

The Nature of Fractals - Part One - Tess Lambert - 10-10-2020

Dear Father in Heaven,

Thank you Lord for our blessings. Thank you for your Sabbath day and the ability we have to all come together to worship together.

Lord it's already October. Its been a challenging year in so many ways and not yet over. I pray Lord that you will have mercy upon your people, that you will stabilize us in this difficult time period, that you will shine your light upon us, that you will feed us, and everyone that is struggling Lord that they will find themselves anchored in the message; anchored in the increasing knowledge of your character that you are giving to your people.

I pray Lord that this will comfort them and unify us.

In Jesus' name I pray,

AMEN

So beginning with some review as we tend to, we still have up all the boardwork from last week. What this presentation and last Sabbath was intended to be was more of a revision. We have, over the last months been working our way up to Millerite history with very little revision. Something people are not blaming me for, but there is without the blame, there are complaints about that. People are struggling with that.

So what I wanted to do was in these two presentations that I have, without a period of break, to cover some of the questions that people have been asking, and many of these questions as I've tried to communicate last week are good honest questions that need answering and clarification. So we addressed the first one of those questions and that relates to the election, the current election, and a study that was presented in really 2018 and 2019 about the last president. Not that last president study, but the parable that was drawn from that about the external and internal change of leadership in 2014.

So the question asked by quite a number of people is if Trump is not reelected this year, then what does that do to the study of the change of leadership in 2014? So before going directly into that question what I wanted to do instead was to have a look at how our Reform Lines are structured and how they operate. So we began a discussion of our Reform Lines, particularly when it comes to what we call the fractals, those smaller portions. So I want to review that and just have another look at fractals in a little bit more detail covering the same material, but with a bit more information.

We discussed last week that there are three types of fractals. We have Exact self-similar fractals, Quasi Self-similar fractals, and there's a third type of fractal that we're not going to discuss that relates more to statistics and complicated numbers. So I really just want to discuss those first two types.

So we have **Exact Self-similar** and **Quasi Self-similar**. So some people may be a little bit more familiar with the study of fractals, but for me it was actually very interesting to actually look at, because some of the details of it were a refresher or new to me. So just to break down those titles, **what does it mean to be similar?** And I want to remind

everyone that this is being treated just like last week as a Q & A session. So I'm hoping for a very interactive chat room. I'm trying to imagine everyone's faces are here. It's much easier to present if you're in a community than looking at your own face. So I'm imagining you all in front of me and I'm hoping that it can be, on the chat, interactive.

Equal, the same. Does anyone else want to give a definition of similar?

Sister Lynn: "Qualities that are the same, like."

E Tess: "Like one another."

Lynn says, "Yes, but not exactly the same. Similar, but just not exactly I don't think."

E Tess: "I think you're correct and Brother Raymond is correct. I think everyone is correct if you combine everyone's answers. If you were to look up in Webster's Dictionary 'similar' is 'like,' 'it's resembling'. Similar may signify exactly alike. So if you had two things you could say they are exactly alike. 6:50 (**2 identical pens**) They're similar. When we are saying 'similar' we are meaning 'exact,' but it can also signify 'a likeness in the principal points.' We generally understand similar to denote a likeness that is not perfect. So this is what Sister Marilyn was saying. In our minds we generally associate similar with being not a perfect comparison, but it can mean an exactly alike.

7:33 (**2 pens different color**) So you could say that these two pens are similar they have qualities that have attributes associated with both. As the dictionary said they have a 'likeness in the principal points', but they are not exact. You could say that these two are similar and we would be meaning that they are exact. So it means either way, either 'just alike in principal points' or 'alike in the entirety.'

So similar can mean either things. So in this context what is it similar to? Because here we have two pens. What is the similarity? What are we saying when we mean similar?

Answer from class: "From the exact point of view, the shape, the color."

So if I was to lift up this pen (holding up just the red one) I'm going to say it's similar, what do I mean? What do you have to have?

Brother Brandon says, "Size and color, or size only in this context."

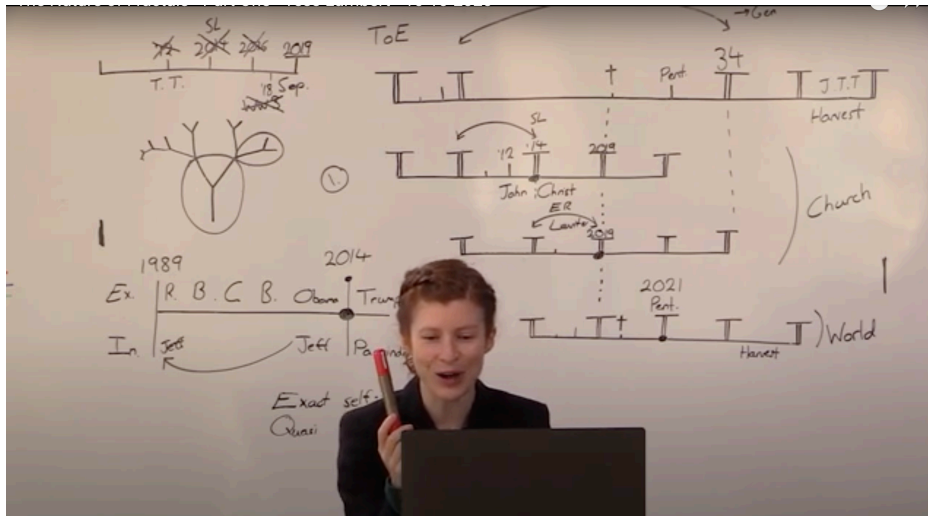
Sister Lynn, "Shape, size, color, function."

I think it's my question that was at fault. You're all correct. What I was trying to indicate is that you have two things. So when you say this is similar, Brother Raymond gets it, he says, "You're only holding up one."

Brother Russel, "You must have two things."

Sister Josephine, "Characteristics."

Brother Ray, "We need two."



That is the point I wanted to present. You need two, so if you're going to say this is similar (holding the one red pen), then what are you lacking? What you're comparing it to. So you can say, "This is similar to this." (Holding the red pen and the blue pen) Or with our black pens. This on its own (holding up one black pen), if you say it's similar then you must need, you must have to have something that you're making a comparison to. So if we could answer in our chat, if we don't mind, when we are talking about fractals, just going by the definitions (10:03) **what is the similarity? What are the things that are similar?**

Brother Wally, "A pattern."

