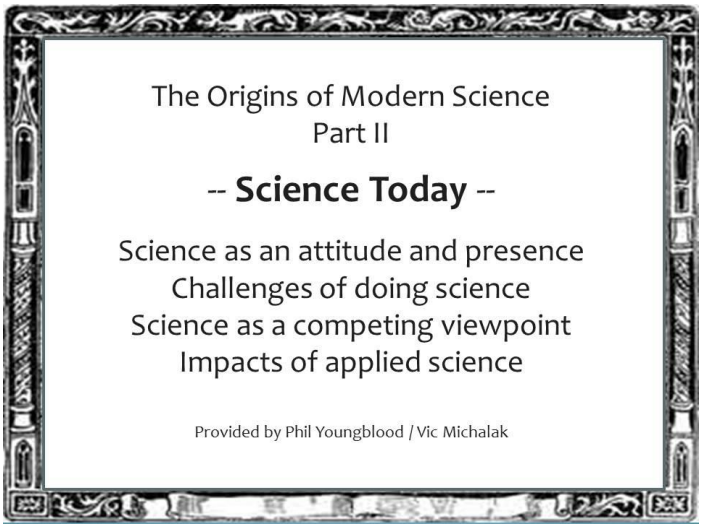


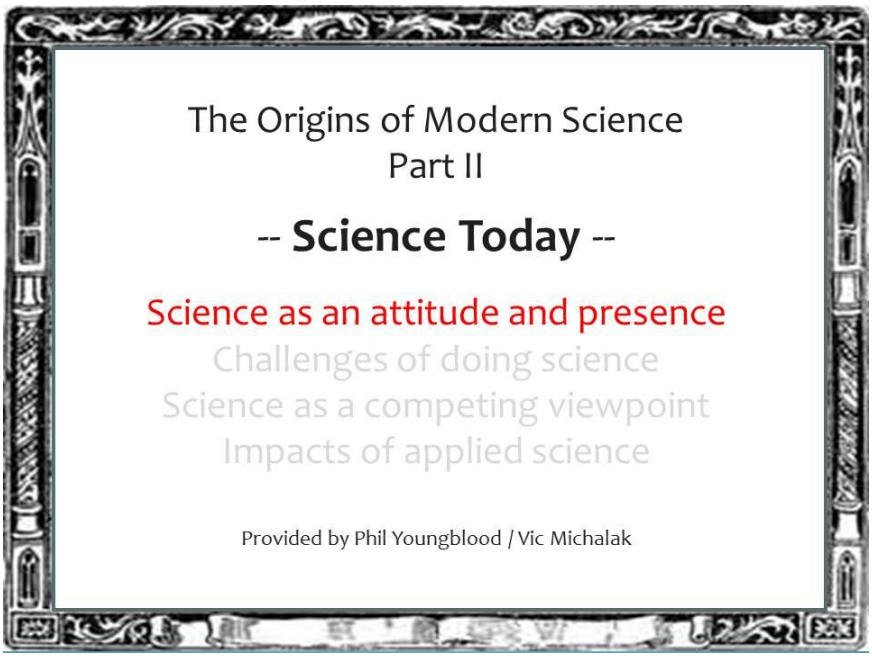
Vic Michalak :
Welcome to our second discussion on how we think about the world around us and where that has taken us.
I am Phil Youngblood, "Vic" in Second Life.
In the physical world, I teach at a university and run a degree program.
I encourage discussion in chat during this presentation on the topic of scientific reality today.
This is not just a session just to complain (please).
Think of examples of how science is working and accepted, as well as how it is not working and misunderstood.



Vic Michalak : *How are you hearing me?*

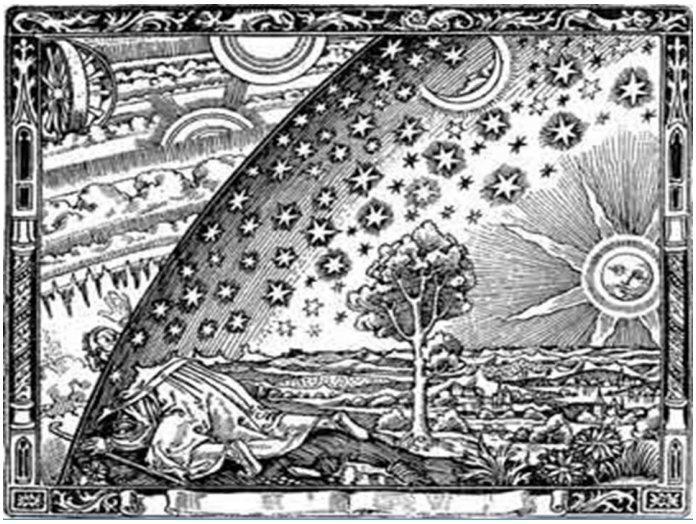
Roger Amdahl : Yes
Trade Flow : Yes
Nat Spirt : I hear
Anrui Olbers : Good
Areyn Laurasia : Hi, hears the voice fine, ty
Dawn Rhiannyr : Fine
aindrea1 Resident : Yes
Leo Mandelbrot : Your mic is too high again, slight distortion
TR Amat : You're mic might be a bit close to your mouth? You're going into the red.

Vic Michalak : Science, how it has been and is being applied, and the results of this are my life. In fact, all of us have been immersed in it since before we were conceived and for all of our lives.
It is for that reason that I chose the topic for the second in a series of discussions on this topic.

