Leading into the Future III: From the Pendulum to the Fire

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> These challenges are not arising out of today. THEY ARE DIFFERENT. In most cases they are at odds and incompatible with what is accepted and successful today. We live in a period of PROFOUND TRANSITION—and the changes are more radical perhaps than even those that ushered in the "Second Industrial Revolution" of the middle of the 19th century, or the structural changes triggered by the Great Depression and the Second World War.
>
> - Peter Drucker, *Management Challenges for the 21st Century* (1999, p. ix)

This essay concerns a critical concept as we prepare to lead into the future: the changes we are now experiencing are not reversible. The challenges escaping from the box of postmodern society can't be stuffed back into this box. As with Pandora's box, that which is released must be acknowledged and addressed as an important part of our contemporary reality. Even back in 1999, Peter Drucker was telling us about the new realities we are facing. It is not just the nature of specific postmodern challenges. It is a much deeper and more profound challenge—requiring us to think and act in a different way. We are dealing not with mechanical, correctable pendulum-like puzzles, instead are faced with dynamic and ever changing ("flickering") fire-like problems and mysteries. In this essay, I will unpack this perhaps obscure use of the pendulum/fire analogy and trace out some of the implications of this metaphor for contemporary, postmodern leadership as they face these problems and mysteries..

A Mechanistic World

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 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.

A Dynamic World

Is this mechanistic analogy to the pendulum still accurate for Twenty First Century organizations? I turn to Ilya Prigogine (Prigogine and Stengers, 1984), a Nobel Prize winning scientist, who offered guidance in this matter many years ago. With his colleague, the philosopher, Isabelle Stengers, Prigogine 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 ((Prigogine and Stengers, 1984. P. ix). 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. (Prigogine and Stengers, 1984, p. 103) 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't be reconstructed. Those of us who lived 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." More recently, we witnessed the horrific burning of an entire town ("Paradise") in Northern California. There would never be a readjustment in the community that was destroyed by the fire—whether this be Oakland or Paradise. 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.

I am reminded of an early childhood experience. My cousin and I were debating about 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't 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." (Prigogine and Stengers, 1984, p. 209) A science of being, Prigogine suggests, focuses on the states of a system, whereas a science of becoming focused on temporal changes—such as the flickering of a flame. (Prigogine and Stengers, 1984, p. 310) 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 or Fires?

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, then soon correct themselves and shift back in the opposite direction. Large inventories are soon corrected by a reduction in production orders. Later, production orders are increased to make up for a reduction in inventory.

Rhesis and Orders of Change

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 identified a theory of logical types—which soon is translated by many other theorists and practitioners into a concept of "first order" and "second order" change (Bateson,1972) . 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).

When engaging first order change, 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 marketplace. 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.

Bateson contrasts first order change with something that he calls "second 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, I pay my 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 I choose not to increase or decrease my rate of communication with my subordinates (first order change), but rather to communicate something different to my subordinates than what I have ever communicated to them before. In other words, rather than talking more or talking less about something, I talk about something different.

In the case of any second order change, there is a choice point 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 I have changed the way in which I compensate my employees, there is no turning back (as many leaders have found in their unionized organizations). Once I have begun to talk with my subordinates in a candid manner about their performance, I 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.

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.

Throughout this series of essays, I explore the nature of irreversible, second order changes in our emerging postmodern world. 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—as much as the current leaders of Russia would like this to be the case. There will never again be a Soviet Union as we knew it during the years of the Cold War. The toothpaste can't be shoved back into the tube. The story can't be untold.

Implications for the Postmodern Leader

Earlier in this essay, I mentioned that contemporary leaders are facing fire-like problems and mysteries, rather than pendulum-like puzzles. At this point, I wish to go deeper into this distinction and relate it specifically to irreversibility and orders of change. I begin by describing what constitutes a problem and how it differs from problems and mysteries.