Brendan, "The structure."

Sister Lynn, "Waymarks."

We are not making it through our lines yet, we are just sticking with the titles, the names of these two types.

Brother Ray, "The principles." "Appearances."

The word, the answer is in the title. **What is similar?**

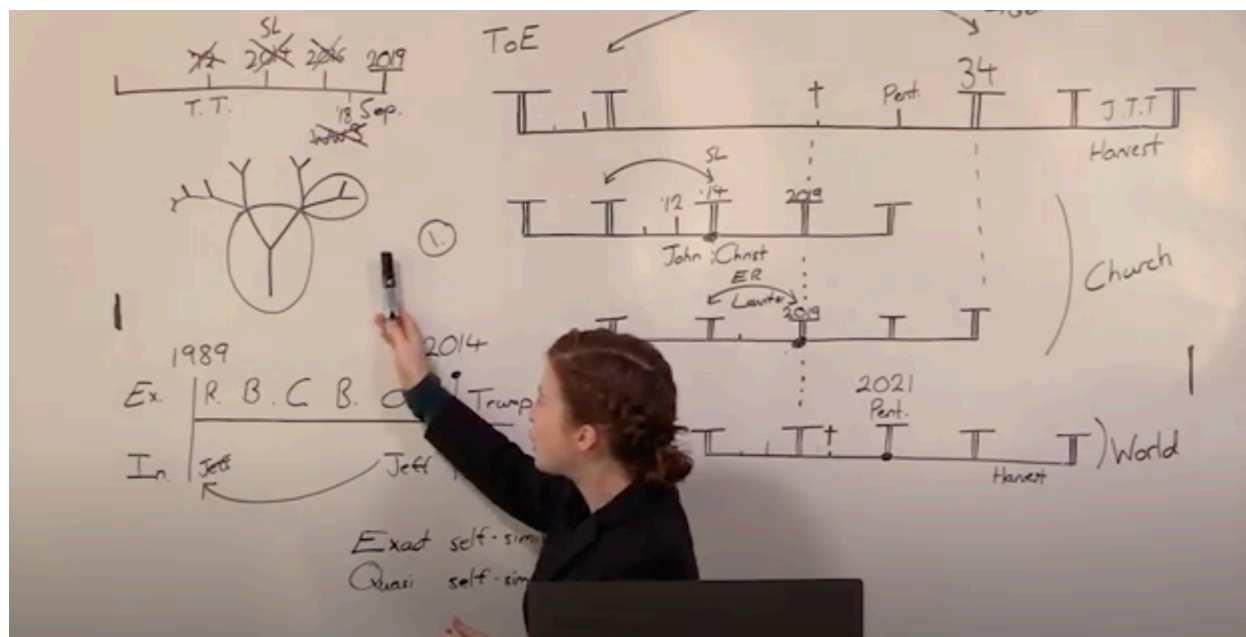
'Self.' Sister Lynn gets it.

**What is similar is parts of the 'Self.'** Does that make sense?

So you have '**Self-similar,**' so when we look at the word 'similar' it can mean exact, that two things look exactly alike, or that they are alike in principle parts. Leaving that open definition to one side, what is similar is '**self.**' So you must then, with that 'Self,' what do

you have to have with that 'Self?' Because if I had a hand and I said it's 'Self-similar' it's similar to itself, then what are the two things? You have to start breaking down that one thing. Does that make sense? Because 'Self' denotes 'one.' So if you're going to have Self-similar you're going to have to start breaking down the 'Self' into different parts that have similar components.

So you can look at our tree up here (below, 12:27) and you could say it's one structure; it's one 'Self.' Is everyone with me? So this is one structure; (tree) it's 'One-Self.' If



you're going to say that its Self-similar, then with similar you must have more than one thing to be comparing. So what you're doing is you're breaking that one thing into parts and comparing those parts to each other.

Brother Brendan, "You're comparing it to itself."

Yes! So you must then with itself be breaking it down into different parts. So it's 'Self-similar' the different parts of that 'One-Self' are similar to one another and then this word (**Exact** Self-similar or **Quasi** Self-similar) tells us what type of similar. Because similar is not specific. As we said before these two pens can be exactly alike or they can be alike in principle parts. So it needs to be more specific. Is this division of the parts exactly similar or quasi similar? And Quasi just means that other version of similar that Sister Marilyn shared with us about it being almost, or in its principle components they are the same.

Quasi. I'll give the Merriam-Webster's definition for Quasi.

**Quasi-** Having some resemblance, usually by possession of certain attributes.



So those two words, **Exact or Quasi**, are really just telling us which type of similar that we are dealing with. It's the exact version of similar or it's the partial version of similar where there's principle components that are the same.

At this point, thankfully for me, seems kind of simple. I didn't encourage or challenge anyone to start Googling fractals for an easy definition. It's actually quite a complex branch of mathematics, and a very recent one at that. So I'm not going to pretend to have an in-depth understanding of that field of geometry and mathematics, but it's really quite complex. It can give you quite a headache, but I want us to just become a little familiar with the concept of what fractals are. We should also be aware that it is a complex branch of geometry mathematics. So what I would like to do is show how fractals are usually observed because that's something that comes up in nature all around us.

So I'm going to share screen and I just want to give a little bit of an explanation of how they're seen in nature, because it's all through nature that you find fractals. So one of the most common that gets spoken about is a fern. Can everyone see the fern? Could everyone see the fractal? So if you were to take that as one-self, it's one entity, it's one



leaf. You would call it a Self-similar fractal, (above, 17:02), because if you started breaking that down into parts it's going to have a self-similarity about it. If you were to cut that half-way through that branch, that end part is just going to look like a smaller version of the whole. If you were to tear off one of those small branches it just looks like

a smaller version of the whole. Can everyone see that? I can't see the chat so I'm going to assume 'yes.'

That is an example of fractals in nature, and that is where they are principally observed.