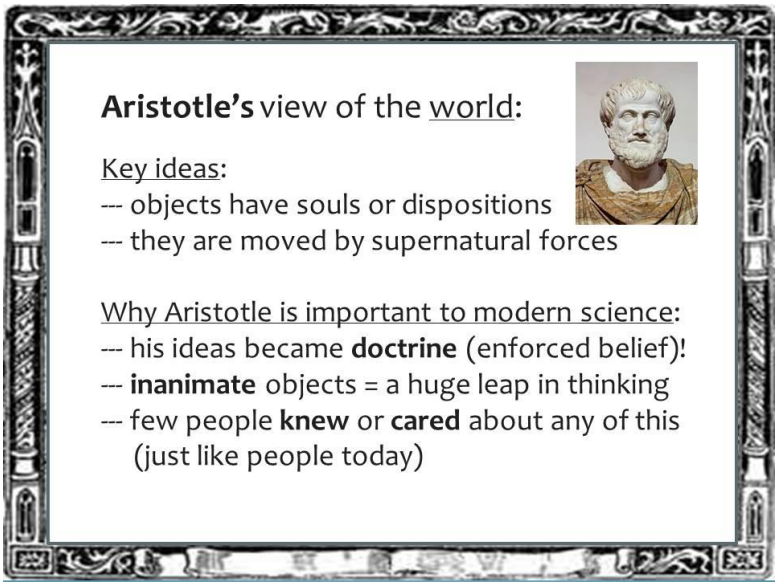


In this short hour that we have, I want to touch on four aspects of science today:

1. Science as an attitude - a way of thinking and knowing and a worldview - and a pervasive presence.
2. The challenges of conducting science - of learning new things about the world - in the world today.
3. Science as a competing viewpoint - certainly not the only way we view the world around us.
4. Impacts of applied science - examples of why I say we are immersed in it and it is pervasive.



Vic Michalak : First, let us look at "Science as an attitude and presence."

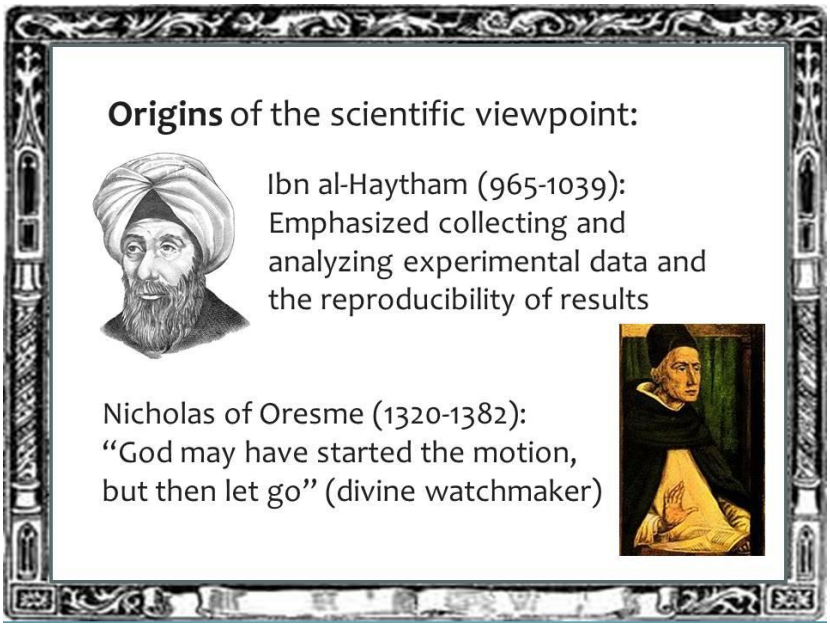


I began this series in what would be considered a classic style from my cultural perspective. I borrowed from a book aptly titled "Origins of Modern Science" by Sir Herbert Butterfield (1959)...

...which is based on a set of lectures at Cambridge University in the late 1940s.

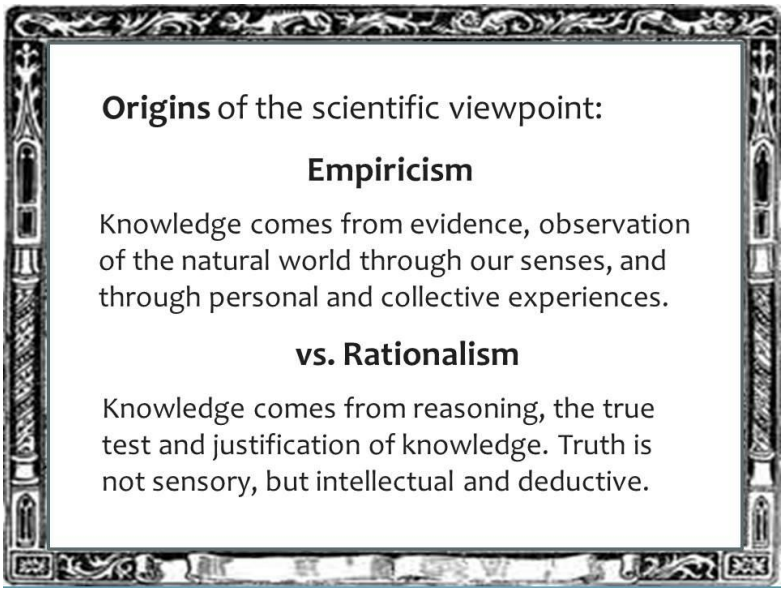
I want to review a few of the key ideas from that presentation before moving on to today's topic.

Vic Michalak : There was no distinction between 'animate' and 'inanimate' objects.
All objects were thought to take actions according to their 'nature.'
God controlled every little thing, so asking about the physics of objects did not make sense.

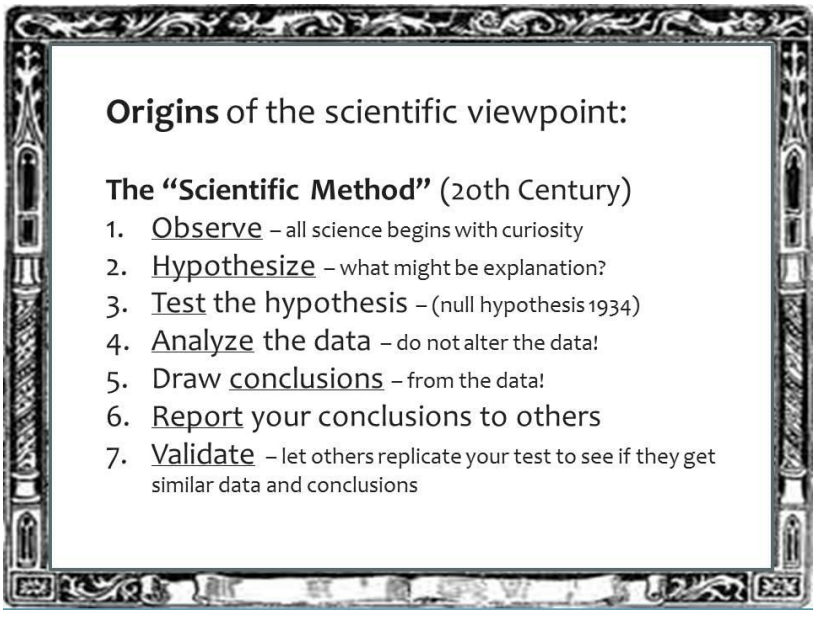


Later, there was a distinction between 'perfect' (God-controlled) heavenly objects...

