

# Taming the Demons of Change

*When chaos turns out to be an angel in disguise*

BY MARJORIE KELLY

---

## We must give up the Aristotelian notion of past, present, and future lying along a straight line.

---

environment. Because an open system is constantly interacting with its world, it is sensitive to signals of change. And at certain points, those changes amplify into disturbances so profound that the system breaks apart—only to reconfigure itself at a higher, more complex level, better able to handle the new flow of information. These self-renewing systems are resilient more than stable—maintaining themselves not through rigidity but through adaptation.

The breakdown or “bifurcation point” is a moment when extraordinary things happen. For instead of sleepwalking down a deterministic path, the system makes a radical shift. At the level of elementary particles we call it a “random movement”; with humans we call it “creative choice.” For at this bifurcation point, the system recreates itself into a pattern ungoverned by its past. It is a point when a new future is begun.

As philosophy professor René Weber reveals in a wonderfully wide-ranging conversation with Prigogine (published in *Dialogues With Scientists and Sages*, Arkana-Penguin, 1986), a fundamental aspect of this theory is the idea that we create the future as we go. To understand how radical this view is—to grasp how truly *undetermined* the future is—Prigogine says we must give up the Aristotelian notion of past, present, and future lying along a straight line. “Time is creation,” he emphasizes. “The future is just not there.”

It's quite a remarkable picture of change. But what's most compelling about it is its universal applicability—for Prigogine's theory bridges the gap between living and non-living systems, and between

biological and social fields of inquiry. A dissipative structure can be a chemical solution or a human being or a corporation. And the pattern of change is the same.

The human lessons we draw from this are many: that a time of falling apart is quintessentially a creative moment, a time when we make choices that create our future. That this is true at a level beneath rationality, literally at the level of our cells. And perhaps most critically, that we should recognize in personal disruption the necessary doorway to transformation.

**T**HIS NOTION OF DISTRESS as the beginning of transformation is something I find intriguing—or distressing might be a better word. Really, how much nicer it would be to think of transformation as an invention of the human will, as an undertaking we embark on in our own self-possessed way, at a time of our own choosing. It would be grander that way—certainly more majestic than this business of being shaken up until we fall apart.

If Prigogine's theory seems an entirely modern way of conceptualizing change, it's interesting to note that he wasn't the first to remark on it. A half century ago a similar observation was made by historian Arnold Toynbee—and in search of his comments, I pulled out my marvelous one-volume condensation of the six-volume opus, *A Study of History* (Oxford University Press, 1947), and re-read the only part of Toynbee I've ever actually read: the final chapter, titled simply “Argument,” in which he sets forth all the lessons of the history of the world in twenty-two pages. Considerable space in those few pages, I found, was devoted to the role of challenges in creating greatness—what Toynbee called “The Virtues of Adversity.” “[M]an achieves civilization,” he wrote, “as a response to a challenge in a situation of special difficulty which rouses him to make a hitherto unprecedented effort.” Where life is too easy, he said, societies often

**D**EATH AND TAXES, the saying goes, are the only real certainties in life. But in our *fin de siècle* age—as we turn the corner not only on a century but on a millennium—this durable duo has become a trio: death and taxes, and change. Death, of course, is about the same as it ever was (one per customer, guaranteed); taxes are inching up, as they are wont to do; but change is accelerating today at jaw-dropping speed, moving at a pace utterly unprecedented in the history of humankind. If change is now our constant companion, it's a companion that's as uncomfortable for most of us as, well, as death and taxes. I mean, let's face it: Even those of us who work for change on a societal level find it difficult to deal with on a personal level—breaking habits, for example, or dealing with criticism. Change is just hard. But since it's not something we can do away with, or even slow down, perhaps all we can hope to do is understand it.