So I'll share another one. This one I really like. It's a dandelion. Its observed scientifically, mathematically, as being a fractal. You picture the head of a dandelion. If you were to take one of those spikes and separate it from the whole of the flower what you would have is a stick with this fluffy array of branches at the top. It's 'Self-similar' to the whole. (18:36)



So I'll come back to the chat once we're done with this example of fractals in nature, so if you're having any questions or confusion about this please still write that in the chat, but the dandelion, I think, is a neat idea of a fractal, and it's identified geometrically as being a fractal. So as we go through these, please consider is this an **Exact self-similar** fractal or a **Quasi self-similar** fractal. Are we dealing with exact or partial?

Another common fractal, one that I particularly like is, I believe that's Romanesco (Romanesco) broccoli.



And this is spoken about quite a lot when it comes to fractals. It's a neat fractal in nature. If you were to break this part down into its individual components you would find at different scales it resembles the whole. I can see the chat now. Is everyone OK with that? People are seeing the fractal. You can start breaking down the head of broccoli and those individual parts even though they're different sizes, different scales, they're 'Self-similar" to the whole. This is a neat example of broccoli.

I haven't got a picture, but I think many of us can imagine it in our minds of the normal broccoli we would imagine and you know how you have that head of broccoli and then you tear off a floret and that floret resembles its own head of broccoli.



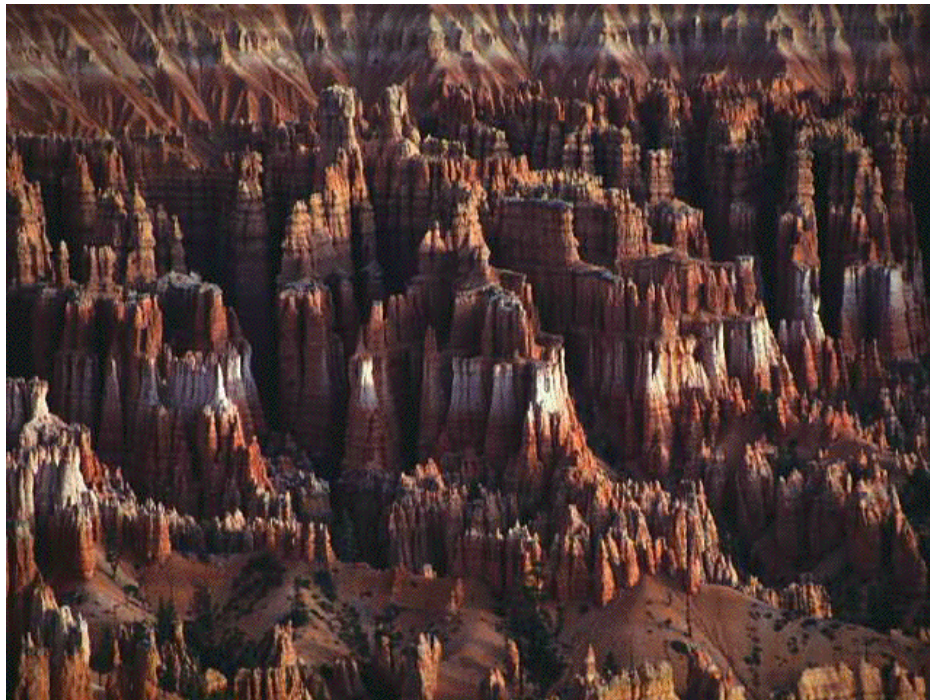
So this one is more Self-similar (Romanesco) than a normal head broccoli, which is why they prefer to use this example. But you would see a more partial fractal with a normal head of broccoli, one that we're more familiar with. Does that make sense?

They look like this one (Romanesco) because it's more exact.

They see fractals on a large scale, so one that they speak about also, is mountaintops. If you were to zoom out and see it from a distance those mountaintops form a particular pattern almost like a leaf or like tendrils, but then if you were to zoom in closer you'll find that there's a lot of repeating patterns in how mountaintops are structured, and we'll come back to this in a moment. This particular concept. I want us just to get familiar without being too complex about how common fractals are observed in nature.

Mountaintops being a good example. You see these spikes and depending on how bad you're at drawing like myself, or how young you are, you draw these simple mountains that can look like a cone, and that's not how mountains look. They are jagged, but if you start cutting that up and zooming in you see that if you were on the top of that mountain and just looking down at your feet you would see the same type of pattern on a fractal level as you would see if you were to zoom out and look at the whole.





Sister Marilyn says, "So it then depends on how deep you look into the details."

'Yes,' I would suggest yes. It can be at different scales.

We'll look at seashells. Shells are a good example of fractal patterns. You could cut that all across here and you would be left with what just looks like a smaller version of the