...and objects on Earth, that were subject to 'corrupt' influences.

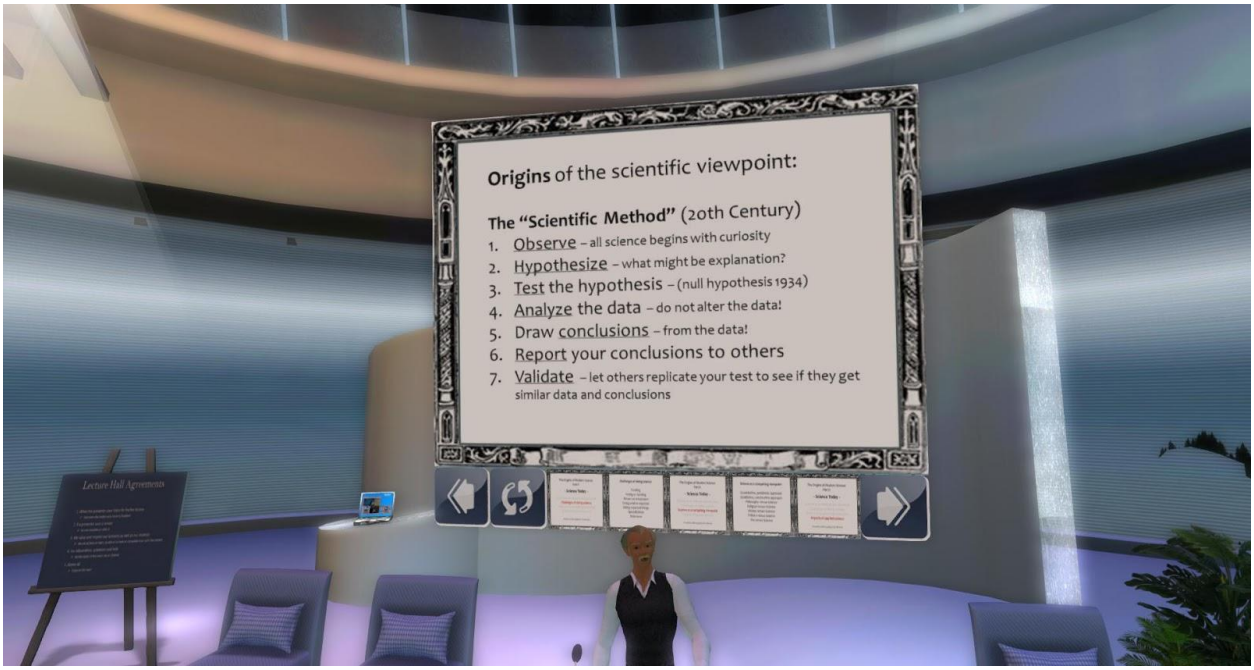


The modern idea of doing experiments and having others try to reproduce results is not a new one.
But, if God did everything, that there was no real predictability and science was not possible.
So some began to think that maybe God created everything...
...including the laws of how things worked...
...then stood back and let things run.



There was also a lot of discussion about whether reality and truth came out of our mind...

...or whether we needed to try to observe and sense and measure more objectively.



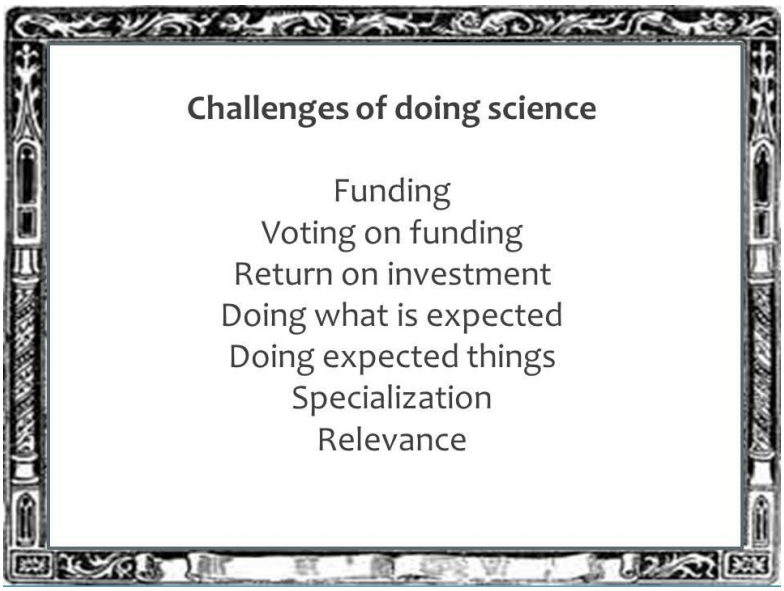
Vic Michalak : *Eventually, the Scientific Method was pieced together as we know it today (read the steps).*

Trade Flow : *comes up from south in the North Pole*

Vic Michalak : It is easy to think "how quaint" about distant times, but you have only to look around you today...
...at how science and the products of scientific research are viewed...
...to realize how science competes against the reality of our world today.

Many major scientific advances require funding for facilities, equipment, and specialized personnel.