Puzzles

Puzzles are the everyday issues that anyone working in an organization must face. Puzzles have answers. They operate like pendulums and are uni-dimensional in that they can be clearly defined and can readily be quantified or at least measured. They are typically solved by an increase or decrease in some resource or activity. In other words, they require a first order change.

Puzzles concern such things as changing a production schedule to accommodate a major new order or determining the appropriate fee for a new, longer training program. Puzzles also concern changes in organizational policies to accommodate new federal laws or re-arranging an office floor plan or parking space distribution. With a puzzle, the parameters are clear. The desired outcome of a puzzle-solution process can readily be identified and is often important to (and can be decided by) a relatively small number of organization members. It is the sort of issue rightly passed to the lowest level of responsibility where the necessary information is available.

Researchers (for example, Miller & Page, 2007) who study complex systems use the metaphor of landscapes to distinguish a complex challenge from other types of simpler challenges being faced in various systems, including organizations. They point to the image of a single, dominant mountain peak when describing one type of landscape. Often volcanic in origin, these imposing mountains are clearly the highest point within sight. For those living in or visiting the Western United States, we can point to Mt. Rainer (in western Washington) or Mt. Shasta (in northern California). Mt. Fuji in Japan also exemplifies this type of landscape. You know when you have reached the highest point in the region and there is no doubt regarding the prominence of this peak. Similarly, in the case of puzzles, one knows when a satisfactory solution has been identified. One can stand triumphantly at the top of the mountain/puzzle, knowing that one has succeeded and can look back down to the path followed in reaching the solution/peak. There are other landscapes that are much more challenging—and these are the primary domains of those who are leading in a postmodern environment.

Problems

One of these landscapes is rugged. It is filled with problems—not puzzles. Problems can be differentiated from puzzles because multiple perspectives can be applied when analyzing a problem. Several possible solutions are associated with any one problem and multiple criteria can be applied to evaluating the potential effectiveness of any one solution. Problems typically require a second-order change and are addressing fiery-issues that are irreversible.

There are many more cognitive demands being placed on us when we confront problems than when we confront puzzles—given that problems do not have simple or single solutions. Problems are multi-dimensional and inter-disciplinary in nature. They are inevitably complicated in that they involve many elements (Miller and Page, 2007). Any one problem can be viewed from many different points of view—thus it is unclear when they have been successfully resolved. For example, we find a technical solution and realize that the problem has financial implications. We address the financial implications and soon find that there are a whole host of managerial concerns associated with the problem.

Problems that exist in contemporary organizations often concern such things as personnel policies (that are not forced by new government regulations), compensation systems (that are not just annual inflation-driven wage increases but incentivize certain behaviors), productivity, morale, creativity, risk-taking, flexibility—and trust. Because the outcome of the problem-solution process itself is of significant interest to multiple stakeholders, often the most important and difficult discussions revolve around agreeing on the criteria for solving a problem or even determining when solutions are successful.

Here is where the change in landscape occurs. Researchers and theorists who are seeking to understand complicated problems often describe the settings in which problems emerge as “rugged landscapes.” (Miller and Page, 2007, p. 216) This type of landscape is filled with many mountains of about the same height. Think of the majestic mountain range called the Grand Tetons or the front range of the Rocky Mountains that citizens of Denver Colorado see every day. Compare these landscapes with a landscape in which one mountain peak dominates. In a rugged landscape that is complicated, one finds many competing viewpoints about which mountain is higher or which vista is more beautiful. A similar case can be made regarding the challenging problems facing the 21st Century leader.

