

Another Step Toward a Theology of Chaos: What Butterflies and Tipping Points Can Teach Churches and Pastors

Abstract

Many disciplines have begun to shift their paradigms to include principles from chaos theory. Churches and pastors could benefit from some of the revolutionary insights into networks, self-organization and sensitive dependence upon initial conditions, otherwise known as “The Butterfly Effect.” Some of the deeper implications of these principles will be explored with a particular eye for theology, ecclesiology, and pastoral leadership.

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To my mind there must be, at the bottom of it all, not an equation,
but an utterly simple idea. And to me that idea, when we finally discover it,
will be so compelling, so inevitable, that we will say to one another,

“Oh, how beautiful. How could it have been otherwise?”

—John Archibald Wheeler

You hem me in—behind and before;
you have laid your hand upon me.
Such knowledge is too wonderful for me,
too lofty for me to attain.

Where can I go from your Spirit?

Where can I flee from your presence?

If I go up to the heavens, you are there;

if I make my bed in the depths, you are there.

If I rise on the wings of the dawn,

if I settle on the far side of the sea,

even there your hand will guide me,

your right hand will hold me fast.

If I say, “Surely the darkness will hide me

and the light become night around me,”

even the darkness will not be dark to you;

the night will shine like the day,

for darkness is as light to you.

—Psalm 139:5–12

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Introduction

Change has become a constant feature of our personal lives. As the complexity of the life around increases, however, congregations and their leaders seem to struggle to make sense of the changes corporately. Margaret Wheatley observes that “The layers of complexity, the sense of things being beyond our control and out of control, are but signals of our failure to understand a deeper reality of organizational life, and of life in general. We are all searching for this simpler way.”¹

Where is this simpler way? How can we understand and navigate the increasingly energetic and complex world we live in? Where do we find hope for our churches that struggle with change, and are there tools congregational leaders can use to understand, manage and encourage healthy change?

Ten years ago, I explored these same questions in a preliminary fashion.² In the ten years since I wrote my first paper on this subject, the world has changed dramatically, becoming even more “chaotic” and more rich with possibility. Since principles of the “new science”—Chaos Theory—offer rich insights into the nature of change for today, I want to explore in more depth some of the current implications chaos theory for churches and their leadership. In the process, we will delve into Biblical metaphors for change and chaos before offering some applications of chaos theory to congregational life and pastoral leadership.

¹ Margaret Wheatley, *Leadership and the New Science: Discovering Order in a Chaotic World* (San Francisco: Berrett-Koehler Publishers, 2006), p. 5.

² “Toward a Theology of Chaos: The New Scientific Paradigm and Some Implications for Ministry,” presented to the Wisconsin Congregational Theological Society, September 18, 1997.

Brief Explanation of Key Concepts of Chaos Theory

“Chaos Theory” is a collection of ideas that seem inter-related, but were “discovered” by scientists working in different fields. Generally speaking, chaos theory has five commonly recognized features: sensitive dependence upon initial conditions, self-similarity across scales, global patterns to local randomness, self-organization from apparent unpredictability, and universal application to non-linear, dynamic systems.

1. Sensitive Dependence Upon Initial Conditions

Newtonian thinking suggests that if we are approximate in our input, we will receive approximate output.

The basic idea of Western science is that you don't have to take into account the falling of a leaf on some planet in another galaxy when you're trying to account for the motion of a billiard ball on a pool table on earth. Very small influences can be neglected. There's a convergence in the way things work, and arbitrarily small influences don't blow up to have arbitrarily large effects.³

The “Butterfly Effect” recognizes that often this Newtonian assumption fails—a small change can produce exponential results. We experience this in a number of ways. We are delayed as we leave the house and miss being in an accident. A small detail missed starts a cascade that leads to someone losing a job. Or the classic from Edward Lorenz who discovered it, a butterfly flaps its wings in the Himalayas and that infinitesimal breeze begins an avalanche of effects that leads to flooding in Ecuador and drought in Australia.⁴ Chaos theory observes that in non-linear, dynamic systems, the connections between one point in the system and another may be linked in ways that cannot be easily predicted, making systems more sensitive to change than previously thought.

2. Self-Similarity Across Scales (Fractals and self-referencing)

One amazing feature of non-linear, dynamic systems is that the complexity revealed at one level is repeated at other levels. One can see this demonstrated with any of the mapping programs like Google Earth. The amount of complexity in a coastline stays constant at each level of “zooming”—satellite, airplane, bird's eye, street-level. Stock market charts also contain the same level of variation whether one is looking at 60 years, one year, one day or one hour. Benoit Mandelbrot called the mathematical systems that demonstrate this quality “fractals” and discovered how beautiful and ubiquitous these shapes were.⁵ Trees, clouds, cream in coffee, whorls in streams, blood vessels—all demonstrate similarity across scales. Among other things, this approach to mathematics led to revolutions in computer graphics and health care.⁶ Because these

³ Arthur Winfree, quoted in James Gleick's *Chaos: Making a New Science* (NY: Penguin Books, 1987), p. 15.