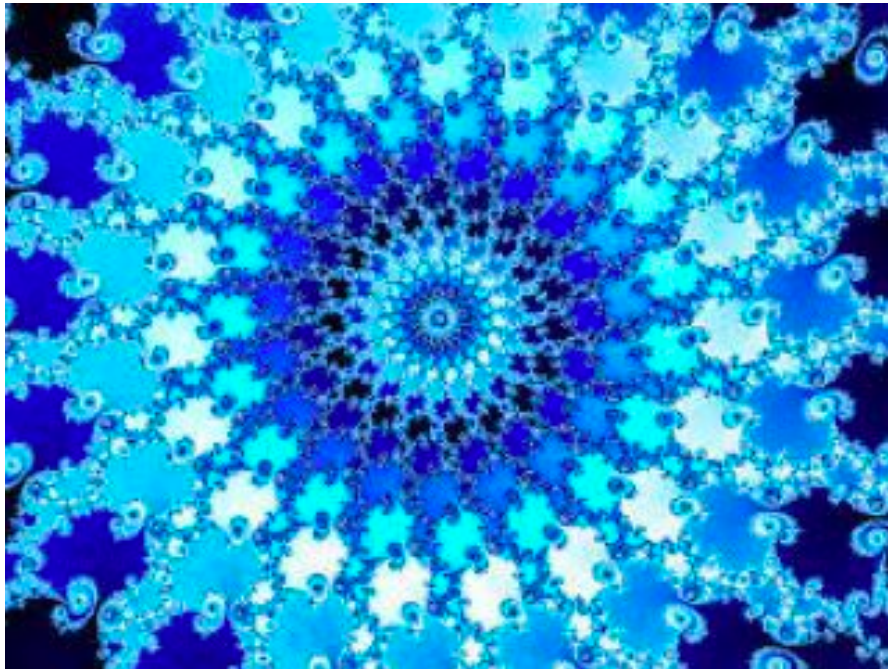
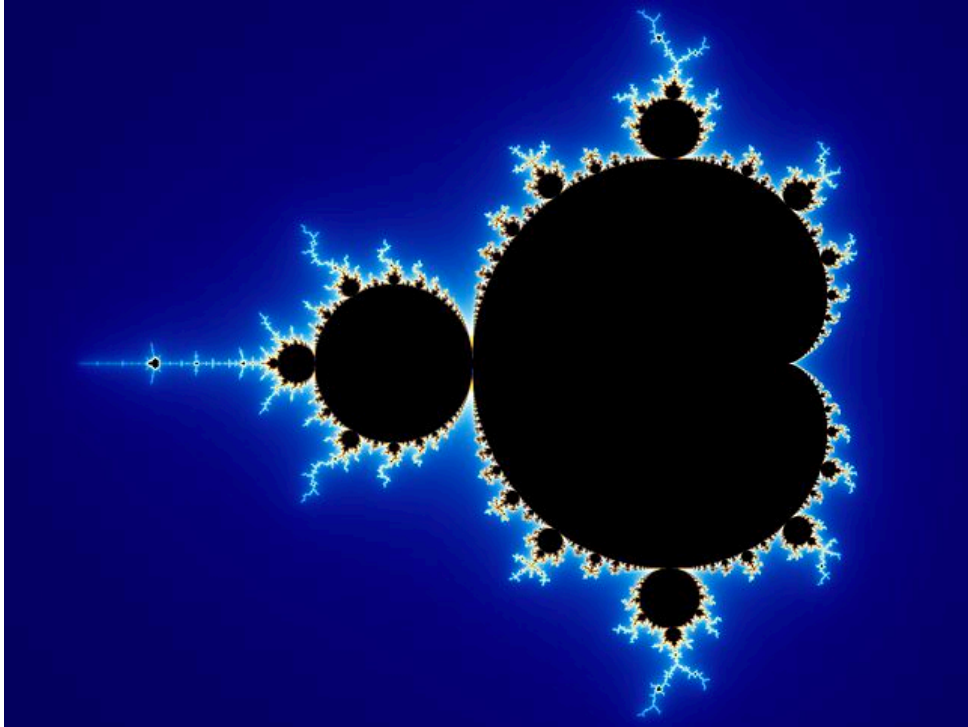
whole shell. You could cut it across here and its inner part would just end up looking like a smaller version of the whole shell. It becomes this fractal at different scales.

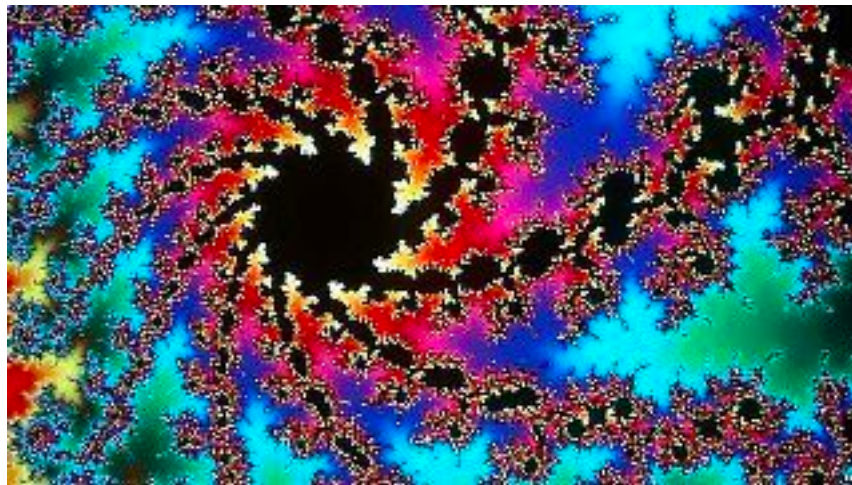
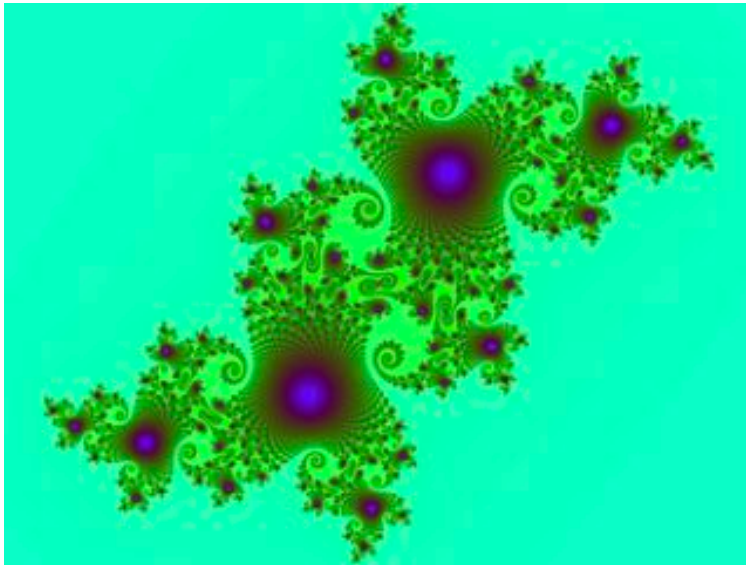


Where they're often seen and referred to is with snowflakes and ice crystals. They tend to form fractal patterns quite neatly. Snowflakes or any type of ice crystal that's where fractals are particularly frequently observed.



So I just want to look at one more fractal pattern, and this one is not found in nature. This was something that was constructed. So I'll give you a picture of it, and then we'll go back to our study. This is called the Mandelbrot Set.





