The **Unshackled Organization**

Facing the Challenge of Unpredictability through Spontaneous Reorganization

BY JEFFREY GOLDSTEIN

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An invitation to colleagues and friends from Stewart Mennin.

The Unshackled Organization, an invaluable book on leadership, is out of print. The author, Jeffrey Goldstein, a friend and colleague, has generously given permission for me to share a pdf version with you. He has written many other excellent books and articles that I recommend highly (search Amazon.com or other places to find more recent work on leadership, organizations and complexity). The Unshackled Organization is easy to read and is filled with deep insight and practical approaches that go well with appreciative inquiry and positive deviance. It is a pleasure to read, reflect and learn. Thanks to Luís Tófoli for technical assistance preparing the pdf.

Abraços, Stewart

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EPILOGUE

When we lose our balance, we die,
but at the same time we also develop ourselves, we grow...
—SHUNRYU SUZUKI ROSHI

The only thing we can say with much certainty anymore is that nothing much is certain. Change, flux, even turbulence have become the name of the game. Businesses and institutions, of course, have always needed to change in order to adapt to the shifting circumstances of changing markets, technological innovations, unforeseen competition, governmental regulations, war, famine, epidemics, and so on. But in our age the pace of change has accelerated to a fever pitch. Indeed, what company or institution is not right now involved in a life and death struggle to survive in a constantly shifting, tumultuous environment?

This struggle to the death is not confined to our organizations. I remember being stunned when in my high school physics class I first heard about the "heat death" of the universe, the depressing idea that the universe would eventually deteriorate into a formless and random incoherence. This was the accepted interpretation of the famous law of entropy or the inevitable tendency of any system toward dissolution and disorder. All systems, including the universe as a whole, would show a continual break-up of order, complexity, pattern, and organization. This final disorder was characterized as a condition of equilibtrium or a state of lowest energy, order, and coherent pattern. Ultimately entropy and equilibrium would assert their dominance.

One of the astounding findings of current research in theoretical physics, however, has been that systems can show an opposite tendency: They have the potential of evolving into states of greater organization,

complexity, and order. That is what self-organization is all about—the evolution of nonlinear systems into more complex patterns when they are in far-from-equilibrium conditions. That is why self-organization as a model for organizational change is relevant as our businesses and institutions face so much unprecedented tumult.

The implications of self-organization for the supposed "heat death" fate of the universe are currently being debated by scientists and phlosophers. On a more practical level, however, the good news is we do not need to characterize systems, including our businesses and institutions, as being dominated by a tendency toward equilibrium or resistance to change. Instead, the phenomenon of self-organization affirms that our organizations can be attracted to states of more coherence, more complex order, and more effective functioning. Organizational transformation, then, is about setting up the appropriate conditions whereby this attraction to more effective functioning can take place.

The following list summarizes the essential features of how self-organization can be applied to organizational transformation:

- Businesses and institutions are nonlinear systems
- Nonlinear systems have several crucial properties including their innate capacity for self-organization
- Self-organization represents a system's affinity for evolving into modes of functioning exhibiting more complex and coherent patterns
- Self-organization takes place when a nonlinear system is placed under far-from-equilibirum conditions
- Resistance to change is only a temporary phenomenon, equivalent to the organization's or work unit's attraction to a state of equilibrium
- The state of equilibrium is maintained by self-fulfilling prophecies operating in an organization or work unit
- Far-from-equilibrium conditions interrupt the state of equilibrium by releasing the nonlinearity inherent in self-fulfilling prophecies
- A key to far-from-equilibirum conditions is that they increase the information available to a system concerning its own functioning

- For far-from-equilibrium conditions to lead to self-organizing transformation there must be firm but permeable boundaries in the work group or organization
- The following methods can generate far-from-equilibrium conditions prompting self-organization:
  - difference questioning
  - cultural difference questioning
  - purpose contrasting
  - challenging assumptions creatively
  - experimenting with departures from equilibrium
  - nonverbally representing the organization
  - recognizing and amplifying serendipity
  - using absurdity to take advantage of organizational noise

NOTES

CHAPTER 1

1. Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos: Man's New Dialogue with Nature* (New York: Bantam, 1984).