⁴ Edward Lorenz, “The Problem of Deducing the Climate from Governing Equations,” *Tellus* 16 (1964), pp. 1–11.

⁵ Mandelbrot's manifesto, *The Fractal Geometry of Nature* (NY: W.H. Freeman and Company, 1983), is amazingly accessible to appreciate his aesthetic approach to mathematics.

⁶ Gleick, *op.cit.*, p. 108.

systems are self-similar, one can understand the entire system by understanding any level well.

3. Global Patterns to Local Randomness (Strange Attractors)

As Edward Lorenz discovered in his experiments with weather forecasting, repeatedly feeding back data into the same equation (or equations) leads to chaotically different points.⁷ Surprisingly, as one recursively applies this same equation over time, the seemingly chaotic of individual calculations reveals an underlying order. Called “strange attractors,” these beautiful patterns never repeat and never cross. As it turns out, strange attractors are fractal.⁸ We can see this as we stand at the beach and watch the waves, which always tend to have the same general shape at the same spot, but whose path and details are always changing.

4. Self-Organization from Apparent Unpredictability

James Yorke, whose paper on population studies led to the term “chaos theory,” uncovered that many systems seem to start simple, but as one applies energy to the system there comes a point where the population begins to swing between two values, a “bifurcation” of possibility.⁹ Continue to add energy to the system and the possibilities split or bifurcate again, with the bifurcations coming more and more quickly. At some point, when energy is added suddenly everything seems to fall apart, to behave chaotically.

Yet in the middle of this complexity, stable cycles suddenly return. Even though the parameter [the energy] is rising, meaning that the nonlinearity is driving the system harder and harder, a window will suddenly appear with a regular period... The bifurcations appeared, then chaos—and then, within the chaos, the little spikes of order, ephemeral in their instability. Fleeting bits of periodic behavior.¹⁰

This behavior can be seen not just in populations of fish (as James Yorke first saw it), but also has tremendous application to disease propagation and social systems.¹¹

5. Universal Application to Non-linear, Dynamic Systems

Meteorologists, biologists, mathematicians, physicists, economists and many others have found that whenever one finds a non-linear, dynamic system, one finds all the features described above. Indeed, the points at which systems behave chaotically, their fractal nature and tendency toward self-organization have been found to have predictive value for all these fields. In a recent trip to Earlham College, I spoke with one of the computer science professors who talked about how the universality of complex systems has forced scientists of many different fields to collaborate in order to address the

⁷ Lorenz, “Deterministic Nonperiodic Flow,” *Journal of the Atmospheric Sciences* 20 (1963), pp. 130–41.

⁸ *ibid*, p. 139.

⁹ James Yorke, “Period Three Implies Chaos,” *American Mathematical Monthly*. 82 (1975), pp. 985–92.

¹⁰ Gleick, *op. cit.*, p. 73, 77.

¹¹ See “The Power of Tipping Points” and “Congregational Tipping Points” below.

behaviors from global warming to seismic behavior, and from disease propagation to ecological conservation.¹²

Although each of these principles would offer fertile discussion, we will primarily explore the implications of sensitive dependence upon initial conditions and self-organization for churches and pastors.

Insight: Information as Energy for Systems

In her evocative book, *Leadership and the New Science: Discovering Order in a Chaotic World*, Margaret J. Wheatley argues that information is energy.¹³ We understand this intuitively, but we can go farther and say that information is life, as DNA is a set of instructions for building life.¹⁴ Wheatley adds,

Without information, life cannot give birth to anything new; information is absolutely essential for the emergence of new order.... For a system to remain alive, for the universe to keep growing, information must be continually generated. If there is nothing new, or if the information merely confirms what already is, then the result will be death. Closed systems wind down and decay, victims of the Second Law of Thermodynamics.... Information is...the solar energy of organization—inexhaustible, with new progeny possible with every interpretation. As long as communication occurs in a shared context, fertility abounds. These new births require freedom; information must be free to circulate and find new partners.”¹⁵

The free-flow of information can be both hindrance and a help. Negative information such as gossip or rumor-mongering can generate energies encourage divisiveness and witch hunts. Some information is meant to be kept, it's energies too reactive even explosive to be safely handled outside the protective safety of strict confidentiality. Yet part of the impetus for the spread Christianity was Good News that had to be shared, information about what God had done in Jesus Christ that changed the world. Further, among the key factors sparking the Reformation was information—both the type and the quantity—and the desire for it.

Generally speaking, however, when one adds information to any part of the system, the entire system benefits, the added information affecting everything and everyone

¹² Conversation with Dr. Charlie Peck of Earlham College, October 20, 2007. In all these applications with all these systems, one would think that the more detailed the data we can get, the more calculations we can make, that we would get some answers. In fact, when meteorologists turn their computer clusters loose on forecasting, despite all the improvements in data and computing power, long-range forecasting of the weather is still as elusive as ever.