The Mandelbrot set has become popular outside [mathematics](#) both for its aesthetic appeal and as an example of a complex structure arising from the application of simple rules. It is one of the best-known examples of [mathematical visualization](#), [mathematical beauty](#), and [motif](#). [Wikipedia](#)

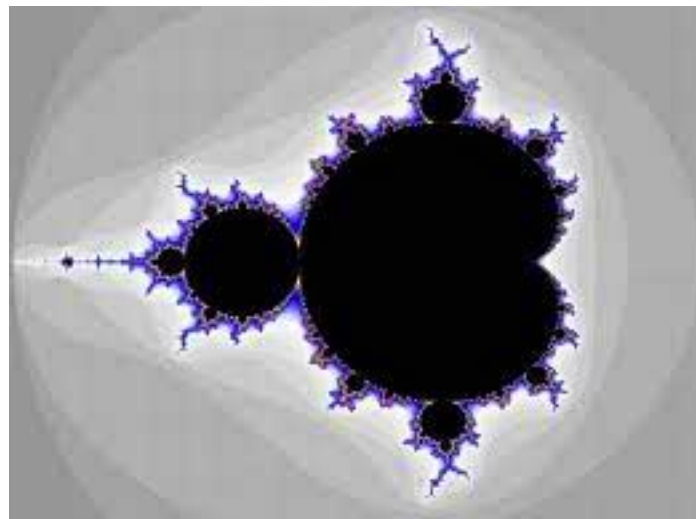
The Mandelbrot Set was named after the man who constructed this. They are a late study of mathematics and geometry and one of the reasons that they were such a late study is because they became easier to understand, easier to construct once computers and technology came onto the scene.





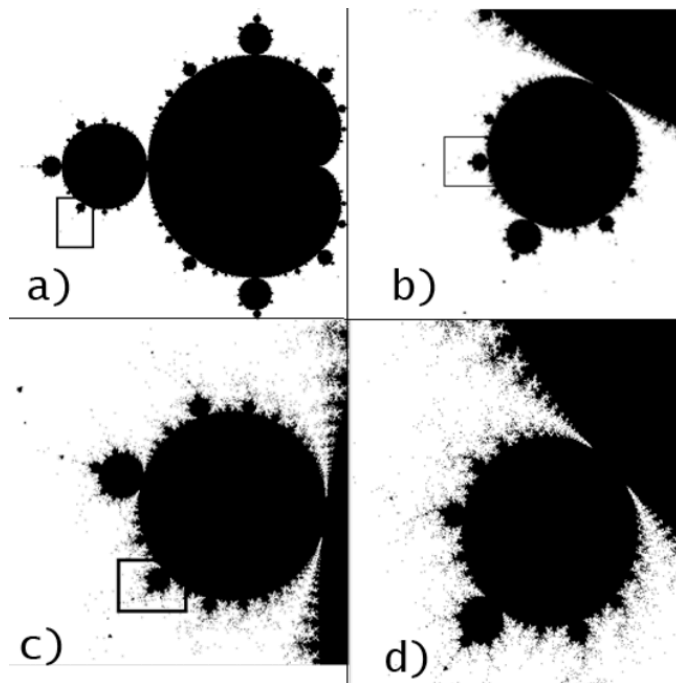
This one was constructed in the 1970's.(Above)

So if you just have that picture in your mind I think you can see that if you were to zoom in, if you were to cut it (is my mouse visible) if you were to cut it here, hoping you can see that. It's where that big ball and that smaller ball meet. If you were to cut it there this smaller one would be self-similar to the structure of the whole. So this small one is self-similar to the whole. If you were to cut it here, then this small this smallest on the far left, that structure would be self-similar to this larger structure, self-similar to the whole. So is this fractal Self-similar, or Exact or Quasi?

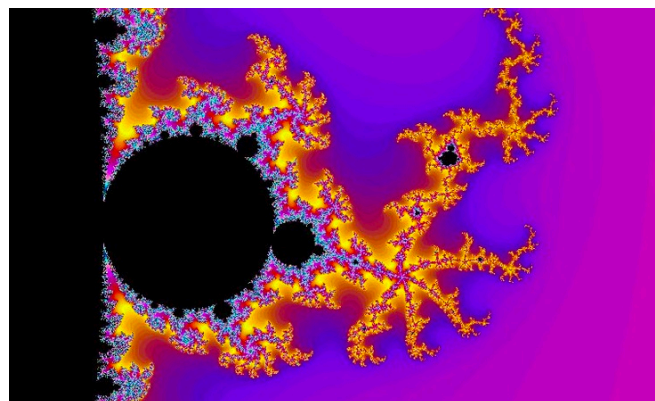


Sister Sandra says, "Quasi." Brother Wally says, "Quasi." Why do you say Quasi? Everyone is saying Quasi. Everyone is on the ball this morning. I think you're seeing that there's this little, it's almost like a heart shape.

Chat comment: "Not equal in size" Not equal in size. When it comes to Exact Self-similar fractals they dont consider the size. It's the comparison of the parts. It's the mathematical geometry of the parts that make it exact without them having to be equal in size. It comes down to equations. So while they are not equal in size what makes them Quasi is the fact that this one has this indentation, but once you deal with that, and once you start zooming in, and once they do this on a computer they can make this zoom in infinitely. It would never end. This little dot at the end of here would just become another structure. So once you get inside this fractal it would become exact. But the whole of it to form that fractal is Quasi. So this is Quasi.



So Brother Russel says, "The bigger one is like a heart and the smaller ones are round." Yes! So this whole structure would become a Quasi fractal at the beginning once you start zooming in. These ones just become exact fractals of one another.



So we'll end share. Back again.

This study of fractals, particularly, came into its own in the 1970's. It was that Mandelbrot Set. It's considered one of the greatest achievements or discoveries in mathematics. I don't know why, I'm just sharing that with you. It's considered a big deal. What they were able to do in constructing that fractal based on mathematics, and it was Mandelbrot, Mr Mandelbrot, who created that Mandelbrot Set, and he is the one, depending on how many scandals, because he wasn't very well liked, is kind of considered the father of this study of fractals. He termed, he associated that name fractal with this study; he created that term around 1975, and in 1979 he presented that Mandelbrot Set.