2. Under this term "nonlinear systems theory" can be included the following areas of research: far-from-equilibrium thermodynamics; chaos theory; nonlinear dynamical systems theory; complex adaptive systems theory; anti-chaos theory; the theory of organized self-criticality; cellular automata; and other approaches to the phenomenon of self-organization. See the following works:

   R. Abraham and C. Shaw, *Dynamics: The Geometry of Behavior, Part Two: Chaotic Behavior* (Santa Cruz, Calif.: Aerial Press, 1984).

   S. Kauffman, *The Origins of Order: Self-Organization and Selection in Evolution* (New York: Oxford Univ. Press, 1993).

   R. Lewin, *Complexity: Life at the Edge of Chaos* (New York: Macmillan, 1992).

   G. Nicolis and I. Prigogine, *Exploring Complexity* (New York: W.H. Freeman & Co., 1989).

   M. Waldrop, Complexity: *The Emerging Science at the Edge of Order and Chaos* (New York: Simon & Schuster, 1992).

3. Traditionally, scientists focused on linear and avoided nonlinear equations. For example, J. Doyne Farmer recounts how physics textbooks relegated nonlinearity to the back of the book, and even there reduced it to a set of linear approximations (cited in James Gleick, *Chaos: Making a New Science* [New York: Viking, 1987], pp. 250, 251). The recent advent of computers and computer-aided graphics, though, has created a renewed interest in nonlinear mathematics.

   Even the term "nonlinearity" is not of much help since it is defined negatively: not being linear. The mathematician Ian Stewart has pointed out that defining nonlinearity as the negation of linearity is akin to calling all animals besides elephants non-pachyderms! (Stewart, *Does God Play Dice: The*

Mathematics of Chaos [London: Basil Blackwell, 1989], p. 84.) Hopefully, since we are only at the beginning of the advent of the age of nonlinearity, better terms will surely be forthcoming.

4. See the model of "quasi-stationary equilibrium levels" in Kurt Lewin, *Field Theory in Social Science* (New York: Harper & Row, 1951).

5. See the discussion on equilibrium models in social science in Cynthia Russett, *The Concept of Equilibrium in American Social Thought* (New Haven: Yale Univ. Press, 1966). Equilibrium models in psychology are discussed in Sophie Haroutunian, *Equilibrium in the Balance: A Study of Psychological Explanation* (New York: Springer-Verlag, 1983); and Jeffrey Goldstein, "Unbalancing Psychoanalytic Thought: Beyond Freud's Equilibrium Model," in R. Robertson, ed., *Proceedings of The Society for Chaos Theory in Psychology* (Forthcoming, 1994).

6. For a discussion on the problems with the concepts of equilibrium and its cousin concept, homeostasis, see Anthony Wilden, *System and Structure* (London: Tavistock, 1980)

7. Rather than a "Balance of Nature," contemporary ecologists follow the physics of self-organization and speak of a balance between order and chaos at the "edge of chaos." The edge of "chaos" is a realm in the evolution of a dynamical system which is characterized neither by a rigid structure nor by mere chaotic anarchy, but instead is a place that allows for the optimization of novelty and innovation; see Lewin, *Complexity,* op. cit. In this way, the "edge of chaos" allows a system to maintain its "autopoietic" integrity, i.e., its robustness in the face of a constantly changing environment; see H. Maturana and F. Varela, *Autopoiesis and Cognition: The Realization of the Living* (Dordrecht, Holland: D. Reidel Publishing Co., 1980).

CHAPTER 2

1. Cited in John Bigelow, "A Catastrophe Model of Organizational Change," *Behavioral Science* 27: 26-42, 1982.

2. Feedback is typically separated into two types: positive and negative (please note that these terms are not value judgments about the feedback). Negative feedback refers to a nonlinear inhibition of a quantity. An example is a self-regulation process such as found in a thermostat. When the temperature in a room exceeds the pre-set top limit, say 70 degrees, the thermometer inside the thermostat "notices" this and sends a message to either turn off the heat (in winter) or turn on the air conditioning (in summer). This action will then decrease the temperature. There is a negative feedback loop between the thermostat and the room air temperature.