¹³ Wheatley, *op. cit.*, pp. 93ff.

¹⁴ Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (NY: Free Press, 2006), pp. 102–105. His chapter, “Deciphering God’s Instruction Book,” is a fascinating account of the human genome project, and a faithful scientist’s journey of discovery.

¹⁵ Wheatley, *op. cit.*, p.p. 94–95.

connected to the system. Thus, the more information a system is given, the easier and more quickly it can respond to situations.¹⁶

Biblical Metaphors of Chaos Theory

Because these principles are abstract, a number of biblical metaphors may prove helpful for visualizing them.

The Body of Christ

First, Paul's vision of the church as "the Body of Christ"¹⁷ reminds us both of the infinite intricacies of our connectedness with each other and with Christ, and also of our importance in the right functioning of the body. Though we are each unique, yet when we serve faithfully, the way we serve ultimately approaches the character of Christ, an "attractor" Jesus and Paul (among others) both acknowledge is "strange" indeed to our world. Moreover, the Body is similar in its complexity across a variety of scales from individuals to cell groups, from organizational to ecclesiological and even to the eschatological level. All this confronts us with one of the central mysteries of following Christ, that somehow when we die to our selves individually and corporately we share in Christ's death, and Christ's resurrection comes to dwell in us with power. Indeed, just as there are points in our individual lives when our hearts can "tip" from a life centered in the flesh to a life centered on Christ, so churches can reach points of crisis when they can "tip" in any number of directions. As the Reformation demonstrates, these "tipping points" can even happen at extremely macroscopic levels. The Body of Christ is a metaphor of a non-linear dynamic system

The Flow of Wind and Water

A second chaotic metaphor is the vision of the Spirit of God as wind or water reminds us of the chaotic power and unpredictability of God's Presence and influence.¹⁸ Jesus says to Nicodemus, "The wind blows wherever it pleases. You hear its sound, but you cannot tell where it comes from or where it is going. So it is with everyone born of the Spirit." Here the Greek word for wind, *pneuma* (πνεῦμα), can also mean spirit or breath! This commonality is true of Latin as well, where the word, *spiritus*, is the root for many of English words. Someone who gives us spirit *inspires* us. Someone who is dead has lost their breath; they have *expired*. So life, wind, breath and spirit are qualities not just of God, but also of humanity. Just as life does not easily lend itself to easy answers or linear equations, so the work of the Spirit does not lend itself to tight controls and small boxes. "Ultimately, the Holy Spirit leads us all to a mystical truth: God is before us, in

¹⁶ For more discussion of the role and power of information in the Reformation, see my paper, "The Last Information Revolution: What It Was and What Can We Learn from the Responses," delivered to the Wisconsin Congregational Theological Society, September 16, 2004.

¹⁷ cf. Romans 7:4, 12:4ff; 1 Corinthians 10:16–17, 12:12ff; Ephesians 1:22–23, 4:1ff, 5:23ff; Colossians 1:18; Ephesians 1:24–26; Colossians 3:15 among others.

¹⁸ Pentecost is of course the prime example of wind. Some examples of water imagery from the Old Testament include Genesis 1, Psalm 1, Jeremiah 2:12–13, and Amos 5:24.

us, with us, and through us, blessing us and life around us whenever we are open to the power of the Holy Spirit.”¹⁹ As individuals and churches are open to this movement and power of the spirit, sometimes periods of seeming chaos come upon us, only to give way to new structures as human and divine energy continue to work. Curiously, the chaotic, seemingly capricious winds of the Spirit are also what lead us into unity of mind and purpose.²⁰ In a similar way, the OT view of water recognizes (and often abhors) the ultimate chaos of the seas and God’s sovereignty over them, while at the same time acknowledging that in its proper place, the chaos of water brings life to fields and villages. Jesus would later say, “...whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life.”²¹ A small change in our lives can open the floodgates of Christ into our lives, and we become not just carriers of the water, but mysteriously, become a spring of that living water from which others will have a chance to drink, and so become not just “carriers” but springs themselves. Whether wind or water, the images of chaos in the Bible, offer us ways to live into the chaos without fear, trusting the power and refreshing of God.

The Power of Story

A third metaphor is story. The great stories of all time all share mythic features that contribute to their greatness. They all begin with an ordinary world that is often portrayed as stable, sometimes in ways that reveal underlying instability:

- the monochromatic monotony of Dorothy Gale’s Kansas in the movie, *The Wizard of Oz*
- the intractable, selfish cruelty of Victor Hugo’s *Les Miserables*
- the humorous short-sightedness of the Shire in Tolkien’s *The Lord of the Rings*
- the oppressive slavery of the Hebrews in Egypt

In all these stories, a call comes or a force intrudes, drawing (or thrusting) the hero or heroine to embark on a journey from the safety of the stable and certain world through a seemingly chaotic, sometimes dangerous wilderness. Along the way, the hero finds mentors and allies, shape-changers and gate-keepers—all contributing positively or negatively to the quest. At last, the hero enters the full-darkness of the underworld, perhaps even dies, before the quest can be completed and resurrection occurs.²² All

¹⁹ N. Graham Standish, *Becoming a Blessed Church: Forming a Church of Spiritual Purpose, Presence, and Power* (Herndon, VA: The Alban Institute, 2005), p. 100.

