FROM THE PENDULUM TO THE FIRE

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[Derived from William Bergquist and Agnes Mura, *Ten Themes and Variations for Postmodern Leaders and Their Coaches*.]

Theme: Acknowledging Irreversibility in Our Postmodern World

Fundamental Question

What might we learn from postmodern theorists, observers and critics as well as contemporary physicists and biologists about the nature of change as it is now occurring in 21st Century societies?

Contemporary organizational theory—and, for that matter, most organizational theory during the past century—has been built upon a solid, mechanistic foundation. Many successful organizations during the Twentieth Century operated as well oiled systems. This perspective was key to the success of corporate enterprise during what Henry Luce called *The American Century*. These organizations imported resources from the outside (such as raw materials, employees, capital, sales orders and customers). They then provided some sort of transformation upon these imported resources (such as converting iron to automobiles, or untrained children to properly educated citizens). Finally these finely tuned organizations exported the transformed product to other organizations located in the external world. Unfortunately, these organizations are often ill equipped to deal with the highly turbulent, complex and unpredictable world of the Twenty First Century.

The Pendulum and Fire

The mechanistic organization of the Twentieth Century ran like a pendulum. A pendulum epitomizes elegance and simplicity in motion. We can disrupt the course of the pendulum by giving it an added push or by bumping into it and slowing it down. In either case, the pendulum will adjust its course and continue swinging back and forth at a greater or lesser magnitude. The pendulum, in modern systems theory terms, will always return to a homeostatic balance, retaining its basic form or pathway. Systems theorists would suggest that organizations tend to return to their previous form and function even with disruptions and interference. While the contemporary organization may seem to be chaotic and in disarray, we are (according to many modern theorists) merely witnessing a long term process of homeostatic readjustment and an ultimate return to a former state or style of functioning.

Is this mechanistic analogy to the pendulum still accurate for Twenty First Century organizations? Ilya Prigogine, a Nobel Prize winning scientist, suggests that many processes in nature (including perhaps those exhibited by organizations) don't match very well with the mechanistic world of the pendulum—as much as scientists throughout the ages would like the world to resemble this orderly pendulum. Rather, many processes of the world are likely to resemble the phenomenon that we call fire. Fire is a perplexing problem in the history of science. Prigogine notes that modern scientists, in an effort to create a coherent mechanistic model of the world, have tended to ignore the complex, transformative processes of fire, concentrating on only one of its properties: the capacity to generate heat. Fire thus became a heat machine for scientists and was treated in a mechanistic manner.

Fire, however, has many fascinating properties. Most importantly, it is an irreversible process: it consumes something that can not be reconstructed. Those of us who live in the San Francisco Bay Area were tragically attuned to this phenomenon during the early 1990s, as we watched the irreversible destruction of our neighbor's homes in the Oakland Firestorm. These homes could never be "unburned." There would never be a readjustment in the community that was destroyed by the fire. There could only be the construction of new homes and a new community. Many other processes of change and transformation are similarly irreversible. Avalanches can never be undone, nor can Pandora's Box ever be closed once the lid is opened and the evil spirits have escaped.

Rumors can never be totally dispelled once they are let out of their box, just as the good old times can never be restored, despite the efforts of Walt Disney, Frank Capra and other purveyors of nostalgia.

We are reminded of early childhood experiences. One of us was having a debate with a cousin. This debate like all debates during childhood concerned one of the "fundamental" issues of life. In this instance we were arguing about whether or not anything is impossible. I argued that anything is possible. My cousin argued that some things are impossible and offered an example: "you can't return the toothpaste to a tube once you have squeezed it out!" I had no good rebuttal to that argument and was very impressed with this evidence. Until recently I had no category in which to place this example of impossibility—or more accurately irreversibility. Many changes in organizations operate like toothpaste that has just been squeezed from the tube. I suppose you could get it back in the tube—but what a mess! And would the tube of toothpaste ever really be the same again? We squeeze out organizational truths in moments of frustration or anger and can never cover them up again (a variation on Pandora's Box). We tentatively consider a change in organizational structure, but the word gets out and we are soon stuck with this change whether we like it or not. We become bound up in complex and paradoxical relationships and can't undo them—except by divorce. The equilibrium has been disturbed, chaos often follows, and there is no returning home as the same person we were when we left. Time moves in one direction and can not be reversed.

A second remarkable characteristic of fire is its ephemeral nature. It is all process and not much substance. As Prigogine notes, the Newtonian sciences concentrated on substances and the ways in which forces operated on various substances. It became the *science of being.* Fire, by contrast, is a *science of becoming*. Science of being, notes Prigogine, focuses on the states of a system, whereas a science of becoming focused on temporal changes—such as the flickering of a flame. Fire demands a focus not on the outcomes of a production process, but on the nature of the process itself. As adults, we often focus on the outcomes of our children's creative work. We admire their drawings of sunsets or battles among alien forces. Yet, our children tend to focus on the process of drawing. Their picture is not a static portrait. Rather it is story that is unweaving as the child places various lines on the page. In a similar manner we must often focus on the ways in which decisions are made in organizations, or the styles being used to manage employees, rather than focusing on the final

decisions that are made or the relative success of the employee's performance. Unfortunately, organizational processes (like fires) are elusive. They are hard to measure and even harder to document in terms of their ultimate impact on an organization.

Pendulums operate in a quite different manner from fire. First, the movement of a pendulum is quite predictable, whereas fire is very unpredictable. Once we know the initial parameters of the pendulum (length of stem, force being applied when pendulum is first pushed in a specific direction, and so forth) we can predict virtually everything of importance about this mechanistic and relatively closed system. Even without this initial information, we can readily predict the future movement of the pendulum after observing its trajectory once or twice.