So this was in 1975 - 1979 a succession of studies in mathematics, but we see them all through nature. And one of the things that people struggle with is how did these scientists, experts miss this study for so long, because they're so prevalent in nature. But really, once the 1970's came and you had IBM computers it really gave them the ability to study these with much more detail. So all through nature you have these examples of repeating patterns, and fractals.

Would you say most of these are Exact or most of these are Quasi?

Brother Brendan says, "Quasi." Sister Brodie says, "Quasi."

I think you would be correct. When they are seen in nature the vast majority I think we would call quasi fractals. It's really once you start going into the ones you would create with computers that you see a lot of exact fractals.

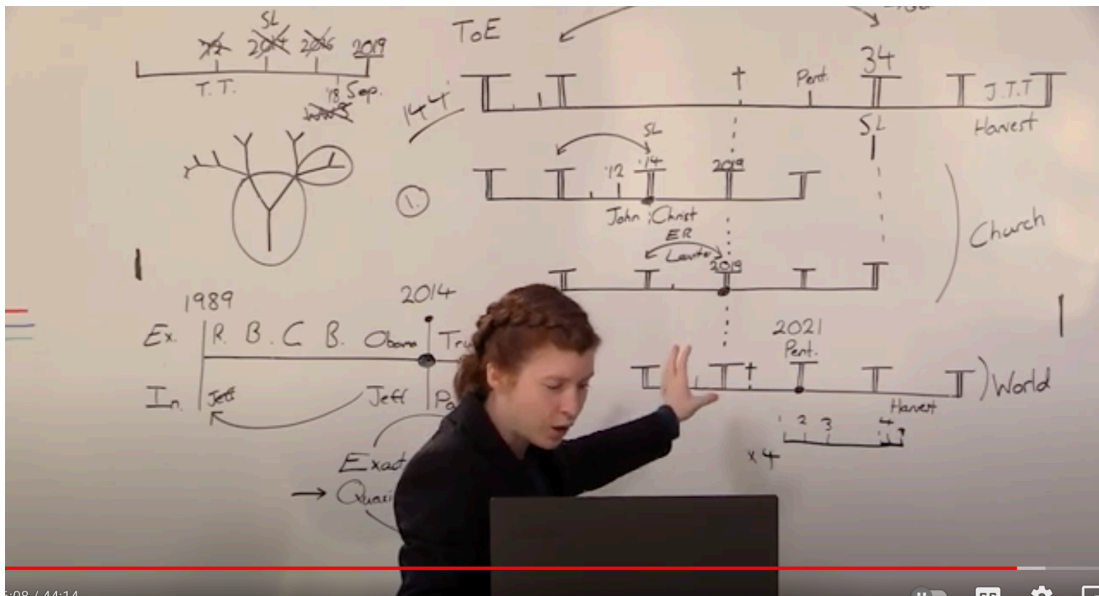
To repeat the question we looked through those photos of mountaintops, of ferns, of ice crystals and the question is, those fractals that we see in nature, are they more likely to be Quasi or only resembling in certain parts or are they more likely to be Exact when they're found in nature? That was for Brother Troy if he wants to think about it. When you look at the mountaintops Brother Troy says he believes that it's Quasi and I agree with him. Most of the ones we see in nature are not Exact self-similar fractals. It's computers and mathematics that tend to create an Exact self-similar fractal. So mostly we're dealing with this one (Quasi). When it comes to nature leaves, ice crystals, mountains, etc.,

So this study of fractals came into being in the late 1970's. 1979 you have Mr. Mandelbrot. I'm sure he has some very scientific titles. I did have his full name down. He's a Polish-born mathematician Benoit Mandelbrot. He's really headed that work through the 70's and 80's and into the 90's as well, so it's quite relatively new and it's only shortly after then that we start the study of Reform Lines.

1989, that is the Time of the End (ToE), the Increase of Knowledge (IoK) for this movement begins, and it's a study of Reform Lines, and what do we then understand? The Reform Lines, chiefly being, the Beginning and End of Ancient Israel, and the

Beginning and End of Modern Israel. So we're given really four. We're given principally four Reform Lines yes that we wouldn't, and I suggested that is quite a Quasi definition. I know you can't see me there; I can't see on this either.

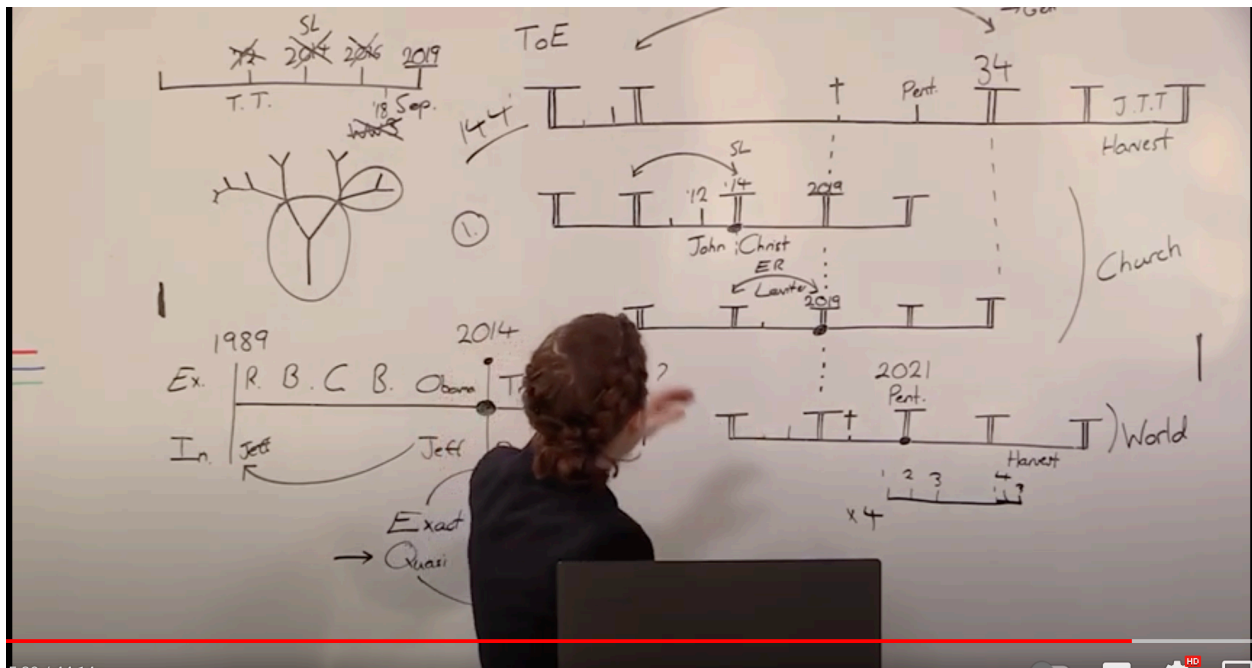
So we're just given a really basic Reform Line, but four of them in 1989. And we have, over the last 31 years, we have increased in our understanding of these Reform Lines. But for most of that time period it was just one structure. And we have this represented with this Omega Reform Line in our own time, what we prefer to call the Line of the 144K, and we get most of this reform line from Ellen White's writings themselves, at least this history, from what would line up with the Sunday Law (SL) to the Second Advent (SA).