²⁰ cf. John 16:13–15 on leading into all truth; Romans 8:1–14 on the Spirit guiding our minds into God’s channels; Romans 15 on unity and work of the Spirit; 1 Corinthians 12 on the oneness of the Spirit’s purpose in the midst of the diversity of the Body of Christ.

²¹ John 4:14.

²² Christopher Vogler, *The Writer’s Journey: Mythic Structure for Writers* (Studio City, CA: Michael Wiese Productions, 1998). Less scholarly and more current than Joseph Campbell’s seminal work, *The Hero with a Thousand Faces* (Princeton, NJ: Princeton University Press, 1949, 1972), Vogler offers the same information with attention to the challenges of writing/telling a good story. For a very accessible approach to the same material, Campbell worked with Bill Moyers and

stories are variations on these themes and are found over and over again in the Bible. In the cycle of one person's story, we find truth, and this truth is connected to a larger truth revealed in a larger cycle. The sweep of all of salvation history from the Creation to the End Times bears striking similarity to your story and my story—moving from the stable world, impelled or called into a search for meaning and fulfillment, the finding of meaning in the search and the challenges both internal and external that test and shape us, the prophetic voice re-calling us to our quest, the offering up of our lives, the death and resurrection to a new life—and is endlessly repeated sometimes on a daily or hourly basis in our lives. Indeed, J.R.R. Tolkien even argued that there is only one story—that of Jesus Christ—and all other stories derive their archetypal greatness to the degree to which they reflect Christ's story:

The Gospel is the ultimate fairy-story, Tolkien concludes because it contains "the greatest and most complete conceivable eucatastrophe....There is no tale ever told that men would rather find was true, and none which so many skeptical men have accepted as true on its own merits....To reject it leads either to sadness or to wrath.

The Gospel is more than a fairy-story because it is not a human discovery or invention: it is an actuality that occurred in space and time. Christ was actually born, and he actually lived and died and was resurrected. Here is God's own Story wherein the Teller of the tale becomes its chief Actor. Rather than canceling all other stories, however, this one is what they have all been stumbling and pointing toward. The Gospel is the fulfillment and completion of all other stories.²³

Is that why the story of our lives seems to gather strength as we find our place in Christ's story?

The richness of these metaphors escapes the amount of space and time available, but still the taste of their powerful and multi-faceted natures offer insights into faithful living and suggest some fruitful ways we could use a chaos theory lens to view what already speaks to us.

Application: The Power of Tipping Points

One of the intriguing applications of self-organization from apparent unpredictability is what Malcolm Gladwell calls "the tipping point," the bifurcation of the dynamic system reached by applying energy. "The Tipping Point is the moment of critical mass, the threshold, the boiling point."²⁴ According to Gladwell,

George Lucas to produce a video series entitled, *The Power of Myth* (PBS, 1988). As a side note, George Lucas credits Campbell for ideas that grew into the *Star Wars Saga*.

²³Ralph C. Wood, *The Gospel According to Tolkien: Visions of the Kingdom in Middle-earth* (Louisville, KY: Westminster John Knox Press, 2003), p. 8. J.R.R. Tolkien's quote comes from "*The Monsters and the Critics*" and *Other Essays* (edited by Christopher Tolkien, Boston: Houghton Mifflin, 1984), p. 156.

²⁴Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (Boston: Back Bay Books/Little, Brown and Company, 2002), p. 12.

the best way to understand the emergence of fashion trends, the ebb and flow of crime waves, or, for that matter, the transformation of unknown books into bestsellers, or the rise of teenage smoking, or the phenomena of word of mouth, or any number of other mysterious changes that mark everyday life is to think of them as epidemics. Ideas and products and messages and behaviors spread just like viruses do.²⁵

Epidemics are non-linear, dynamic systems that share three characteristics:

1. they rely on “contagious behavior,”
2. small changes in the system yielded exponential results, and
3. “change happens not gradually but at one dramatic moment.”²⁶

What makes systems tip? Gladwell points to three factors that relate dynamically in a similar fashion to the three factors that drove Lorenz’ experiment with weather—the character and connectedness of the carriers, the contagiousness or “stickiness” of the infectious agent, and the critical importance of context.²⁷

Character and Connectedness of Carriers

We are all connected to each other, but some people are more connected to each other. People tend to become better connected the longer they are in a system, the more they move between different spheres, and the more simply and genuinely they help other people. In other words, we can all get better connected over time, but some people seem to be exponentially gifted in this way. In most congregations, one or two handfuls of people are connected to just about everyone in some fashion. These people may serve in an official capacity or not, but much of the unofficial word of mouth passes through them. These people are essential for helping to add energy/information to churches and spreading it around.