TR Amat : Data needs to be simple enough and consistent enough to even form testable hypotheses?
Roger Amdahl : Schrödinger's cat... :)
Leo Mandelbrot : That was Schrodinger's way of criticizing the theory



Vic Michalak : Many major scientific advances require funding for facilities, equipment, and specialized personnel.
Funding comes from public money or corporate money or philanthropy.
If the money is public (government grants) or private (corporate), someone has to vote on funding science.
Tomis Landar : Lucrative
Vic Michalak : There is often pressure to produce something useful and quickly from the science.
Persephone Emerald : Something that promises a return on their investment
TR Amat : Result-orientated...
Leo Mandelbrot : Back after Apollo, space science was slashed because it wasn't "socially relevant"
Roger Amdahl : The market will dictate what science we do .
Stephen Xootfly : Grant money to scientist with good ideas and a good track record of productive science
Persephone Emerald : Something that promotes their views & interests
TR Amat : Pity about the 'blue-sky' science, then...
Vic Michalak : There may be pressure to find an answer that the funding source wants you to find.
Tomis Landar : Esoteric science is a funding repellent..
Leo Mandelbrot : But mostly something that looks good to voters
Persephone Emerald : lol
Nymf Hathaway : It needs to be HOT?
TR Amat : The Milk Marketing Board might support certain sorts of science? :)

Vic Michalak : There may also be pressure to do something that is familiar and safe, instead of risky and daring.

Roger Amdahl : *what data would a pro tobacco scientist base his statement on ?*

Vic Michalak : Major advances may be in such specialized fields of study that the general populace does not understand them.

Persephone Emerald : Not educated about science
Leo Mandelbrot : I did
Nymf Hathaway : Yes
aindrea1 Resident : Cause and effect of
MarkGW Resident : Yep
TR Amat : Want science done they feel 'right'?
Jes Cobalt : :(true
Nymf Hathaway : TransMathematics was rocket science to me
MarkGW Resident : :(
Persephone Emerald : I thought it would be over my head

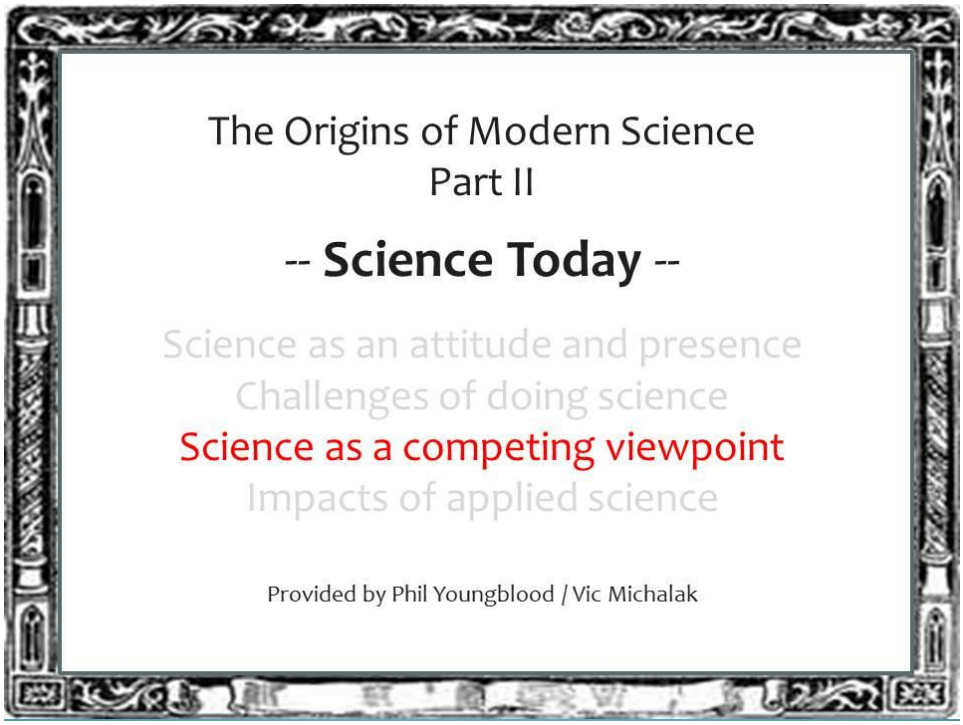
Vic Michalak : The general populace then may not see the relevance of the science for them.

Stephen Xootfly : Need to know to make informed decisions that several things that affect us everyday. For example, not drinking poison even if a salesman tells you it will cure your ailments.

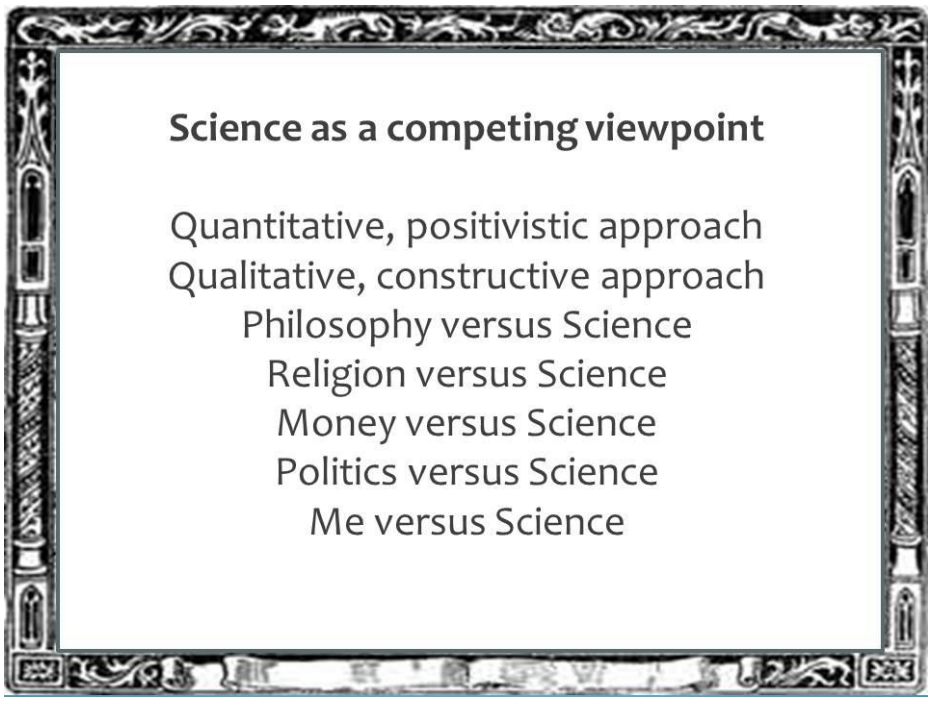
Tomis Landar : Making science appear less like magic and more like Saturday mornings cartoons..
Leo Mandelbrot : I'm surprised CERN even exists. Here in the US the same kind of instrument was canceled
Persephone Emerald : yup
TR Amat : "You wont have any ailments left if you drink this" :)
Nymf Hathaway : Brian Cox :)))))
Stephen Xootfly : Neil deGrasse Tyson

Vic Michalak : But it is the general populace that votes for the funding of science (public or private money).