So we get three-fifths of that Reform Line (144K) given to us, and for most of the time period that this movement has been in existence that's all it has been; just that one line, and along the way there's been changes that have been made as we've wrestled with the construction of this line. You may be familiar. Years ago the structure used to look something like this. You would have the First, Second and Third Angels' Message (34:50) and then you would have what they called the Fourth and it would be, they would call it like a mini repeat where you would have the First, Fourth, they would talk about the Fourth Angel, and none of that really is fit for purpose. We don't look at that anymore. But part of the reason people were constructing Reform Lines this way is they were wrestling with the details of how they are constructed. It didn't really fit into place.

It began to fit into place in 2014 with the study of Ezra 7:9 and what that study, if I can summarize a more expansive study in history, perhaps over simplify, is that it started to show us that if this line (35:39) this top line (144K) if you were to break it you start seeing self-similar parts. So they may choose to break it at the SL, this is the waymark of the SL (under 34 AD) if you break the reform line here, and this is going back to before it advanced to this stage (36:10) you're left with two parts the Church and the World. And what you start to see is that you were given another reform line that's a part of the whole a part of the one-self, but now you have two out of that one-self and they're self-similar.

Does that make sense? Does that make sense to people?  
 People are saying 'Yes.'

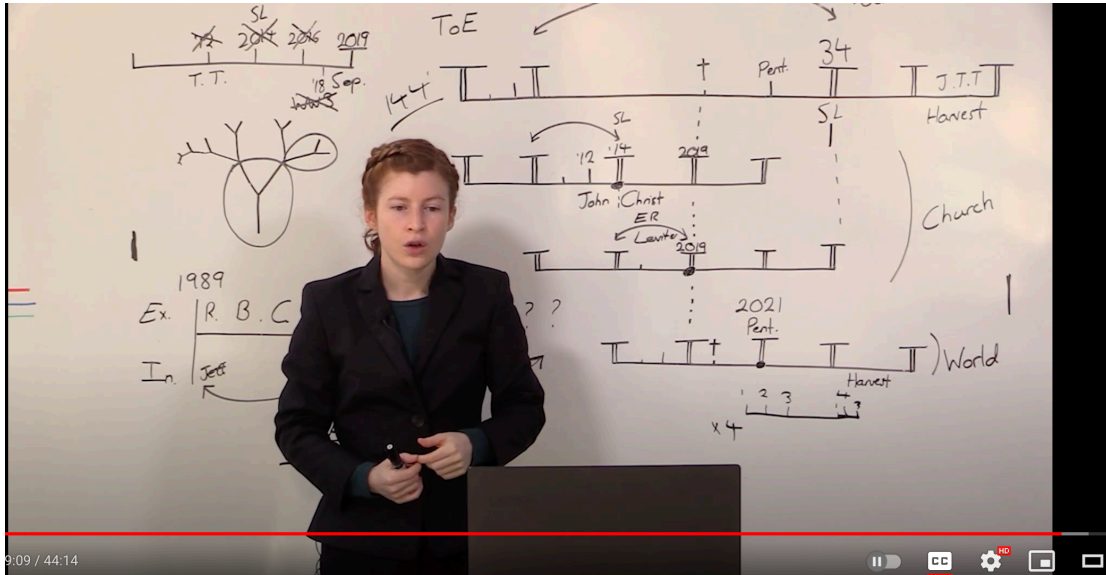


So for most of the last 31 years, its just been this one structure, the one-self, the one entity, like the Romanesco head of broccoli. And then we saw that if you were to break it, you break something you have two of them. So that breaking took time to be done correctly. It was a process, but even though it took some working out over years it was recognized that you were left with these self-similar parts. So it soon began to be called fractals and that is how they were termed in this movement, identified as fractals.

Then in that time period the last dispensation, 2014 - 2019 we became more exact about what these, how these fractals were structured and we saw over that last dispensation that you don't just have two, that you actually have these three.

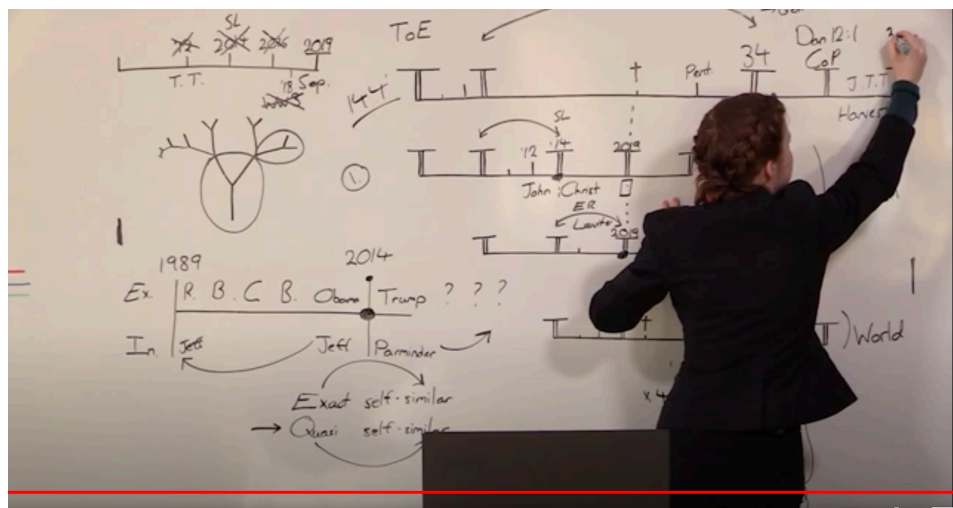
You have three different subsets that can be broken off from the one self, and when you break them off from the one self and you line them up next to each other you see that they are self-similar.