“Stickiness” of the Contagious Agent

Just as a person is more likely to catch a disease if it is contagious, so a person is more likely to be influenced by an idea if it is “sticky.” One example Gladwell uses is *Sesame Street*, which “was built about a simple breakthrough insight: that if you can hold the attention of children, you can educate them.”²⁸ Participation, interactivity, repetition, and lowering the threshold to involvement all promote the contagiousness of an idea. As it turns out, one of the most contagious forms of communication is story. For children,

It’s the only way they have of organizing the world, of organizing experience. They are not able to bring theories that organize things in terms of cause and effect and relationships, so they turn things into stories, and when they try to make sense of their life they use the storied version of their experience as the basis for further reflection. If they

²⁵ *ibid*, p. 7.

²⁶ *ibid*, pp. 7–9.

²⁷ *ibid*, pp. 18–19. For Lorenz, the variables were humidity, pressure and temperature.

²⁸ *ibid*, p. 101.

don't catch something in a narrative structure, it doesn't get remembered very well, and it doesn't seem to be accessible for further kinds of mulling over.²⁹

Part of what made the Good News “sticky” is that it was a *story* about an innocent man who was crucified and then rose from the dead, and also a story about God's love for people. But what really made it contagious was that each person who would tell Jesus' story also had their own story. More than just a story, then, the power is that the story *works* in people's lives. When we encourage participation, interactivity and repeat the message of the Good News, making it relevant to people's lives, we are making the Good News “sticky” for today.

Critical Importance of Context

Anyone who has led a small group or worship knows that “we are more than just sensitive to changes in context. We're exquisitely sensitive to them.”³⁰ Coldness, darkness, restrictiveness, shape, light and many other factors influence how well someone can receive a message, how “sticky” it is. Environment can play an even larger role, however.

If a window is broken and left unrepaired, people walking by will conclude that no one cares and no one is in charge. Soon, more windows will be broken, and the sense of anarchy will spread from the building to the street on which it faces, sending a signal that anything goes.... This is an epidemic theory of crime. It says that crime is contagious—just as a fashion trend is contagious—that it can start with a broken window and spread to an entire community.³¹

Years ago, when I was Associate Pastor of a declining Congregational Church, I was struck by the role architecture had on the character and life of the congregation. In 1968, the roof of the church was ripped off by a tornado. Over the next few years, the congregation struggled with plans to rebuild. Eventually a member who never attended contributed a substantial sum. This contributor put forward an architectural design that turned the sanctuary into a concert hall, and placed the choir and organ in the balcony. While many factors contributed to the congregation's subsequent decline, one key factor seems to have been the architecture: a cold, airy space not designed for the human voice, where people were locked into looking forward, and received the music as it came from behind and above them. No one seemed to notice as the choir dwindled to a handful of voices because no one could see them! More positively, seating that allows worshipers to see each other seems to reinforce a sense of community. Smaller changes in a church's environment can also make a great difference—more and better light improves people's moods, makes them more receptive and can lead to a more inviting fellowship. As you can see from these examples, context includes not just the physical environment, but also the observable human reactions.

²⁹ Jerome Bruner in *Narratives from the Crib*, edited by Katherine Nelson (Cambridge: Harvard University Press, 1989). Quoted in Gladwell, *op. cit.*, p. 118.

³⁰ Gladwell, p. 140.

³¹ Gladwell, p. 141. Gladwell here summarizes the research of criminologists, Wilson and

From this discussion we can glean some further insights into congregational behavior and pastoral leadership. First, in order for a congregation to “tip” it will take a combination of carrier connectedness, contagious message and contributing environment. The “perfect storms”—when all of these factors are at high points—will more than likely be direction-changing or history-making events in the congregation’s life. If any one of these factors is missing or confounds the message, then the message loses stickiness. Congregational and pastoral leadership would do well to make sure all three of these are working for them in attempting any systemic change. Second, a closer look at these factors reveals that all three are ways of adding and sustaining energy and information in a system. The well-connected, helpful connectors add energy to the system and spread the message and its energy. The “stickiness” of the message allows more time for the energy of a message to work on individuals and in the organization. A powerful context contributes to and reinforces the message. By “ramping up” and preserving the energy in a system, these factors help the congregation push towards bifurcation points.