Stephen Xootfly : Brian Greene
Persephone Emerald : Cartoon are "magic" too, so you mean make it more fun & relevant to them?
TR Amat : Science programs in the media, like the BBC Radio 4 "More or Less" on statistics?



Vic Michalak : *Science is an attitude towards viewing the world around us... and it is not the only viewpoint.*



Vic Michalak : *Experimental, quantitative, science is structured, deals with numerical data...*
...and the researcher is viewed as as a neutral observer.

TR Amat : Is it Ben Goldacre who writes on "Bad Science"?
Leo Mandelbrot : Or bad methodology
TR Amat : Your speech is breaking up for me.
Roger Amdahl : yes
Areyn Laurasia : not really
Nymf Hathaway : I hope so :(
Leo Mandelbrot : What about the uncertainty principle
MarkGW Resident : I don't believe so
Nat Spirt : Many try their best
Stephen Xootfly : Depends on his or her ego
Tomis Landar : I am ambivalent on neutrality

Vic Michalak : More recently, qualitative researchers have contended that researchers are never neutral…
...but brings their viewpoints, biases, and experiences to everything they do.

TR Amat : Sorry, I need to go.
Nymf Hathaway : Waves TR :)

Persephone Emerald : Doesn't have to be perfectly neutral, but as much as possible
Nymf Hathaway : Absolutely!
Nat Spirt : That is why we ask for independent verification
Persephone Emerald : yup

Vic Michalak : We also have the issue that if I can think of it, it is 'as true' as any scientific 'fact.'

Stephen Xootfly : yes (but on reruns!)
MarkGW Resident : :)

Tomis Landar : It seems that "trust" within the scientific community has eroded to the point, that many editors at journals are reluctant to accept papers written by single authors, assuming multiple authors will provide a form of "self regulation" to the group or team of authors..
Persephone Emerald : Except we share ideas
Nymf Hathaway : So agree... Your STEM Island has a new art exhibit

Vic Michalak : We also have the issue that if I can think of it, it is 'as true' as any scientific 'fact.' We also have the issue of authoritative writing and traditions that supersede human thought.

Nat Spirt : The science test for 'true' is different from the public meaning of 'true'

Vic Michalak : None of these issues are 'right' or 'wrong' - but they all are the realities of today. We also have the issue that money controls scientific research and applications.

Persephone Emerald : 1st world money doesn't care about it enough?
Nat Spirt : Bill Gates had that question
Nymf Hathaway : Money
Leo Mandelbrot : Malaria is not a major disease in Euro & US
aindrea1 Resident : Cost and effect
Roger Amdahl : We found a cure..: kill the mosquitoes, but we just didn’t found out how to do it

Vic Michalak : We also have the issue that political power controls money and what science takes place.

Leo Mandelbrot : If there were an African country as rich as say Germany, there'd be a cure

Areyn Laurasia : *similar case for ebola*

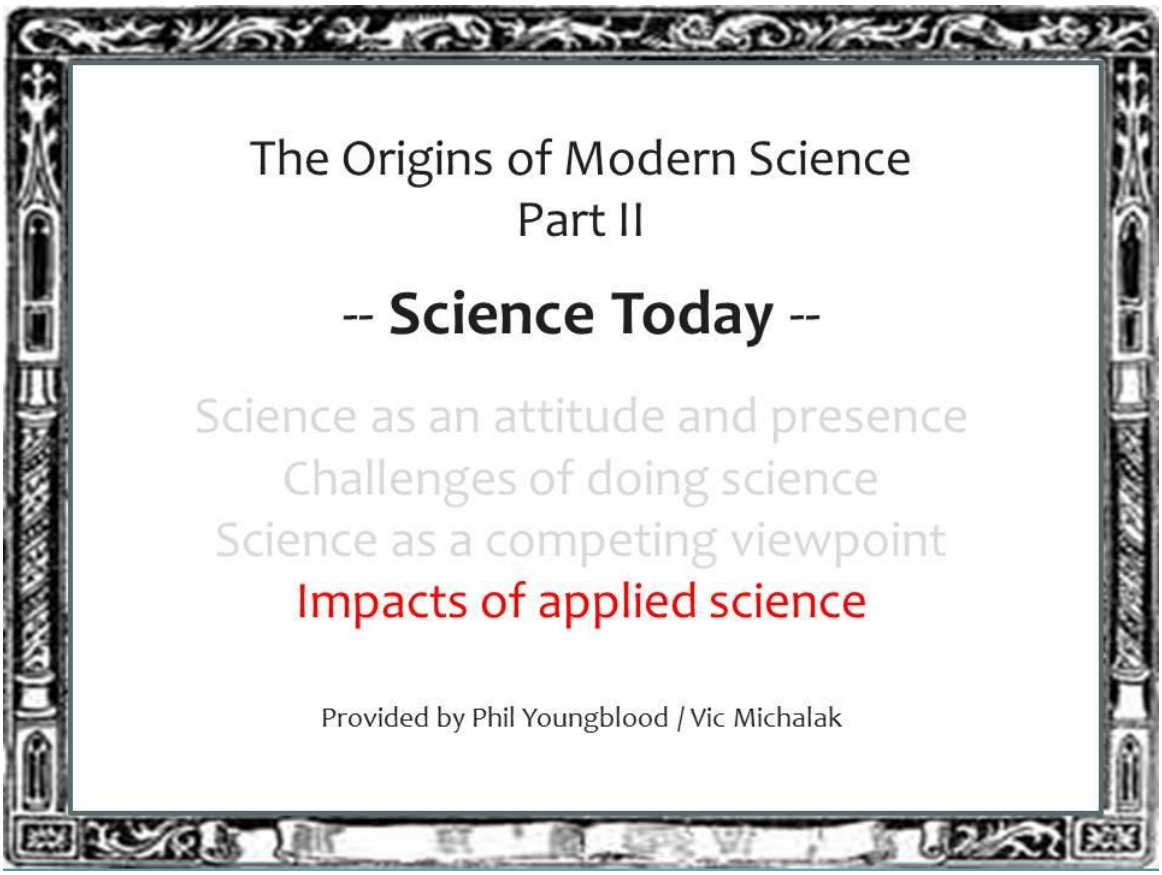
Persephone Emerald : yup
Tomis Landar : The potential client base for Viagra is less than for a malaria cure, but the disposable income of the Viagra client base is far superior to that of the Malaria group.