Nonlinear, negative feedback mechanisms are at work in our bodies as they maintain a fairly constant temperature of 98.6 degrees. This negative feedback has been called homeostasis since an equilibrium region (rest or stasis) is maintained. It is a process of self-regulation because the system is regulated by some internal mechanism like a thermostat to stay within a certain equilibrium range of some value.

On the other hand, positive feedback occurs when, instead of a dampening effect, there is an amplification—for example, the screech produced by a microphone placed too close to a speaker.

The system dynamics school of organizational research, founded by Jay Forrester at MIT, relies heavily on the notions of positive and negative feedback in its loop diagrams of organizational functioning. Thus areas of growth and expansion are positive feedback loops, whereas areas of limitations or self-regulating processes are negative feedback loops. Such diagrams help in intimating how various changes will affect the system as well as in understanding what seem to be counterintuitive behaviors in a system when changes are made.

3. For an explanation of the mathematics behind predictability, see Ivar Ekeland, *Mathematics and the Unexpected* (Chicago: Univ. of Chicago Press, 1988).

4. Kurt Lewin, *Field Theory in Social Science* (New York: Harper & Row, 1951).

5. For a recounting of Lorenz's discovery see the eminently readable, James Gleick, *Chaos: Making a New Science* (New York: Viking, 1987).

6. Ian Stewart, *Does God Play Dice: The Mathematics of Chaos* (London: Basil Blackwell, 1989), p. 83.

7. For a somewhat sophisticated discussion of how nonlinear phenomena were treated by linear approximations see Bruce West, *An Essay on the Importance of Being Nonlinear* (Berlin: Springer-Verlag, 1985).

8. See, for example, the systems approach of Peter M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday Currency, 1990).

CHAPTER 3

1. The discussion on self-organization in this chapter has been greatly influenced by the explanation of this process offered by Gregoire Nicolis in his article, "Physics of Far-from-equilibrium Systems and Self-organization," in

The New Physics, ed. Paul Davies (Cambridge: Cambridge Univ. Press, 1989). See also Gregoire Nicolis and Ilya Prigogine, *Exploring Complexity: An Introduction* (New York: W.H. Freeman & Co., 1989).

2. What happened at Semco is recounted by its owner/chief executive Ricardo Semler in his article, "Managing Without Managers," *Harvard Business Review,* September/October 1989, pp. 76-84.

3. For an example of the importance of information flow in self-organization, see the work of Chris Langton in bringing about self-organization in cellular automata by manipulating the amount of information flow. Langton's work is recounted in Steven Levy's *Artificial Life: A Report from the Frontier Where Computers Meet Biology* (New York: Vintage Books, 1992).

4. Ikujiro Nonaka, "Creating Organizational Order out of Chaos: Self-renewal in Japanese Firms," *California Management Review* 30(3): 57-73 (1988).

5. For a discussion of the necessary conditions for self-organization in various liquids, see P. Berge, I. Pomeau, and C. Vidal, *Order within Chaos: Towards a Deterministic Approach to Turbulence* (New York: John Wiley & Sons, 1984).

6. See the popular account of "chemical clocks" by Malcolm Browne titled, "Chemists' New Tools: Molecular See-Saws," *New York Times,* April 28, 1992, p. C1.2

7. An example of unbounded positive feedback is the instability associated with amplification of deviations from equilibrium as an airplane flies. Imagine a plane trying to maintain stability in the face of air turbulence. The pilot tries to keep this kind of instability in the plane's motion to a bare minimum. That is, the pilot tries to keep tremors on the wings from amplifying into wide wobbles that might eventually lead to the pilot losing control of the plane. This kind of amplification away from equilibrium does not signify the emergence of any kind of useful ordered structure as is found in self-organization, since there is no firm, boundaried region that could harness the amplifications in a constructive direction.

8. There is an important way that information is gained in nonlinear systems such as those characterized as "chaotic." For a very technical analysis of this phenomenon, see Robert Shaw's article, "Strange Attractors, Chaotic Behavior, and Information Flow," *Zeitschrift for Naturforschung,* 36a, 1981, pp. 80-112. For a less technical account of Shaw's work, see Abraham and Shaw (1984), cited in Chapter 1, note 2.