Dilemmas

There is one particularly challenging kind of problem: the dilemma. When certain problems that leaders face appear impervious to a definitive solution, it becomes useful to classify them as dilemmas. While dilemmas like other kinds of problems are complicated, they are also complex, in that each of the many elements embedded in the dilemma is connected to each (or most) of the other elements (Miller and Page, 2007). We may view the problem from one perspective and take action to alleviate one part of the problem. Then we immediately confront another part of the problem, often represented by an opposing stakeholder group:

We tighten up our policies regarding new product development and find that creativity is dropping off. We increase the price of a service that we deliver in order to increase revenues and find that we are losing customers, thereby losing revenues. Leaders may not always recognize a dilemma for what it is. Newly minted leaders are particularly inclined to see problems and dilemmas in a limited or simplistic way and attempt to deal with them as if they are puzzles. When that happens, these leaders dig themselves deeper and deeper into the complexity, seriousness, and paradox of the "mess." (Schön, 1983)

At times we find that the problem is a set of nested dilemmas. One set of conflicting priorities exists within another set of conflicting priorities. For instance, we want to pay one employee a bonus, but are concerned that if we do so other employees who find out about it will be resentful and less likely to collaborate with their bonused colleague. This dilemma, in turn, rests inside an even bigger dilemma: we want to increase salary and benefits for all our employees, yet also are trying to keep down costs because the market in which our product is being sold is highly competitive. These are complex nested dilemmas - not readily solved puzzles.

As organizational leaders, we are likely to often confront the challenge of helping those we lead work with dilemmas and even nested dilemmas. Like other problems, dilemmas can be described as "rugged landscapes." (Miller and Page, 2007) However, because dilemmas involve multiple elements that are intimately interlinked, they are far more than a cluster or range of mountain peaks of similar size. This type of complex landscape is filled not only with many mountains of about the same height, but also with river valleys, forested plains and many communities (think of the Appalachian Mountains). Compare this with a landscape in which one mountain peak dominates or a series of

mountains dominate. In a complex, rugged landscape, one finds not only many competing viewpoints, but also an intricate and often paradoxical interweaving of these differing viewpoints.

Wait. It gets even more challenging! Dilemmas often confront us in complex rugged landscapes with the need to balance or manage two or more opposed, yet equally valid, interests or *polarities*. Whenever multiple stakeholders with unique interests are involved, it is safe to expect a dilemma to present itself for the leader who intersects with it. Barry Johnson (1996), the "dean" of *polarity management*, suggests as a first step for handling everyday dilemmas that leaders identify the *two legitimate but opposite forces* at work in the dilemma, and then analyze each side's benefits and disadvantages. Organizationally, the two opposing forces are often embodied in "camps."

For example, the comptroller's interest in minimizing expenses is pitted against the marketing department head who needs to invest in consumer research. A centralized corporation has the need to standardize its offerings, but the offices in other states or provinces need flexibility in running their daily affairs. Neither position is "wrong." Leaders who understands polarity management will regularly encourage those with whom they are working to bring both parties to the table and facilitate a mutual understanding of the respective benefits and possible negative consequences of holding either position *to the exclusion of the other*.

Once the strengths and risks of the two sides are understood, the discussion is directed by the leader to what happens when we try to *maximize* the benefits of one side at the expense of the other side. For example, we might simply centralize everything. What happens? We decide to basically sleep at the office and ignore our family. What are the repercussions? As a manager, we always sided with our people's needs or always drive them for maximum efficiency. What will be the outcome? It turns out that such unilateral bias to one side of a paradox or dilemma soon causes the downsides of that same force to manifest: Our nights at the office eventually lead to divorce, just as a 24/7 romance at the exclusion of work would likely lead to destitution. Total centralization causes the incapacity to customize, but totally giving way to the local interests of a subsidiary would drive up the cost to uncompetitive levels.

Barry Johnson warns us as leaders that we not try to maximize but rather carefully *optimize* the degree to which the parties incline toward one side or the other and for how long. Optimizing means that we must find a reasonable and perhaps flexible set-point as we take action in favor of one side or another. Finding these acceptable optimum responses and redefining them again and again is the key to

polarity management; and it requires a constant process of vigilance, negotiation and adjustments. Effective 21st Century leaders must continuously seek and refine a dynamic, flexible balance so that each side's beneficial contribution can be enjoyed, without engendering serious negative consequences. This is what it means to navigate a rugged landscape.