Vic Michalak : We also have people who are focused on what is in it for them and find it hard to see the bigger picture...
...who view any change or things they cannot understand as scary...
...and who view those with whom they cannot identify as 'them' (conspiracy theory).

aindrea1 Resident : Frankenstein
Persephone Emerald : It's also sometimes hard to promote scientific views vs. ingrained religious ones. People may view science as being anti-religion, but it really just pro empiricism.
Nat Spirt : Them and us is a big problem
Persephone Emerald : nods
aindrea1 Resident : Religion is more emotive
Persephone Emerald : Science doesn't generally try to disprove the existence of God.
Tomis Landar : The difference between religion and science is the difference between pizza and salad...one makes you feel good, the other is good for you.

Roger Amdahl : Gods were created of things people didn't understand >> God of thunder and lightning ,... no need for them no more

Anrui Olbers : Religion hardly ever feels good
Tomis Landar : Okay..double pepperoni pizza..



Vic Michalak : *And they all compete with how we view and do 'science' today.*
Finally, let us examine "Impact of applied science"
using four examples of science in the world today.

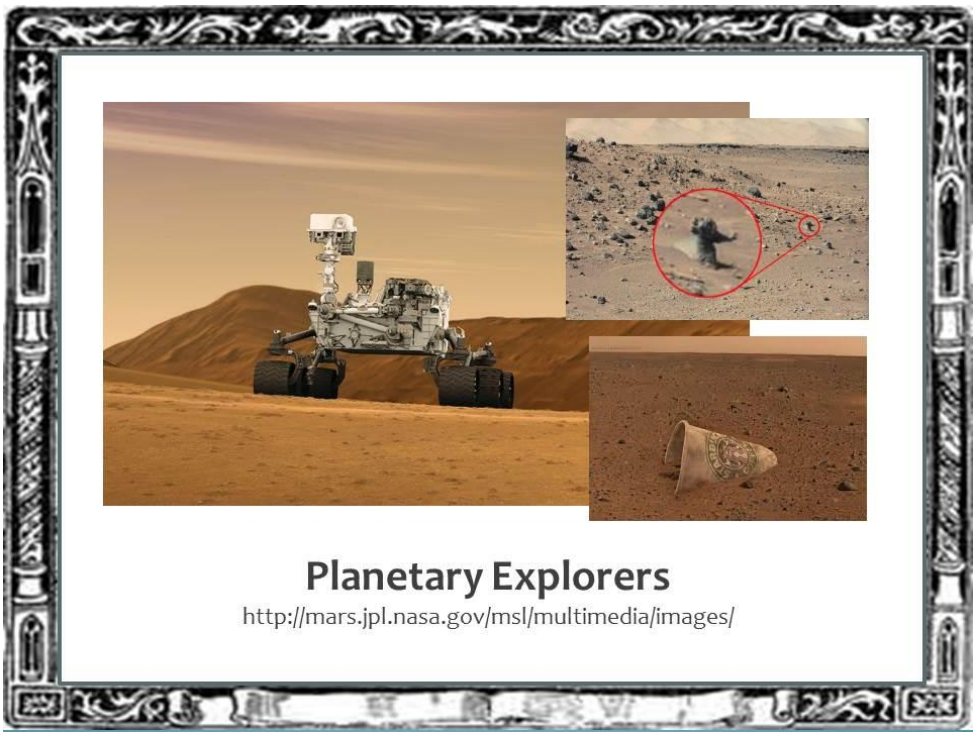
Nat Spirt : Bubble chamber
Vic Michalak : The Higgs Boson
Roger Amdahl : Higgs discovery

Vic Michalak :

This is an example of exciting science that is far removed from the life of the average person.

Persephone Emerald : Some people do still believe in nature deities, but most of them modernize their views of the nature of deity, so they don't discredit science.
Nymf Hathaway : hehehe yes saw that
aindrea1 Resident : the god partical
Roger Amdahl : pff, can't type that fast
Leo Mandelbrot : I think Higgs postulated this in the early 60s?
Tomis Landar : Well..the original GOD connotation was reportedly an inside joke, an acronym for "Generally Observable Decay"..
Roger Amdahl : What gives the higgs boson it's mass ?
Vic Michalak : This type of science may be difficult to fund…
...because it is difficult to convince someone of why we need to find it.

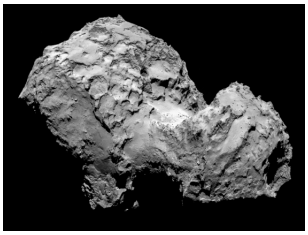
aindrea1 Resident : Scary we all fall apart without it
Nymf Hathaway : :)))
Nat Spirt : They used to think that protons neutrons and electrons were all the particles
MarkGW Resident : (I have to go. Sorry :()
Nymf Hathaway : Waves at Mark :)
MarkGW Resident : Wave :)