9. See Jeffrey Goldstein's article, "Beyond Planning and Prediction: Bringing back Action Research of O.D.," *Organization Development Journal* 10(2): 1-8 (Summer, 1992).

CHAPTER 4

1. Jeffrey Goldstein, "A Far-From-Equilibrium approach to Resistance to Change," *Organizational Dynamics* 17 (2): 16-22 (1988).

2. See, e.g., Roy Schafer, *A New Language for Psychoanalysis* (New Haven: Yale Univ. Press, 1976); and Yvonne Dolan, *A Path with a Heart: Ericksonian Utilization with Resistant and Chronic Clients* (New York: Brunner/Mazel, 1985).

3. This example is taken from Peter Reynolds, "Imposing a Corporate Culture," *Psychology Today* 21(3): 32-38 (1987).

   Corporate culture is the organizational counterpart to an individual's belief system. It is a way of talking about the underlying relation between the organization's dominant norms of behavior, sense of mission, and managerial styles. Corporate culture is thought to act as a hidden resistance not immediately obvious like organizational structure, work team composition, productivity goals, or management policies. From its position under the surface of the organization, culture can be like a fifth column superseding the conscious, surface policies and, thus getting in the way of change interventions.

4. See, e.g., the criticism of equilibrium/homeostatic models of social systems in Cynthia Russet, *The Concept of Equilibrium in American Social Thought* (New Haven: Yale Univ. Press, 1966); and Anthony Wilden, System and Structure (London: Tavistock, 1980).

CHAPTER 5

1. Michael Corey, "Delta Airlines' Problems as a Function of a Self-fulfilling Prophecy," *Psychology: A Journal of Human Behavior* 25 (2): 59-64. The sociologist Robert King Merton was the first social scientist to discuss the self-fulfilling prophecy. The structure and examples of the SFP in the rest of the chapter follow from his early. See a discussion of Merton's insights in George Richardson, *The Feedback Concept in American Social Science, with Implications for System Dynamics.* System Dynamic Group Paper #D-3417, presented at International System Dynamics Conference, July, 1983).

2. The SFP is the organizational analogue to what happens during autocatálysis in chemical reactions, a process necessary for self-organization in so-called chemical clocks. In a chemical clock, there is a process of self-organization characterized by an amazing periodic rhythm of clock-like changes in color and pattern.

In autocatalysis a chemical compound nonlinearly catalyzes itself. This means the presence of a particular compound in a chemical reaction enhances the rate of its own production. The more there is of the compound, the faster it is produced, and the faster it is produced, the more there is of it, and so on in an accelerating pace.

Yet, a curious thing about autocatalysis is that although it is clearly a nonlinear process, this nonlinearity is masked when the chemical reaction is at equilibrium conditions. This is similar to how equilibrium conditions mask the inherent nonlinearity of the Benard liquid as mentioned in Chapter 3. Thus, autocatalysis becomes a key ingredient in the chemical system's self-organization only when the chemical reaction is in a far-from-equilibrium condition.

For more on chemical clocks, see Malcolm W. Browne, "Chemists' New Tools: Molecular See-Saws," *New York Times,* April 28, 1992, pp. C1 and C7.

3. See, for example, the work of Dov Eden and Richard Field on the role of self-fulfilling expectations in leadership (Dov Eden, "Self-fulfilling Prophecy as a Management Tool: Harnessing Pygmalion," *Academy of Management Review* 9 [1]: 64-73 [1984]; and Richard Field, "The Self-fulfilling Prophecy Leader: Achieving the Metharme Effect," *Journal of Management Studies* 26 [2]: 153-175 [March 1989]).

4. This example is the subject of the social-scientific investigation of this group as recounted in Leon Festinger, Henry Riecken, and Stanley Schachter, *When Prophecy Fails* (New York: Harper & Row, 1956).

5. The typewriter example is taken from Gareth Morgan, *Images of Organization* (Beverly Hills: Sage, 1986).

6. The story about what transpired at Johnsonville Foods is recounted by its CEO, Ralph Stayer, in his article "How I Learned to Let My Workers Lead," *Harvard Business Review,* November/December 1990, pp. 66-83.