Application: Congregational Tipping Points

Are there predictable tipping points for congregations? According to Alice Mann, yes. Because congregations vary widely in a multitude of ways, these points come at slightly different points. Nevertheless, congregations seem to experience the same transitions regardless of exactly where the tipping point lies.³² (See Figure 1: Congregational Size Categories)

Figure 1: Congregational Size Categories³³

Average weekly worship attendance	Church Size Category
0–50	Family Size
50–75	Transition
75–150	Pastoral Size
150–250	Transition
250–400	Program Size
400–500	Transition
500–1000	Corporate Size

³² Alice Mann, *The In-Between Church* (Bethesda, MD: The Alban Institute, 1998), p. 4. Mann credits Dan Hotchkiss, “Searching for the Key: Developing a Theory of Synagogue Size,” *Congregations* 27, no. 1 (January–February 2001); Gary McIntosh, *One Size Doesn’t Fit All* (Grand Rapids, MI: Revell, 1999); and preliminary findings from the National Congregations Study (NCS) headed by Mark Chavez at the University of Arizona.

³³ Adapted from Alice Mann, *The In-Between Church*, op. cit, p. 3. Carl F. George and Warren Bird, *How to Break Growth Barriers: Capturing Overlooked Opportunities for Church Growth* (Grand Rapids, MI: Baker Books, 1993) adds three more categories: super-church (weekly attendance of 1,000–3,000), mega-church (3,000–10,000) and meta-church (10,000 or more).

With each transition to a different level, churches wrestle with issues of focus and structure. At the Family Size, a church is primarily a collection of one or two extended families with the pastor serving as chaplain. In a family-size church the authority and power to generate change rest almost entirely with the matriarchs and patriarchs of the extended families. At the Pastoral Size, a church is a collection of extended families, small groups and active ministries revolving around the pastor who helps keep things running smoothly. In this size church, pastors can often have great authority to generate change through the church structure. As churches move toward the Pastoral-Program transition, congregations must become more group-centered again—recognizing that much of the pastoral care will happen through the small or cell groups. The organic feel of the first two sizes becomes even more organizationally complex, beyond a single leader's ability to manage alone. The Program Size features multiple staff and offers a wide variety of ministries and programs, each with a leader who looks after the needs in their sphere of influence. The pastor's job centers around recruiting, coaching and nurturing the team of volunteer and paid leaders. Churches transitioning to the Corporate Size find that the pastor becomes more prominent in setting the direction and focus of the church. More narrowly specialized ministries are added to the strong essentials, and other than crisis situations, virtually all pastoral care is conducted by trained lay people and cell/small groups.³⁴

As a congregation moves through a transition, a point always comes when the congregation must adopt the structure and focus of the next level, even if the transition is not complete. Chaos theory predicts that this period of transition can feel very chaotic to congregations. Increasingly different from their current level, congregations often have not acquired the finances or size that allow for stable presence in the next level. The biblical metaphor of wilderness may be instructive for these times. In the Old Testament, the challenges faced by Moses and the Israelites will offer comfort, signposts and cautionary tales for congregations and congregational leaders. Leaders and congregations can be comforted as they wrestle with resistance and hear the desire of people to go back to the old ways. Just as Moses struggles to meet needs until Jethro helps restructure the children of Israel with elders for more effective ministry, so churches and pastors sometimes have to near a breaking point before a new structure can take shape.³⁵ Among other cautionary tales comes the sending of the twelve spies into Canaan and the decision of the people of Israel to believe the fearful tales of the ten rather than the hopeful, faith-filled report of Joshua and Caleb.³⁶ In the New Testament, Jesus' wilderness retreat after his baptism reminds us that wilderness journeys not only test physical endurance, but also spiritual resolve and grounding. Congregations and their leaders can prepare themselves and their community for transition by acknowledging the changes ahead and possible internal experiences, drawing on the Biblical witness to reinforce a faithful approach.

³⁴ These short summaries are drawn from Alice Mann, *Raising the Roof: The Pastoral-to-Program Size Transition* (Herndon, VA: The Alban Institute, 2001). This work offers some wonderful insights not only into overcoming barriers in the Pastoral-Program transition, but offers tools for doing long-range planning.

³⁵ Exodus 18.

³⁶ Exodus, Chapters 13–14.

One of the interesting features about churches that are making the transition from one size to another is that attendance will plateau or even oscillate from one side of the size boundary to the other. This behavior is predicted at bifurcation points, noting that oscillations should decrease as energy is applied to the system, and the system enters a more complex structure. Of course, oscillations will also decrease if energy is released from the system if a congregation settles into a smaller size category.³⁷

As suggested in the section on tipping points above, the only way to move through transitions to more complex systems is by applying energy. Typically, churches try to add either energy, information or both:

- working harder
- outreach programs
- adding staff
- visioning programs
- adding or changing small group ministries
- adult education programs
- gifts-empowerment programs

Congregations should be able to multiply the effectiveness of any of these approaches by employing Gladwell's epidemic factors. Knowing the character of these size categories and the issues of transition from one to the next could be of great assistance to congregations and their leaders, allowing for more effective application of energy and information.