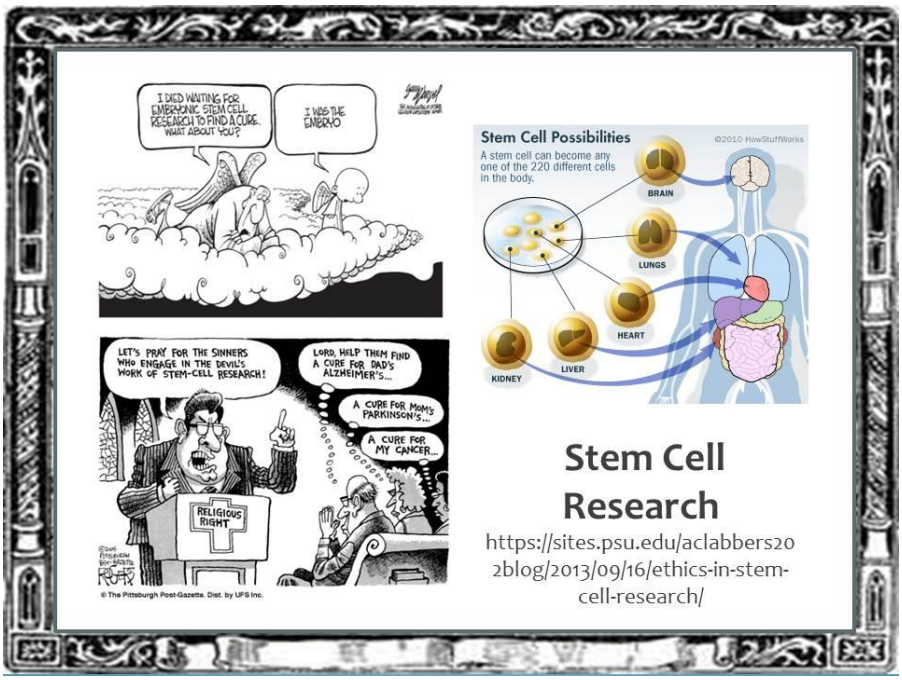
Vic Michalak : *Planetary Explorers*
This type of science is a bit easier to understand...
...and sparks curiosity (a pun) in people who follow the missions.
Sometimes that curiosity is a bit far-fetched (see images).

Leo Mandelbrot : this sort of thing is used to encourage kids to go into tech even if their career ends up totally unrelated to space
Tomis Landar : Big foot
Nymf Hathaway : yes Leo

Vic Michalak : Still, this type of science is so far removed from daily life that it may be difficult to fund.



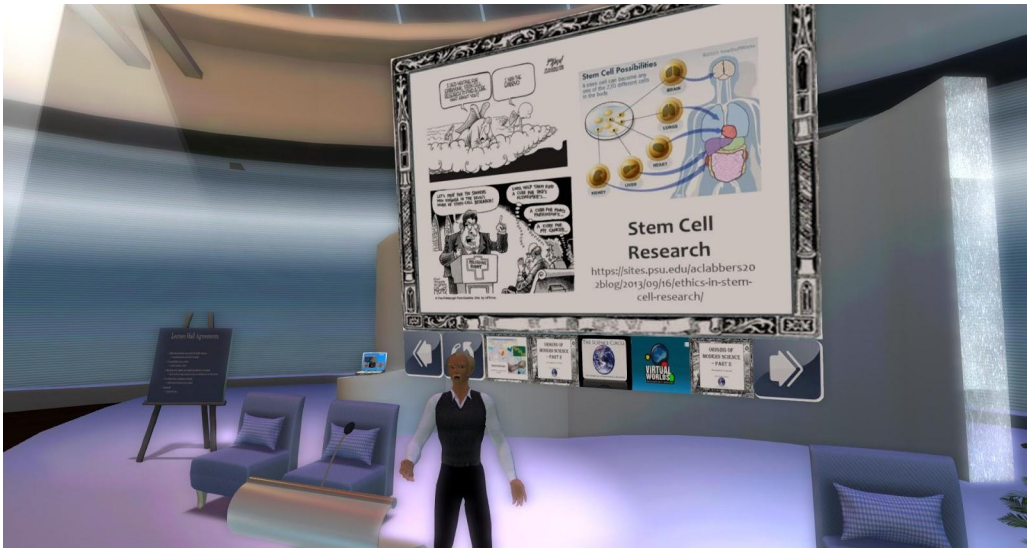
Leo Mandelbrot : The photo was amazing
Tomis Landar : Lands in November??
Jes Cobalt : Rosetta: Comet 67P/Churyumov-Gerasimenko Giant Potato
Nymf Hathaway : We are following it on our SC FB Group Page



Vic Michalak : *Stem Cell Research*

This science hits closer to home for many people.

The potential benefits may be very personal to some.



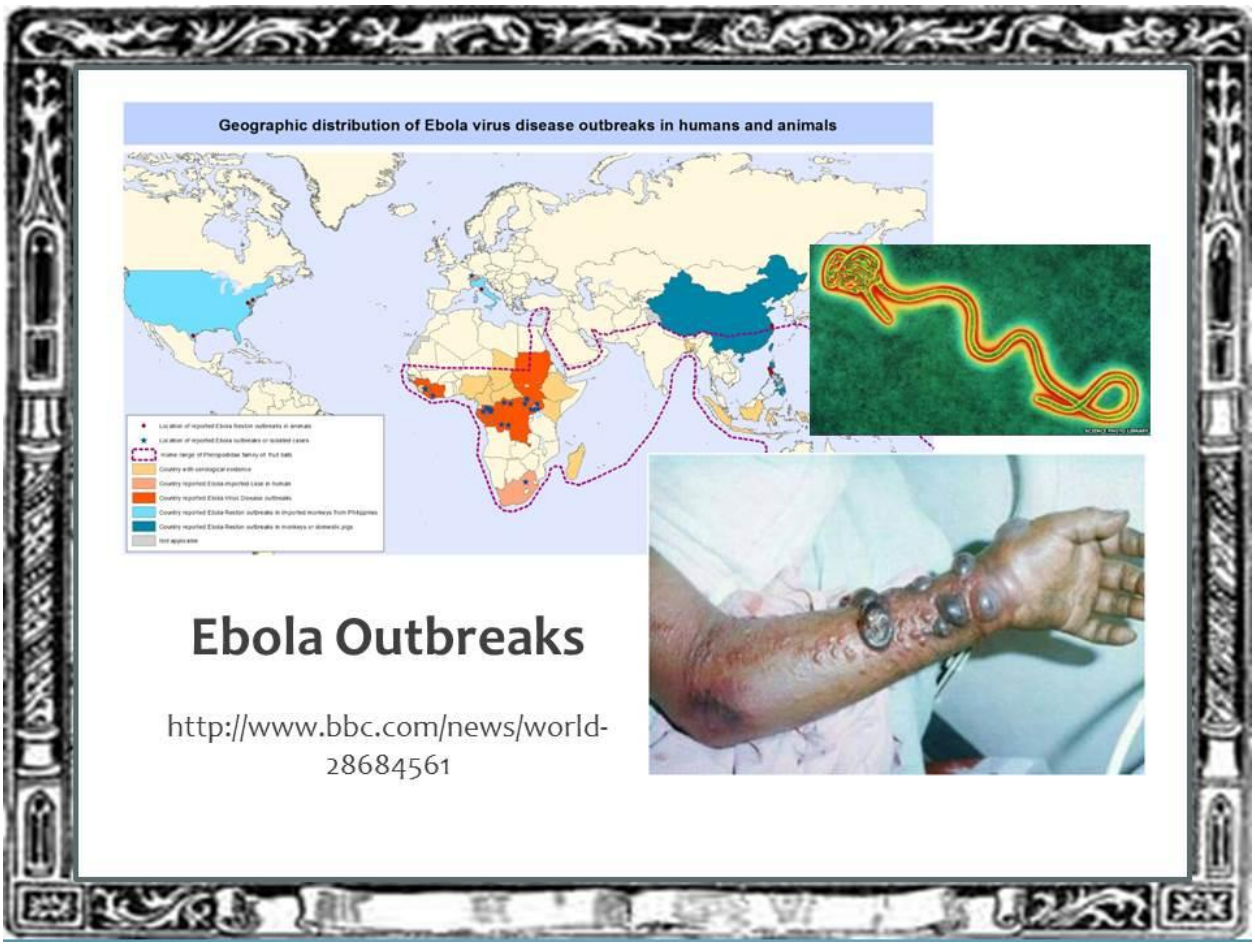
Vic Michalak :