7. R. Rosenthal and L. Jacobson, *Pygmalion in the Classroom* (New York: Holt, 1968).

8. Mentioned in Edgar Peters, *Chaos and Order in the Capital Markets* (New York: John Wiley & Sons, 1991). Peters even found that the time length and degree of the nonlinearity of these trends is connected to the kind of industry. For example, stocks in high-tech companies with high levels of innovation have stronger trends with shorter cycles than stable, uninnovative organizations such as utility companies.

9. W. Brian Arthur, "Positive Feedbacks in the Economy," *Scientific American,* February 1990, pp. 92-99.

10. Mark Snyder and William Swann, "Behavioral Confirmation in Social Interaction: From Social Perception to Social Reality," *Journal of Experimental Social Psychology* 14 (2): 148-162 (March 1978).

11. On placebo research, see Leonard White, Bernard Tursky, and Gary Schwartz, eds., *Placebo: Theory, Research, and Mechanisms* (New York: Guilford Press, 1985).

12. This story is told in Bruno Klopfer, "Psychological Variables in Human Cancer," *Journal of Projective Techniques* 21: 331-340 (1957).

13. Gareth Morgan, *Images of Organization,* note 5 above.

14. Ian Mitroff and Richard Mason, *Challenging Strategic Planning Assumptions: Theory, Cases, and Techniques* (New York: John Wiley & Sons, 1981).

15. Brenda Zimmerman explores what happens to strategy in the context of far-from-equilibrium conditions in her article, "The Inherent Drive Towards Chaos," in *Implementing Strategic Processes: Change, Learning, and Cooperation,* ed. P. Lorange, B. Chakravarty, A. Van de Ven, and J. Roos (London: Basil Blackwell, 1992).

CHAPTER 6

1. The use of families to illustrate the role of information in social systems is strongly indebted to the Milan School of Systemic Family Therapy as found in Luigi Boscolo, Gianfranco Cecchin, Lynn Hoffman, and Peggy Penn, *Milan Systemic Family Therapy* (New York: Basic Books, 1987).

2. Jeremy Campbell, *Grammatical Man: Information, Entropy, Language, and Life* (New York: Simon & Schuster, 1982).

CHAPTER 7

1. H. Atlan, "On a Formal Definition of Organization," *The Journal of Theoretical Biology* 45: 295-304 (1974).

2. Larry Hirschhorn and Thomas Gilmore, "The New Boundaries of the 'Boundaryless Organization,'" *Harvard Business Review,* May/June 1992, pp. 104-115.

3. This example is taken from Jeffrey Goldstein, "The Unconscious Life of Organizations: Anxiety, Authority, and Boundaries—An Interview with Larry Hirschhorn," *Organization Development Journal* 10 (4): 15-22 (Winter 1992).

4. Certainly, there will be instances in which there may be disagreement as to what counts and does not count as a system. Being a system is a relative thing, in the same way that there may be more of a connection between the members in one family than in another. Nevertheless, there will be a way to distinguish a system from nonsystems since the system defines a bounded area where this inner influence is evident, in contrast to what is outside the system.

5. Gareth Morgan, *Images of Organization* (Beverly Hills: Sage, 1986).

6. Goldstein, *An Interview with Larry Hirschhorn,* op. cit., p. 18.

7. Peter Reid, *Well Made in America: Lessons From Harley-Davidson on Being the Best* (New York: McGraw-Hill, 1990).

CHAPTER 8

1. Gregory Bateson, *Steps to an Ecology of Mind* (New York: Ballantine Books, 1972). Bateson's concept of information has been extremely important in methods to bring about constructive change in that most crucial of all social systems—the family.

2. See, for example, Lynn Hoffman, *Foundations of Family Therapy: A Conceptual Framework for Systems* Change (New York: Basic Books, 1981).

3. "Difference questioning" is our term for what family systems therapists call "circular questions." See M. Selvini Palazzoli, L. Boscolo, G. Cecchin, and G. Prata, "Hypothesizing-Circularity-Neutrality," *Family Process* 19 (1): 73-85 (March 1980).The use of this difference question for generating far-from-equilibrium conditions was first described by the author of the present book in, "A Far-From-Equilibrium Approach to Resistance to Change," *Organizational Dynamics* 17 (2): 16-22 (1988).