This has become something of a personal project of mine, trying to comprehend change. And the trick, I've come to see, is learning to look beyond the particular trends of change—like the shifting map of Eastern Europe, or the upheavals of a midlife passage—to find the patterns common to all change. What I've been intrigued to discover is that, in fields as diverse as chemistry and history and psychology, there are common paradigms of change—patterns that are very nearly universal. And those patterns don't look at all like the mathematical models we learned in school, where change is uniform, incremental, and predictable (the trajectory of a bullet, the order of the seasons). For in reality, it turns out, the movement of change isn't smooth but lurching, and its necessary impetus is stress.

The seminal work toward this view has been done by Ilya Prigogine, who won the Nobel Prize in Chemistry in 1977 for his theory of “dissipative structures”—a term that encompasses all open systems, living or non-living, that exchange energy with their

remain primitive. But "sudden crushing defeat" in war can be just the impetus a society needs to "set its house in order." Similarly, he observed, "peoples occupying frontier positions, exposed to constant attack, achieve a more brilliant development than their neighbours in more sheltered positions."

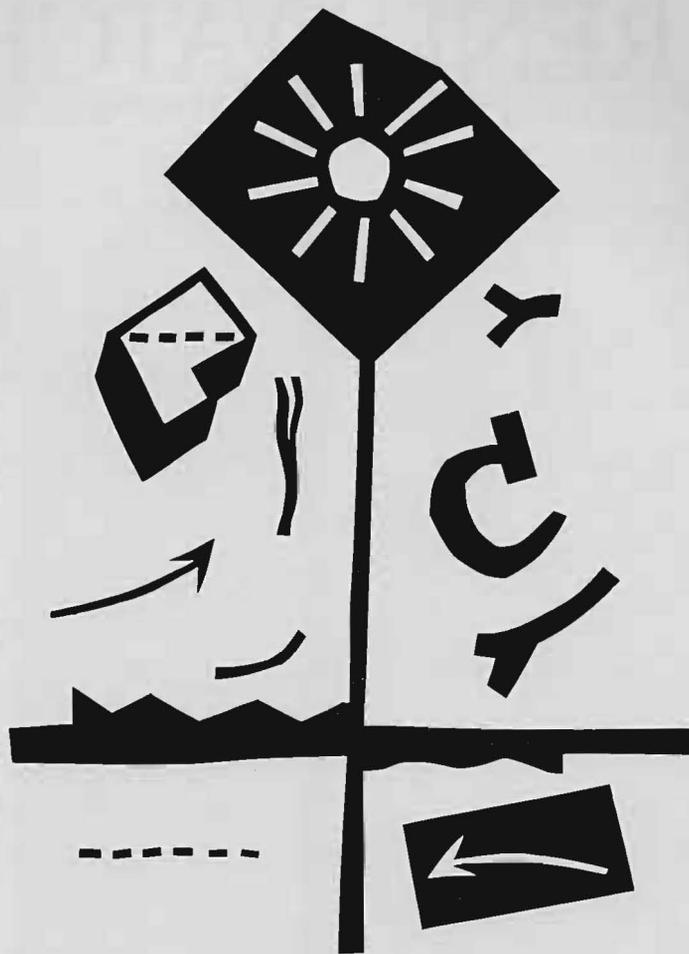
He added that some challenges can be too severe, leaving a society defeated, or—in the case of the Eskimos facing the Arctic climate—so absorbed in conquering one challenge that their energies for others are sapped. Still another pitfall, Toynbee observed, develops when a society masters great challenges—as when the Ottoman Empire reached its ultimate and massive expanse—only to suffer decline because of "a fatal rigidity."

It's a nice phrase, isn't it—"a fatal rigidity"—for it describes quite well those people and institutions I've encountered that refuse to change. I think of the Chinese government in Tiananmen Square, or a co-worker who could never admit he was wrong. Closer to home, I might say the phrase describes all of us when we're summoned to change in those areas we fear the most.