So this line of the Priests is self-similar to the line of the 144K. You have Ploughing, Early Rain, Latter Rain, Harvest. You have SL, CoP, and SA, but is that Exact or Quasi? We are talking about Exact or Quasi self-similar fractals. This is one of the issues that we find starts to separate us from FFA. Even early on last year. People are saying, "Quasi."



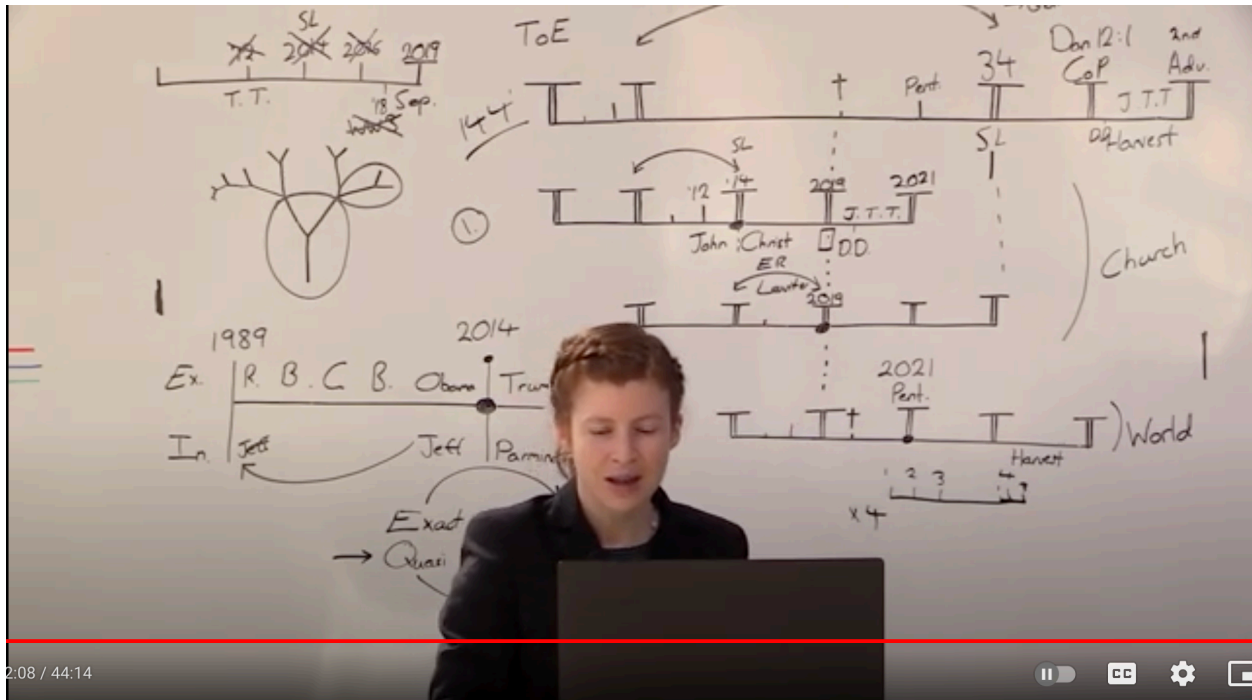
I agree. When it comes to the MC predicted 2019 was a shut-door, predicted that it's the CoP. What did FFA immediately do with that?

They say, "It's exact." So this CoP Michael stands up. They bring it down here (2019), and say Michael is going to stand up and intercession ends for everyone associated with this reform line. So they're saying this waymark is an Exact self-similar fractal of this waymark (39:52), CoP- Daniel 12:1, and we say, "Hold on this is the SA!" Do we





expect Christ to come back and take the Priests to heaven in 2021, at Panium?  
'No!' (40:09)



So without having terms like 'Exact' or 'Quasi' what we began to recognize was there's inconsistency with how the reform lines are being used. If this is going to be treated as an Exact fractal, then this should be treated as an Exact fractal. We must have consistency. If this is, we didn't use the word Quasi, if this is Quasi SA (2021) then this is Quasi CoP (2019), which means that it is. If I can go back to that Webster's definition; it has 'likeness in the principle points,' but it's not an exactness, it's not a perfect exact likeness. So this one is not exact (2021). It has similarities. This is Jacob's Time of Trouble (JTT, 2019 - 2021), the waymark of Concord is the Death Decree (DD) (during JTT Priest line), without going into that too much. We've already gone through that waymark.

Is this waymark (2021) an Exact fractal of this waymark 9SA 144K line) or a Quasi? We'd all recognize that it's Quasi, because Brother Brendan says, "There argument breaks down immediately because of the SA." Exactly, I agree and that's the point we were trying to make to them, but their unwillingness to learn and be consistent went to such an extent that they refused to let go of their idea of the exact nature of the CoP for the Priests. And at least as of July they still believed that that was an Exact fractal. It's a breakdown in methodology.

So we have been through the Death Decree (DD) for the Priests. Have any of us experienced a DD in our own countries? No! I think I can answer that one. I dont think anyone is going to say 'Yes' to that. We haven't been through an Exact fractal experience of the DD, but it has had similarities. The unity of people who oppose this movement, putting aside their differences and attacking, has taken place. There are so many similarities between what we would expect to see at the DD and what we have experienced now. So many similarities. It has also been a waymark associated with death, without trying to make massive implication application.

Through this waymark we have experienced the death of George Floyd, the death of John Lewis, and the death of Ruth Bader Ginsburg. It has been a history of death. I just want to make that point, but it is not Exact self-similar to the DD on the line of the 144K. We are dealing with Quasi self-similar fractals.

End of Part One

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