4. This example is a modification from a similar one found in L. Boscolo, G. Cecchin, L. Hoffman, and P. Penn, *Milan Systemic Family Therapy* (New York: Basic Books, 1987), p. 33.

5. These ideas were first presented in Jeffrey Goldstein and Marjorie Leopold, "Equality and Difference: Resolving Intercultural Conflict," *Human Resource Horizons* 101 (Summer, 1990): 27-32.

CHAPTER 9

1. Margaret Wheatley, *Leadership and the New Science* (San Francisco: Berrett-Koehler Publishers, 1992). Meg Wheatley's work on information

overload is discussed in an interview with her conducted by the author: Jeffrey Goldstein, "Revisioning the Organization: Chaos, Quantum Physics, and OD," *Organization Development Journal* 11 (2): 85-91 (Summer 1993).

2. John Andrews, "Interpersonal Challenge: A Source of Growth in Laboratory Training," *Journal of Applied Behavioral Science* 9: 514-533 (1973).

3. This example comes from a conversation with Brenda Zimmerman of York University. She elaborates on her work with Fedmet in her doctoral dissertation, *Strategy, Chaos and Equilibrium: A Case Study of Federal Metals, Inc.* (York Univ., Canada, March, 1991).

4. This is similar to the process of structural tension between vision and current reality developed by Robert Fritz in *The Path of Least Resistance* (New York: Fawcett Columbine, 1989).

CHAPTER 10

1. M. Beer and E. Walton, "Developing the Competitive Organization: Interventions and Strategies," *The American Psychologist* 45 (1990): 154-161.

2. W. Gibb Dyer, Jr., "The Cycle of Cultural Evolution in Organizations," in *Gaining Control of the Corporate Culture,* ed. R. Kilmann, M. Saxton, R. Serpa (San Francisco: Jossey-Bass, 1985).

3. Y. Zeira and J. Avedisian, "Organizational Planned Change: Assessing the Chances for Success," *Organizational Dynamics* 17 (1989): 31-45. Actually, Zeira's and Avedisian's instrument is a type of Lewinian force-field analysis that we discussed in Chapter 2. It identifies forces that are progressive toward change, such as an internal champion, and forces that resist change, such as a nonsupportive organization culture. If the resisting forces predominate in the system, Zeira and Avedisian recommend that change agents turn their attention to changing the culture first. This tactic is an instance of Lewin's "unfreezing" of the "additional force field" of the organizational culture resisting change See also Jeffrey Goldstein, "Beyond Lewin's Force Field: A New Model for Organizational Change Interventions," F. Massarik, ed., *Advances in Organization Development,* volume 2 (Norwood, N.J.: Ablex Publishing Company, 1993), pp. 72-88.

Linda Ackerman suggested that change agents not only do an "impact analysis" of how the planned change will specifically affect functions, people, and management systems but they can also predict at what pace this change will proceed. This suggestion reveals a strong belief in predictability about the impact of a change intervention. See her article, "Transition Man-

agement: An In-depth Look at Managing Complex Change," *Organizational Dynamics* 11 (1982): 46-66.

4. See a discussion on the strange nonlinear behavior of one of the most simple nonlinear equations in Robert May, "Some Mathematical Models with Very Complicated Dynamics," *Nature* 261 (June 10, 1976): 459-467. See also Gregoire Nicolis and Ilya Prigogine, *Exploring Complexity* (New York: W.H. Freeman & Co., 1989), p. 14.

   This aspect of nonlinear unpredictability prompted computer scientist Ed Fredkin to remark: "There is no way to know the answer to some question [a nonlinear one] any faster than what's going on...[even God] cannot know the answer to the question any faster than doing it." (Quoted in R. Wright, *Three Scientists and Their Gods: Looking for Meaning in an Age of Information* (New York: Time Books, 1988), p. 68).

5. F. Westley, "The Eye of the Needle: Cultural and Personal Transformation in a Traditional Organization," *Human Relations* 43 (1990): 273-293.

