

The rather strangely named “Chaos Theory” has become very popular in helping to describe how the world works, and its ideas have fascinated me during the last few years. I have tried to find out in more detail exactly what “chaos” is in the scientific usage of the word, but, the theory and the application do appear to get very complicated very quickly. Certainly as a non-scientist and with limited mathematics I found it did so for me trying to understand it. But this is not surprising as this is part of what the chaos theory is trying to show.

I felt chaos ought to reflect something of theology, and two things did impress me particularly as possibly reflecting the way God works; this has prompted this essay. Firstly, the importance of seemingly simple initial conditions in chaotic dynamics which made me think of the importance of ultimates in God’s working. Secondly, I don’t think anyone could fail to be impressed by the beauty of the patterns which can be generated by a computer working with chaos dynamics. Surely these beautiful and intricate shapes and pictures must reflect something of the beauty and intricateness of the Divine and the Infinite; and from that the working of the Divine Providence. And so I began to find links between our regeneration and chaotic working as I am able to understand it.

Initial Conditions

In much of my reading about chaos I have been impressed with the emphasis laid on the “initial state”; for example:

many systems that are constantly changing are extremely sensitive to their initial state.¹

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¹ Nina Hall, ed., *The New Scientist Guide To Chaos* (London: Penguin Books, 1992), 8.

An important consequence of the instability of chaotic systems is their sensitivity to initial conditions.²

Straight away I see a parallel with our own spiritual development. The Writings of Swedenborg quite clearly teach us that there is a unique place and therefore a unique role for us in the Grand Man. Of course we are free to accept or reject it, but we are not free to choose where we will be in the Grand Man; that has been foreseen and provided for by the Lord. Part of that provision must surely be in what each of us uniquely receives in our inherited tendencies to good and evil at our birth, our initial conditions, which in regeneration we have to work with if we choose to respond to the Lord.

No man enjoys affection and perception so like another's as to be the same; nor is it possible to eternity. (DP 57)³

It is amazing to think that my initial conditions have come from generation upon generation of my ancestors lives and all this foreseen and provided for by the Lord for the use of the Grand Man.

So I see each of us being a unique receptacle of life from the Lord and able to react to it in a unique way which, as I hope to show, can be described as chaotic.

Chaotic For Whom?

Before answering this question we now need some definition of chaos to work with. At the moment I am going to define chaos as the way a system can behave and work (when affected by two or more forces) which is unpredictable, complex and appears disorderly. Peter Koch came up with a useful definition for me of chaos as

[s]ystem behaviour that depends so sensitively on the system's precise initial conditions that it is, in effect, unpredictable and

²Gregory L. Baker, *Religion And Science: From Swedenborg To Chaotic Dynamics* (New York: Solomon Press, 1992), 120.

³All references to Swedenborg's Theological works are for Swedenborg Society, London, editions.

cannot be distinguished from a random process, even though it is deterministic in a mathematical sense.⁴

Gregory Baker talks about systems as,

the procedures and activities of human and mechanical energetics...[S]ystems occur wherever there is structure and process.⁵

So I am quite happy to see our individual lives as a system, and also the process of our regeneration. Ian Percival states that, "chaos is persistent instability."⁶ From our own finite ability to see things, that is indeed how it appears to us, as does the complexity, unpredictability and disorderliness in my definition of chaos above.

Koch used the term "in effect" when talking about chaotic behaviour, but saw it as mathematically deterministic and, I am sure, to God in His infinity everything must be deterministic. For Him there is no such thing as chance or randomness. His providence works in a deterministic way. If it didn't, how could we describe Him as Omnipotent, Omniscient and Omnipresent?

...nothing however small exists that has not been foreseen and that has not been provided for accordingly. (AC 2694:3)

...the Lord is aware of every particular detail and is making provision for it moment by moment. If he were to stop doing this for a single instant every stage of development would be thrown into confusion. For one stage looks to the next in an unending sequence and produces chains of sequences which never cease. (AC 5122:3)

⁴ Peter M. Koch in *The McGraw Hill Encyclopaedia Of Science And Technology*, 7th. Edition (U.S.A. 1992), 463.

⁵ Gregory L. Baker, *ibid.*, 89.

⁶ In Hall, 12.

So to us our lives appear chaotic in the technical sense of the word as I have tried to define it and also, as we all know, at times quite chaotic literally as well! But to God who is all seeing and all knowing they aren't.

God's omnipotence is not devoid of order. God Himself is order; and because all things were created from God they were created from order, in order and with a view to order. (TCR 502)

Ultimates

There are, as I have said, initial simple conditions from which chaotic dynamics begin. I see a strong link between these and ultimates both in the nature of ultimates themselves and in the way the Lord works from primes through ultimates and so into mediates. We can see something of the nature of ultimates in the *Arcana Coelestia*.