As organizational leaders, we may already be finding (or soon will find) that polarity management, while significantly more sophisticated an approach than straight-line problem- solving, is not always sufficient, for the polarities and the conditions underlying polarities are themselves changing. To return to our landscape metaphor, we may find, as leaders, that we are living not just in a complex rugged landscape but in what Miller and Page (2007) call a "dancing landscape." Priorities are not only interconnected, they are constantly shifting, and new alliances between old competing polarities are being forged. Clearly, when a world of complexity collides with a world of uncertainty and a world of turbulence, the landscape begins to dance and we, as leaders, learn how to dance with these irreversible postmodern challenges.

Mysteries

As we begin to address the challenges associated with leading in a dancing landscapes, we enter a domain in which problems and dilemmas seem to merge into mysteries. *Mysteries* operate at a different level than puzzles, problems and dilemmas. Mysteries are too complex to understand and are ultimately unknowable. A specific mystery is *profound* (desired outcomes are elusive but of great importance to many stakeholders) and *awe-inspiring* or just *awe-ful*. A mystery is in many ways *theological* or teleological in nature. It is inevitably viewed from many different perspectives that are deeply rooted in culture and tradition. Mysteries have no boundaries, and all aspects are interrelated.

Mysteries are beyond rational comprehension and resolution, and they are viewed with respect. Depending on one's perspective, they are the things "we take to God" or are the unpredictable and profound events that we "take to heart"—and that Taleb (2010) described as "black swans." Some mysteries relate to traumatic and devastating events: Why did I get out of the World Trade Center while my desk mate perished? Why is there evil in the world? Why did lightning strike our freighter but not the one next to it? Why did my child die before me? Mysteries also encompass many positive events and moments of reflection: How did I deserve all these talents? What is my destiny? Why have I been so blessed in my professional life? Why did I fall in love with this person? Why did this

remarkable person fall in love with me? How did I ever raise such an exceptional child? How did I earn so much affection from these people at my retirement party?

Locus of Control

We perceive mysteries as taking place outside our sphere of control or influence. Psychologists call this an *external locus of control* and note that some people are inclined to view most issues as outside their control (that is, as mysteries). By contrast, puzzles are usually perceived as being under our control. Psychologists identify this perspective as an *internal locus of control* and note that some people are likely to view all issues as being under their control (that is, as puzzles).

Problems and dilemmas are usually complex mixtures of controllable and uncontrollable elements. To successfully address a problem or dilemma, one typically needs a balanced perspective with regard to internal and external loci of control—a critical distinction for leaders to draw. One of the most helpful inquiries when confronting problems, dilemmas and (in particular) nested dilemmas is to identify what is and what is not under one's control. A problem or dilemma that is embedded in a rugged landscape is more likely to have components that are under at least our partial control than is a problem or dilemma that is embedded in a dancing landscape.

Conclusions

There are myriad challenges associated with the role of leader in addressing these different kinds of issues. First, we typically want their issues to be puzzles that we can control or perhaps mysteries for which we have no responsibility. Puzzles can be solved and we know when we have solved them. Mysteries are outside our control, so we don't have to feel responsible for resolving them. But problems and dilemmas—these are much more difficult to address. We have to determine which aspects of the problem or dilemma are under our control and which aspects are not. This confusing mixture of internal and external control is inherent in problems and dilemmas, and so is the balancing of competing but valid interests represented by different stakeholders. That's what makes them so difficult to address.

A second challenge concerns the values inherent in leadership. Leaders are often considered much more successful, in terms of both fortunes and fame, if they can "solve problems"—often by approaching them as puzzles. Novice leaders feel a great deal of satisfaction when they successfully

analyze a situation, look at optional solutions and successfully implement a chosen set of actions. Even very experienced and highly competent leaders will be tempted if their organization is highly focused on return on investment: can the leader "guarantee" certain outcomes in exchange for an attractive fee, as if a "puzzle" just needed to be put together correctly. So, here we are: the challenges are leaking (or leaping) out of the postmodern box and we discover that they are irreversible, problem-based and ruggedly-dancing. Welcome to the postmodern world and to the prospect of leading into the future!

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