But it just may be—and here's the really hard part—that the areas we fear the most are those that hold the greatest promise of transformation. The reverse is no doubt true as well: that if we can't change in areas where we dread change, we're headed for decline. For if an ability to break apart and reorganize is the mark of a resilient system, an inability to change is the mark of a decaying system. Prigogine and Toynbee have made this truth abundantly clear.

So has IBM. You may not know—I certainly didn't know until I read James Stewart's brilliant piece in *The New Yorker* (February 15, 1993)—that IBM once faced the same kind of government antitrust action that proved the undoing of AT&T. The irony is that IBM won, while AT&T lost. IBM fought off an attempt to break the company apart (the government withdrew its case), while AT&T capitulated and was fractured into a handful of Baby Bells. "The decision was hailed as an unqualified victory for IBM," Stewart writes—which just goes to show how much our culture knows about change.

In retrospect, the staging of the thing was Shakespearean, for Reagan's Justice Department announced the fates of both AT&T and IBM on the same day: January 8, 1982. And on that day the curtain went up on a drama that might make a fitting addi-



tion to Toynbee's "Argument." In the eleven years after its "crushing defeat," AT&T's stock (plus the stock of Baby Bells that shareholders received at divestiture) climbed 222 percent. In the eleven years after its "unqualified victory," IBM's stock declined 17 percent. AT&T, meanwhile, has won two Baldrige Awards for quality. IBM has lost two-thirds of its market share.

It's almost breathtaking, really, how clear the judgment of history is. For what we see in the case of AT&T and IBM is a massive human experiment in the nature of transformation—more specifically, an experiment on the efficacy of two very different reactions to threat: a) in which a company reluctantly submits to a painful breakup of all it has worked to build; or b) in which a company triumphantly preserves its organization and conquers its challenger. For the word "company" we might substitute the word "individual" or "ego," and begin to grasp the enormity of the challenge that transformation presents.

**I**N OUR OWN LIVES, transformation is often demanded at midlife—that turning point which occurs somewhere between our mid-thirties and mid-forties. The midlife passage is movingly described by psychoanalyst Murray Stein in his book, *In Midlife: A Jungian Perspective* (Spring Publications,

1983)—and it echoes Prigogine in an uncanny way. During midlife, Stein says, our identity "falls apart"—as any dissipative structure might—only to reconfigure itself at a more complex, more mature level of functioning.

What's involved is a kind of death, a difficult letting go of old dreams or illusions—which leaves us in an odd kind of floating period, a time of unknowing and uncertainty, which Stein calls "liminality." The term is from the Latin "limen," meaning "doorway," and it refers to an in-between time that is like being in the threshold of a door, neither in nor out.

This concept of liminality is a useful addition to the theory of change, for it amplifies in human terms an observation that Prigogine made in scientific terms—namely, that at the bifurcation point, open systems tend to "hesitate" a moment before assuming their new form. In human life that hesitation can last months, or years. And it can occur not only at midlife but at any turning point, for these are the creative moments which build our lives.

With our old moorings gone, Stein says, liminality is a time when the deeper Self comes awake—bringing us flashes of insight, powerful dreams, or deep intuitions. But it's also a fearful time, when our task is simply to endure the anxiety of not-knowing, and to wait for clarity to emerge. It's a time when patience is one of the more useful virtues, and grabbing at premature closure is one of the greater perils.

Chemical solutions may resolve their splitting apart with random movement—but as humans, we resolve ours with inner choices. For if we can allow our old center of certainty to crumble, it creates a freedom in which we can find a new and truer center—based on our deepest core identity. So falling apart leads to coming together. And the result is a system that is better organized internally, and more responsive to its environment externally.

Transformation of any sort—human or chemical or corporate—is a perilous passage at best, calling for a radical letting go, and an openness to the unknown. It's hard to imagine anything more frightening. And it's hard to find a more likely route to progress—for in letting go of the old form, we create the space for a new form that will work even better. It comes down simply to this: that we can't advance as long as we're holding tight to what no longer works. And we have to break the mold before a new form can emerge. ☞