A second important feature of the pendulum that makes it a favorite of many modern day scientists is its primary connection to one of the central building blocks of Newtonian science, namely, gravity. While fire seems to defy or at least be indifferent to gravity, flickering about as if it was without weight or form, our noble pendulum provides clear evidence that gravity is present and operating in a uniform and predictable manner on objects of substance. The pendulum is a tool that readily is transformed into a technology (for example, the Swiss watch), based on its dependability and conceptual accessibility. Fire, by contrast, can burn and rage uncontrolled. Once started, fires tend to take on a life of their own, seemingly defying the laws of entropy. Pendulums gradually lose energy and obey the laws of entropy. They will stop when they receive inadequate attention and never rage out of control.

A third feature of the pendulum is the reversibility of its process. The pendulum must swing back and forth, repeatedly moving back to a space that it occupied a short time before. The pendulum, like many mechanistic systems, frequently undoes what has already been done in order for the system to remain in equilibrium and in operation. A pendulum that swings in only one direction ("to but not fro") would soon be replaced by one that works properly. Organizations that operate like pendulums shift in one direction. They then soon correct themselves and shift back in the opposite direction. Large inventories are soon corrected by a drop in production orders. Later, production orders are increased to make up for a drop in inventory.

First and Second Order Change and Learning

In organizations that resemble pendulums, homeostasis is always preserved—eventually. The organization keeps returning to an ideal or minimally acceptable state. Homeorhesis (a Greek word referring to the tendency of organizations to return to a common pathway or style) is also preserved. Leaders of the organization oversee, review and readjust the organization's mode of operation in order to return to a desired path, style or strategy. Time reverses itself and even restores itself as the organization returns to a previous stasis or "rhesis." The exceptional biologist and anthropologist, Gregory Bateson speaks of this as "first order" change. In essence, a first order change is one in which people in an organization are doing more of something that they are already doing or less of something that they are already doing. They bring about first order change as a way of returning to some desired state of being (homeostasis). We spend more money on a computer system in order to reduce our customer response time to a former level. We reduce the cost of a specific product in order to restore our competitive edge in the market place. We pay our employees higher wages in order to bring back the high level of morale and productivity in the company. First order changes are always reversible, because we can go back to the drawing board and repeatedly readjust our change effort, while being directed by feedback systems that provide us with information about how we are performing relative to our standard or goal.

One of the fundamental principles of organizations is that they tend to move toward homeostasis (the same final state) and toward homeo-rhesis (the same pattern). It is difficult in any organization (operating like a pendulum) to change either the tendency to move toward a specific final state or to alter a pattern. Stasis and rhesis are typically only altered with profound—even revolutionary—change. Gregory Bateson describes this as second order change and contrasts this with first order change. Second order change is a process (like fire) that is irreversible. A second order change takes place when we decide to (or are forced to) do something different from what we have done before. A second order change occurs when an organization chooses to provide a new kind of compensation, rather than merely increasing or decreasing current levels of compensation. Rather than paying more money or less money, a leader pays her employees in some manner other than money (for example, stock in the company, greater autonomy, or a new and more thoughtful mode of personal recognition and appreciation). Second order change is required when a leader chooses not to increase or decrease his rate of communication with his subordinates (first order change), but

rather to communicate something different to his subordinates than what he has ever communicated to them before. In other words, rather than talking more or talking less about something, this leader talks about something different.

In the case of any second order change, there is a choice point—a tipping point if you will—when an organization begins to move in a new direction. Once this choice point is traversed (what systems theorists call the point of *bifurcation* or what poets call the *fork-in-the-road*) there is no turning back. Once the fire has begun, one can't *unburn* what has already been consumed. One can extinguish the fire, but a certain amount of damage has already been done and a certain amount of warmth has already been generated. Once a leader has changed the way in which she compensates my employees, there is no turning back (as many leaders have found in their unionized organizations). Once a leader has begun to talk with his subordinates in a candid manner about their performance, he can't return to a previous period of indirect feedback and performance reviews. Once the story has been told, there is no returning to the moment before the story was first told. There is no *untelling* a story.

Reversibility and Irreversibility

In summary, the concepts of reversibility and irreversibility relate directly to those of pendulums and fires, and first and second order change. Just as some changes are first order and others are second order, and some look like the adjustment of a pendulum while others look like fire, so it is the case that some changes appear to be reversible and others irreversible. Those organizational change processes that can be reversed involve the restoration of balance or style. They typically are first order in nature. These processes resemble the dynamics of a pendulum. Other organizational change processes are irreversible. They bring about transformation and parallel the combustion processes of fire, rather than the mechanical processes of the pendulum. Second order change is typically associated with these irreversible processes of combustion.

The implications of organizational irreversibility are profound, for major problems often emerge when organizational fires are mistaken for organizational pendulums. The 1991 Soviet coup, for instance, appears at least from a short-term perspective to exemplify an irreversible, combustible form of change. Whereas the coup leaders thought that the Soviet Union would continue to operate

as a pendulum with each new group of leaders restoring the government to its previous state, the people on the streets saw this as an opportunity to bring about a fire—a second order change. There was going to be a change in the very process of change itself. This new order of things was not one of restoration, but rather one of transformation. Even if the new Russian order fails, there will never be a return to the old order. There will never again be a Soviet Union as we knew it during the years of the Cold War. The story can not be untold.