The natural exists in the ultimate degree of order, for the natural encompasses all interior degrees and includes them altogether within itself. And since they are all included together within the natural, and so countless things are beheld as a single whole, obscurity exists there compared with other degrees. (AC 3720:3)

And in discussing the exterior memory as the final limit of order we are told that within it,

...spiritual and celestial things are gently terminated and rest when goods and truths are present there. (AC 2492)

What a beautiful picture of an ultimate! So we can see ultimates and externals as relatively general and simple wholes. Yet, contained within them are higher and deeper things for which the ultimate serves as a basis and containant,

...all prior things are actually present in these, and so fully that there is nothing lacking... They are not apparent, because they are regarded only externally. (DLW 215)

We also note that, “every outmost thing is covered around, and by this means kept distinct from prior things” (DLW 278). Ultimates can be seen in relation to the initial conditions for chaotic behaviour, noting what is contained within them and yet not visible.

Two more things need to be said about ultimates before looking further into regeneration. First I must acknowledge that, “good is the primary degree of order and truth the ultimate” (AC 3726:2). Secondly that, “it is within the natural or the ultimate degree of order that cognitions exist” (AC 4539).

Cognitions

We need to be aware that this term can have breadth of meaning, and can include certain types of knowledge which might be true or false, for example,

Cognitions which inmostly contain the Divine receive spiritual and celestial truth and good into themselves...cognitions that do not contain the Divine receive only falsity and evil. (AC 3665:2)

And,

...by the cognitions of truth and good are meant all things of the sense of the letter of the Word, in which and from which doctrinal things are. (AE 545:2)

We note also,

There are purer substances, which have real existence, and it is from these that cognitions and truths are brought into actual being. (AC 3726:3)

I am taking cognitions to be something very special in the process of regeneration and am dealing only with cognitions that are described above as containing the Divine. From cognitions the rational is formed, but it is really from an *affection* for them that this occurs. With this we are

into regeneration, and the Writings teach us that temptation now comes into play in this process,

For man does not become rational until useless and false scientifics are removed, and the natural man is thus purified, which takes place chiefly by means of temptations. (AE 654:18)

Also,

But in order that from rational he may become spiritual, he must of necessity undergo temptations, for by means of these the Rational is so subdued that it cannot call forth from the Natural such things as favour lusts and destroy the Rational. (AE 654:62)

The work of evil spirits and angels (in reality the Lord) in our experiences of temptation must be reflected in the, “unstable and complex interplay of forces that leads to chaotic behaviour.”⁷

We experience a state of stability or equilibrium when the forces of good and evil are in balance, something which the Lord constantly restores us to. Our experience of temptation is certainly one of disorder and anxiety, anything but stability. For us I think temptation is a chaotic state. But if we are, through the Lord’s power, able to overcome in temptation then progress in regeneration is being made. We remain in externals in this world but, at the same time, much is happening internally where the Lord is working in us from and through ultimates which may well be new “initial” conditions.

Feedback

We need to acknowledge the importance of feedback in a system. Discussing oscillators Percival states,

All these oscillating systems become chaotic because they possess an element of feedback. This results from a system’s reaction to opposing influences.⁸

⁷ Gregory L. Baker, *ibid.*, 120.

⁸ In Hall, 18.

I think we can link oscillation with the one vital oscillation which Walter Orthwein has described as Divine vibration or tremulation being God's heartbeat, coming from the Divine alternation between good and truth.⁹ Of course we would not see good and truth as opposing influences. The opposing influences arise in us in our regenerating life. As Orthwein shows,

our lives depend upon a surface, or continuous series of membranes, capable of receiving tremulation.¹⁰

Once we reach the stage of spiritual maturity at which we can begin our regeneration, we do respond to the influences of the angels and evil spirits with us. As we begin in adult life to react to life, feedback begins. I think it comes from the results of our choices made in freedom to heavenly or hellish influences which develop our ruling love. Our rational reaches into our cognitions and sees what it needs and can use. This can be fed into our externals as we need them. The hells can go into our memory and feed into us things to tempt us and condemn ourselves. Our life becomes chaotic. We are able to see this externally, particularly in the fact that we cannot predict or know the future. If we knew the future or could even determine exactly what would happen to us would our freedom of choice not disappear? Life needs to be chaotic for us, we need to regenerate in a chaotic state. It really is quite true what our Lord said on the mountain:

Therefore do not worry about tomorrow, for tomorrow will worry about its own things. Sufficient for the day is its own trouble.
(Matthew 6:34)

Temptation

When we are undergoing temptation we become aware of choices which we can make, to put it very simply, they are for good or evil. We may have already said or done something which we see as wrong and the temptation may be in our attitude towards it when we think and reflect on

⁹ Walter E. Orthwein in *New Church Life* (1989): 366.

¹⁰ *Ibid.*, 366.

it later. We may know many things about what is actually happening in the process of temptation, for example, that evil spirits are feeding in thoughts and feelings so that we might condemn ourselves and so give in, but we are not consciously aware of this happening. We feel torn between many different thoughts and feelings, and if it is a deeper temptation we feel very much on our own in it. The Writings are quite clear that our part in regeneration is to shun evils in our external selves and I take that to mean mind as well as body. When we begin to do that using self compulsion and acknowledging the truth that all of it is really the Lord's work, then our ultimates are opened up as the evils are removed and the Lord can flow into them.