Application: Integration of Worship, Study and Prayer

Typically, congregations and pastors often think in terms of closed systems, using what Stephen Covey calls the Scarcity Principle.³⁸ This zero-sum approach to life and church fails because it is based on a faulty premise. Instead,

the indwelling of the living God's unbounded fullness does not mean the end, but rather the openness par excellence, of all life systems. They participate in God's creative abundance of possibilities and gain an eternal future and an eternal history...As we know, chaotic, complex and evolutionary systems of matter and life are built up in such a way as to display a growing openness to time and to an abundance of possibilities. These possibilities increase as their complexity increases, thus expanding the scope of their open, indeterministic behavior....If...our starting point is the expectation of God's "indwelling" of creation, then the future of the world can only be imagined as the openness of all finite life systems to the abundance of eternal life. In this way they can participate in the inexhaustible sources of life and in the divine creative ground of being.³⁹

³⁷ Mann, *Raising the Roof*, pp. 9–10.

³⁸ Stephen R. Covey, *The Seven Habits of Highly Effective People: Powerful Lessons in Personal Change* (NY: Simon & Schuster, 1989), pp. 219–220.

³⁹ Jürgen Moltmann, "Reflections on Chaos and God's Interaction with the World from a Trinitarian Perspective," *Chaos and Complexity: Scientific Perspectives on Divine Action*, edited by

Through worship, study and prayer, individuals and congregations can participate in and draw on the abundance of God, activating energy for the growth of the system. Recursive encounters with the simple, elegant and powerful ideas of faith and Presence of God will lead to greater beauty and complexity. Moreover, the “strange attractor” of the life and teachings of Jesus Christ will become increasingly apparent the more our worship, prayer and faithful living reflect the essential character of God and a right relationship with God.

Here the importance of having and using covenants and mission statements becomes clearer, for they can be simple, elegant and powerful expressions of the truths that guide a congregation. Certainly the stickiness of these statements can make it easier for individuals and congregations to be “infected” by the divine realities they express. When faced with multiple possibilities including being faithful to the covenant and mission statements, congregations can draw on more than the resources of God for the wisdom and energy to act faithfully.

Worship, study and prayer are information. When we open our individual and corporate systems to the energy of God’s information—prophetic Purpose, healing Presence, unstoppable Power,⁴⁰ then God’s energy/information flows into and through us. The brilliance of N. Graham Standish’s approach is that it reminds us that *relationship* is also information. Indeed, “...the mission of the early church...was to bring people into a deep, spiritual, loving, saving and healing relationship with God the Creator, Son, and Holy Spirit...Faith involves our minds, spirits, bodies, relationships, and beings.”⁴¹ The mission of today’s church is not about increasing numbers of people in worship,

because the focus of a blessed church is on opening to God in our midst.... Growth in numbers becomes a byproduct of growing in a relationship with God. The focus of a blessed church is on doing what God is calling us to do, having the confidence to know that God is in our midst, and relying upon God’s power to get results...In short, becoming a blessed church means becoming a place where God is present and God is experienced. Lives are thereby healed.⁴²

Therefore, if we add relevant worship, Bible study, and growing prayer to every aspect of the church’s life, we allow God to add his energy to our system and are more likely to become the congregation God intended. Guided by the Spirit, we are able to work with God to focus that energy in exactly the right places.

Robert John Russell, Nancey Murphy and Arthur R. Peacocke (Berkeley, CA: Center for Theology and the Natural Sciences, 1995), p. 209.

⁴⁰ N. Graham Standish, *Becoming a Blessed Church: Forming a Church of Spiritual Purpose, Presence, and Power* (Herndon, VA: The Alban Institute, 2005). Purpose, Presence and Power are Standish’s version of the Trinity.

⁴¹ *ibid*, p. 12.

⁴² *ibid*, p. 20.

Conclusion

Though the layers of complexity continue to grow and we may often have a sense of life being out of control, chaos theory gives us some new ways of thinking about how to work with and live into change. With new insights and tools, the chaos seems less scary and more beautiful, less of a monster and more of a dance. We may even discover that paradoxically, life is simpler. Instead of having to make Herculean efforts to break issues and programs into constituent parts, we can focus on the “small” game of doing the basics right—loving God well, becoming more Christ-like, developing more openness to the work of the Spirit. Rather than becoming less mysterious, we may find ourselves challenged to accept the mysteries, and so become part of the mysteries ourselves. Indeed, I would even suggest that whenever we are confronted by the deep mysteries of following and trusting Christ, we find them mysterious precisely because of their deep complexity, true reflections of God’s ultimate complexity. What God offers us is a deep place which is stable in this chaotic world, where God is the focus and the way through the apparent chaos to divine order.

Additional Reflections from Our Discussion of November 15, 2007:

Question: What is my definition of chaos? Is “chaos theory” really chaotic?