6. Westley (1990), p. 286.

7. See the exploration of organizational noise in C. Ciborra, P. Migliarese, and P. Romano, "A Methodological Inquiry of Organizational Noise in Sociotechnical Systems," *Human Relations* 37 (8): 565-588 (1984).

8. See P. Allen and J. McGlade, "Evolutionary Drive: The Effect of Microscopic Diversity, Error Making and Noise," *Foundations of Physics* 17(7): 723-738 (1987). Nonaka, in his studies of successful Japanese corporations, has proposed that the creation of crises in these organizations facilitated innovative strategies to deal with the crises See I. Nonaka, "Creating Organizational Order out of Chaos: Self-renewal in Japanese Firms," *California Management Review* 30(3): 57-73 (1988). In this way crises can function as far-from-equilibrium conditions. However, why is it necessary to generate a crisis when chance events or random departures from equilibrium are taking place all the time in organizations? What is necessary, then, is not a crisis, but a way to take advantage of what is already taking place, i.e., the organizational noise.

9. Nicolis, "Physics of Far-from-equilibrium Systems and Self-organization," (see Chapter 3, note 1), p. 343.

10. James Austin, *Chase, Chance, and Creativity: The Lucky Art of Novelty* (New York: Columbia Univ. Press, 1978). See also Royston Roberts, *Serendipity: Accidental Discoveries in Science* (New York: John Wiley & Sons, 1989).

11. Austin, op. cit., p. 63.

12. Ibid., pp. 76, 77.

13. Dyer, "The Cycle of Cultural Evolution in Organizations," op. cit., p. 222.

14. This view of different possible outcomes and their unpredictable nature stands in marked contrast with the general systems approach to understanding organizational dynamics, in which the principle of equifinality has it that the organization will have many possible ways to reach a single goal (Ludwig von Bertalanffy, *Perspectives on General Systems Theory* (New York: George Braziller, 1975)). Such a viewpoint is actually an equilibrium-based model since it is claimed that this equifinality comes about from the restoration of equilibrium after a disturbance . Of course, in an equilibrium-seeking model, the final outcome is always predictable; it is the state of equilibrium. An isolated system will naturally tend to the state of equilibrium, even though the pathways taken to reach this final state are many and varied, and it may take some time for the transient phenomena that depart from equilibrium to die out. For equilibrium-based general systems models in organizational theory, see *General Systems and Organization Theory: Methodological Aspects*, ed. A. Melcher (Kent, Ohio: Kent State Univ. Press, 1975).

15. Carl Whitaker, "Psychotherapy of the Absurd: With a Special Emphasis on the Psychotherapy of Aggression," *Family Process* 14 (1): 1-16 (March 1975). This work with the absurd is similar to the practices of the late psychiatrist Milton Erickson: confusing the system to depotentiate limited mindsets or normal belief systems. See Milton Erickson and Ernest Rossi, *Hypnotherapy: An Exploratory Casebook* (New York: Irvington Publishers, 1979).

16. Richard Nodell and Eric Wolff, *Managerial Magic: A Medicine Man's Guide to Organizational Life* (Dubuque, Iowa: Kendall/Hunt Publishing, 1989).

17. Nan Kilkeary, *The Good Communicator* (Evanston, Illinois: Quik Read, 1987).

About the Author

Jeffrey Goldstein, Ph.D., has been a full-time faculty member in the Department of Administrative Sciences, Schools of Business, Adelphi University, Garden City, NY since 1989. Professor Goldstein has also taught at Rutgers University, Columbia University, NYU, and Temple University. As a consultant to many public and private businesses and institutions, Dr. Goldstein has been primarily interested in how to help organizations bring about deep-rooted change.

Professor Goldstein has published over 30 articles and is a frequent presenter at professional conferences. For the past seven years, his primary focus of research has been the application of the new nonlinear systems sciences to the study of organizational dynamics. This has included research and writing on chaos theory, far-from-equilibrium thermodynamics, complex, adaptive systems theory, and nonlinear dynamical systems theory. Dr. Goldstein is a member of the Society for Chaos Theory in Psychology and the Life Sciences, the Chaos Network, and Chaos in Praxis.

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