...the Lord acts upon man's inmost, and from the inmost upon all that follows even to the ultimates, while man is at the same time in the ultimates. As long, therefore, as the ultimates are kept closed by the man himself there can be no purification. (DP 119:2)

The Blossom On The Tree

The Writings liken our rebirth to the states of a tree. When the evils in our outer selves are beginning to be removed and we really begin to desire the Lord's goodness and truth in our life that state is likened to a tree in blossom (AC 5115:2, 5116). I think this is important as it is easy in our society to see the goal or end of the process, in this case regeneration, as all important, which in itself it is. But we are not going to get there immediately and we need to see beauty on the way, not least to encourage us to greater and greater effort for the tasks ahead. After winter a tree coming into leaf and then blossom is a beautiful springtime happening, the endeavour for that coming from the same source as the endeavour for our rebirth, the Lord.

Divine Providence

As we appreciate the beauty of a tree in blossom, so we can also appreciate its complexity which reflects the work of the Lord's Divine Providence. I note here two "interior truths of angelic wisdom." Firstly,

“the Lord in no wise acts upon any particular thing in man separately but upon all things at the same time.” And secondly, “the Lord acts from inmost things and from ultimates at the same time” (DP 124:1,4).

The end of the Divine Providence is a Heaven from the human race. For this end to come into being for me personally, I need to have begun my regeneration or, to put it another way, to have allowed the Lord to begin changing my initial ruling love, which I had at birth, away from love of self or the world in prime position to love of Him or the neighbour as my chief love. In order for this to occur work has to be done in ultimates, that is, my externals, and has to be done while I live in an ultimate and fixed plane in time and space. In other words while I am living here on earth. When it is, then not only the end comes into being and has a real existence within me, but also the mediates or causes which must be all the things that the Lord is doing both in my internals and at the same time in my externals. The most amazingly complex operation has come into being which from our point of view can only be called miraculous.

Moreover, anyone who has been taught about Divine order can understand that man was created to become an angel, because in him is the ultimate of order, in which what belongs to heavenly and angelic wisdom can be brought into form and can be restored and multiplied. Divine order never stops midway there to form a something apart from an ultimate, for it is not in its fulness and completion there; but it goes on to the ultimate; and when it is in its ultimate it takes on its form, and by means there collected, it renews itself and produces itself further, which is accomplished through procreations. Therefore the seed-ground of heaven is in the ultimate (HH 315).

I believe we also see it reflected in the workings of chaos. It appears we begin with the simple initial states in a system before it can get chaotic. But from a New Church point of view this initial state must contain hidden within it all the complexity revealed by chaotic dynamics. Once forces begin to work on the system the complexities come into being. These initial states must be the containant and basis for all within it. We know that exterior things cannot flow into interior things.

I also think it is interesting that chaos dynamics weren't seen until computers were used to do all the calculations which were totally beyond

man to do on his own. Could this not be a reflection of a discrete degree between simple initial conditions as ultimates and chaos as mediates or between effects and causes?

The Urim And The Thummin

Once we are into mediates and causes we are into complexity, beauty and spirituality not always easy to put into words. At this time I am happy to see them reflected in the beauty and complexity of the computer-generated graphics of chaos. To me they must be a reflection of the ways of the Lord's Divine Providence and our states when we are able to put ourselves in the flow of it.

I conclude with the beauty of the Urim and The Thummin in Aaron's breastplate of judgement and how they signify the Lord's Divine Truth shining forth in ultimates. The Writings reveal how this can be for us when, from an affection for truth, we enquire after it and we love it as good.

That there is such a sparkling forth by which the Divine Truth, with those who are enlightened from the Word, is revealed from heaven in the natural man, is not perceived in the world, because it is not known that a man's Intellectual is enlightened by any light out of heaven; yet that this is so, has been granted to me to perceive, and also to see. It is to be noted further, that this sparkling forth appears in ultimate or last things, since all things which belong to the light from the Divine, descend even to the ultimate or last ends; and because they descend to them, they also shine forth in them and from them. (AC 9905:4)

As that light shines more and more from the New Heavens I am sure we will more and more see it reflected in the discoveries of science in our natural world. Can we not also hope that for some, this will lead them to see even greater beauty and meaning when they discover the truths of the Lord's second advent in His Divine Word in its threefold revelation to us living in this world?

Oh send out Your light and Your truth!
Let them lead me;
Let them bring me to Your holy hill
And to Your tabernacle.
Then will I go to the altar of God,
To God my exceeding joy. (Psalm 43 vs. 3 and 4). □

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In a letter to Rev. Erik E. Sandstrom, organizer of the association's essay contest, Mr. Lewin expressed his thanks for the provision of the opportunity to enter the contest and thus "have the stimulus to research what was for me a new subject, and relate it to theology." He went on to say: "I am sure at some time in the future modern science will see many of its ideas reflected in the Writings, just as we now see confirmations of theology in the natural world. I feel the Swedenborg Scientific Association, and in particular *The New Philosophy*, has a great part to play in this."

Editor