Answer: As I note in my first paper on the interface between chaos theory and theology,

...the term “chaos” is not entirely satisfactory for in fact, “chaos theory” describes the underlying patterns and self-organizational tendencies that seem to rise out of chaos. The term was first used by James Yorke in his paper, “Period Three Implies Chaos,” *American Mathematical Monthly*, 82(1975), pp. 985–92. As Butz notes in “Chaos Theory: Philosophically Old, Scientifically New,” *Counseling & Values*, 39:2(Jan 1995), pp. 84+, “How scientists experienced apparent randomness seems to be an important key to this topic, in that when they are able to analyze what appears to be random they find an underlying order...Grotstein (1990) had this to say: ‘It is my belief that emotional turbulence constitutes chaos but is experienced as randomness (p. 274)’ Therefore, it seems that much of the power of this theory arises from its ability to use the term chaos in describing the psychological experience of encountering material that is outside the bounds of an ‘order’ that one is accustomed to.”

The term, “chaos theory,” is thus a classic example of “stickiness” despite the fact that chaos theory is really more about self-organization and finding order where it *seems* none exists.

An interesting implication of these ideas ponders whether chaos really exists. If order underlies all apparent chaos, then any perceived chaos reflects the limitations of our own perspective and understanding. Order is there, if only we had the wit to perceive it. Put another way, just as underlying order may become easier to see at a greater distance and with greater repetition, so too the underlying order of the universe may ultimately have to be viewed from outside space-time in order for the underlying order to become fully apparent. As Christians, we would call this perspective “eternal” and acknowledge that only God has could fully grasp the underlying order of the universe.

Bibliography

- Bruner, Jerome. *Narratives from the Crib*. Edited by Katherine Nelson. Cambridge: Harvard University Press, 1989.
- Campbell, Joseph James. *The Hero with a Thousand Faces*. Princeton, NJ: Princeton University Press, 1949, 1972.
- Campbell, Joseph James, with Moyers, Bill and Lucas, George. *The Power of Myth*. Video series. PBS, 1988.
- Collins, Francis S. *The Language of God: A Scientist Presents Evidence for Belief*. NY: Free Press, 2006.
- Covey, Stephen R. *The Seven Habits of Highly Effective People: Powerful Lessons in Personal Change*. NY: Simon & Schuster, 1989.
- George, Carl F. and Bird, Warren. *How to Break Growth Barriers: Capturing Overlooked Opportunities for Church Growth*. Grand Rapids, MI: Baker Books, 1993.
- Gladwell, Malcolm. *The Tipping Point: How Little Things Can Make a Big Difference*. Boston: Back Bay Books/Little, Brown and Company, 2002.
- Gleick, James. *Chaos: Making a New Science*. NY: Penguin Books, 1987.
- Gray, Douglas. "The Last Information Revolution: What It Was and What Can We Learn from the Responses." Paper delivered to the Wisconsin Congregational Theological Society. September 16, 2004.
- Gray, Douglas. "Toward a Theology of Chaos: The New Scientific Paradigm and Some Implications for Ministry." Paper delivered to the Wisconsin Congregational Theological Society. September 18, 1997.
- Lorenz, Edward. "The Problem of Deducing the Climate from Governing Equations." *Tellus* 16 (1964). pp. 1–11
- Lorenz, Edward. "Deterministic Nonperiodic Flow." *Journal of the Atmospheric Sciences* 20 (1963). pp. 130–41.
- Mandelbrot, Benoit B. *The Fractal Geometry of Nature*. NY: W.H. Freeman and Company, 1983.
- Mann, Alice. *The In-Between Church*. Bethesda, MD: The Alban Institute, 1998.

Mann, Alice. *Raising the Roof: The Pastoral-to-Program Size Transition*. Herndon, VA: The Alban Institute, 2001.

Moltmann, Jürgen. "Reflections on Chaos and God's Interaction with the World from a Trinitarian Perspective," *Chaos and Complexity: Scientific Perspectives on Divine Action*. Edited by Russell, Robert John; Murphy, Nancey; and Peacocke, Arthur R. Berkeley, CA: Center for Theology and the Natural Sciences, 1995.

Standish, N. Graham. *Becoming a Blessed Church: Forming a Church of Spiritual Purpose, Presence, and Power*. Herndon, VA: The Alban Institute, 2005.

Tolkien, J.R.R. "*The Monsters and the Critics*" and *Other Essays*. Edited by Christopher Tolkien. Boston: Houghton Mifflin, 1984).

Vogler, Christopher. *The Writer's Journey: Mythic Structure for Writers*. Studio City, CA: Michael Wiese Productions, 1998.

Wheatley, Margaret J. *Leadership and the New Science: Discovering Order in a Chaotic World*. San Francisco: Berrett-Koehler Publishers, 2006.

Wood, Ralph C. *The Gospel According to Tolkien: Visions of the Kingdom in Middle-earth*. Louisville, KY: Westminster John Knox Press, 2003.

Yorke, James. "Period Three Implies Chaos." *American Mathematical Monthly*. 82(1975): 985–92.