For some, the way scientists go about it may violate beliefs they cannot overlook...

...even for the greater good.

Ebola Outbreaks

This hits very close to home for many people.



Persephone Emerald : "Greater good" can be a relative term too.
aindrea1 Resident : They now scared could go world wide, so now doing something
Roger Amdahl : Nice game ..:(
Persephone Emerald : Confine them

Vic Michalak : Plague Inc
That is an iPhone (and other) app

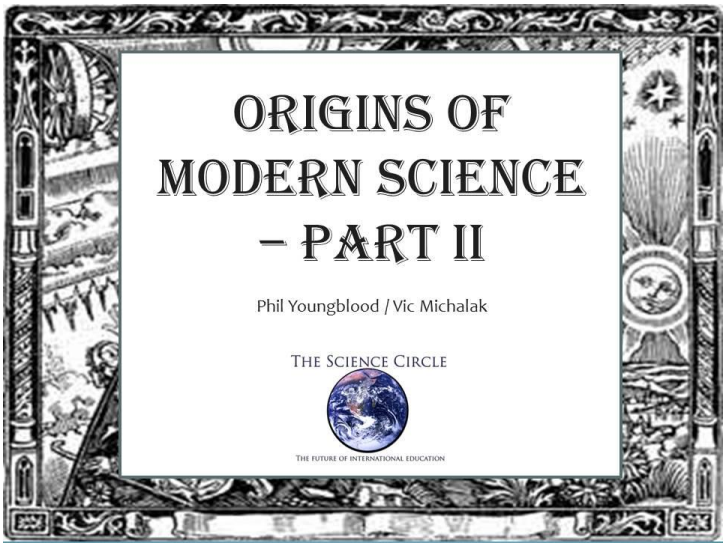
Vic Michalak : It is difficult to convince someone that the best way to treat a loved one who is dying...
...is to isolate them from their family.

Stephen Xootfly : *keep them in the bay for 40 days*

Vic Michalak : It is difficult to convince someone to stick a needle (vaccine) in their arm...

Persephone Emerald : So you have to provide care for them too. - One of the problems with Ebola reactions in Africa
Tomis Landar : "While famine and plague can kill many of us, ignorance shall kill us all"

Vic Michalak : ...especially if it was invented by someone they do not know...
...or who someone else tells them may be trying to harm them.



Vic Michalak : These are the realities of science today.
Science is not an isolated thing we study...
...but a messy and conflicted way of thinking and doing and viewing the world...
...that is not shared by everyone.
In Part III we will return to how we got from 'there' to 'here' in different fields of study.

Stephen Xootfly : I must run to teach. Thanks Vic.
Nymf Hathaway : Waves Stephen :)
Anrui Olbers : Thanks, byebye
Jes Cobalt : waves Stephen :)

Vic Michalak :
I would also like to discuss different views worldwide
on how we think about the world around us.
Thank you for coming and sharing in these discussions!

Nymf Hathaway : Was great Vic! Thank you :))))
Roger Amdahl : Thanks Vic .. I liked it
Tomis Landar : Great presentation, thanks!
Nat Spirt : Thanks Vic
Dawn Rhiannyr : Thank you verymuch Vic, awesome lesson
Vic Michalak : Thank you!

Jes Cobalt : Another awesome one Vic :)
aindrea1 Resident : Thank you for a very interesting discussion
Leo Mandelbrot : Thanks Vic. Good start for the season.
Vic Michalak : I hope it spiked your interest...
Nymf Hathaway : DID :)))
Dawn Rhiannyr : Of course it did
Vic Michalak : You probably were hearing me type...lol
Persephone Emerald : Great lecture
Areyn Laurasia : Look forward to the third part :)
Vic Michalak : Me too!
Vic Michalak : Teaching is the best way to learn! ?
aindrea1 Resident : Sorry i missed first vic
Vic Michalak : Okay... gotta go... I will give Chantal or Jes the script and slides for archiving.
Jes Cobalt : Fantastic, thank you Vic :)
Vic Michalak : You should be able to find this and other presentations online at sciencecircle.org
Vic Michalak : A great website if I may add...
Nymf Hathaway : Thank you Vic :))
Dawn Rhiannyr : Yes please, always good to have the possibility to read up again

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~ Jes & Chantal ~ Sept 2014