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# Footnotes to Organizational Change

James G. March

Five footnotes to change in organizations are suggested. They emphasize the relation between change and adaptive behavior more generally, the prosaic nature of change, the way in which ordinary processes combine with a confusing world to produce some surprises, and the implicit altruism of organizational foolishness. •

## INTRODUCTION

Organizations change. Although they often appear resistant to change, they are frequently transformed into forms remarkably different from the original. This paper explores five footnotes to research on organizational change, possible comments on what we know. The intention is not to review the research results but to identify a few speculations stimulated by previous work.

**Footnote 1:** Organizations are continually changing, routinely, easily, and responsively, but change within them cannot ordinarily be arbitrarily controlled. Organizations rarely do exactly what they are told to do.

**Footnote 2:** Changes in organizations depend on a few stable processes. Theories of change emphasize either the stability of the processes or the changes they produce, but a serious understanding of organizations requires attention to both.

**Footnote 3:** Theories of change in organizations are primarily different ways of describing theories of action in organizations, not different theories. Most changes in organizations reflect simple responses to demographic, economic, social, and political forces.

**Footnote 4:** Although organizational response to environmental events is broadly adaptive and mostly routine, the response takes place in a confusing world. As a result, prosaic processes sometimes have surprising outcomes.

**Footnote 5:** Adaptation to a changing environment involves an interplay of rationality and foolishness. Organizational foolishness is not maintained as a conscious strategy, but is embedded in such familiar organizational anomalies as slack, managerial incentives, symbolic action, ambiguity, and loose coupling.

## STABLE PROCESSES OF CHANGE

A common theme in recent literature, particularly in studies of the implementation of public policy, is that of attempts at change frustrated by organizational resistance. There are well-documented occasions on which organizations have failed to respond to change initiatives or have changed in ways that were, in the view of some, inappropriate (Gross, Giaquinta, and Bernstein, 1971; Nelson and Yates, 1978).

What most reports on implementation indicate, however, is not that organizations are rigid and inflexible, but that they are impressively imaginative (Pressman and Wildavsky, 1973; Bardach, 1977). Organizations change in response to their environments, but they rarely change in a way that fulfills the intentions of a particular group of actors (Attewell and Gerstein, 1979; Crozier, 1979). Sometimes organizations ignore clear instructions; sometimes they pursue them more forcefully than was intended; sometimes they protect policymakers from

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fully; sometimes they do not. The ability to frustrate arbitrary intention, however, should not be confused with rigidity; nor should flexibility be confused with organizational effectiveness. Most organizational failures occur early in life when organizations are small and flexible, not later (Aldrich, 1979). There is considerable stability in organizations, but the changes we observe are substantial enough to suggest that organizations are remarkably adaptive, enduring institutions, responding to volatile environments routinely and easily, though not always optimally.

Because of the magnitude of some changes in organizations, we are inclined to look for comparably dramatic explanations for change, but the search for drama may often be a mistake. Most change in organizations results neither from extraordinary organizational processes or forces, nor from uncommon imagination, persistence or skill, but from relatively stable, routine processes that relate organizations to their environments. Change takes place because most of the time most people in an organization do about what they are supposed to do; that is, they are intelligently attentive to their environments and their jobs. Bureaucratic organizations can be exceptionally ineffective, but most of the organizations we study are characterized by ordinary competence and minor initiative (Hedberg, Nyström, and Starbuck, 1976). Many of the most stable procedures in an organization are procedures for responding to economic, social, and political contexts. What we call organizational change is an ecology of concurrent responses in various parts of an organization to various interconnected parts of the environment. If the environment changes rapidly, so will the responses of stable organizations; change driven by such shifts will be dramatic if shifts in the environment are large.

The routine processes of organizational adaptation are subject to some complications, and a theory of change must take into account how those processes can produce unusual patterns of action. Yet, in its fundamental structure a theory of organizational change should not be remarkably different from a theory of ordinary action. Recent research on organizations as routine adaptive systems emphasizes six basic perspectives for interpreting organizational action:

1. **Rule following.** Action can be seen as the application of standard operating procedures or other rules to appropriate situations. The underlying process is one of matching a set of rules to a situation by criteria of appropriateness. Duties, obligations, roles, rules, and criteria evolve through competition and survival, and those followed by organizations that survive, grow, and multiply come to dominate the pool of procedures. The model is essentially a model of selection (Nelson and Winter, 1974).

2. **Problem solving.** Action can be seen as problem solving. The underlying process involves choosing among alternatives by using some decision rule that compares alternatives in terms of their expected consequences for antecedent goals. The model is one of intendedly rational choice under conditions of risk and is familiar in statistical decision theory, as well as microeconomic and behavioral theories of choice (Lindblom, 1958; Cyert and March, 1963).

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3. **Learning.** Action can be seen as stemming from past learning. The underlying process is one in which an organization is conditioned through trial and error to repeat behavior that has been successful in the past and to avoid behavior that has been unsuccessful. The model is one of experiential learning (Day and Groves, 1975).

4. **Conflict.** Action can be seen as resulting from conflict among individuals or groups representing diverse interests. The underlying process is one of confrontation, bargaining, and coalition, in which outcomes depend on the initial preferences of actors weighted by their power. Changes result from shifts in the mobilization of participants or in the resources they control. The model is one of politics (March, 1962; Gamson, 1968; Pfeffer, 1981).

5. **Contagion.** Action can be seen as spreading from one organization to another. The underlying process is one in which variations in contact among organizations and in the attractiveness of the behaviors or beliefs being imitated affect the rate and pattern of spread. The model is one of contagion and borrows from studies of epidemiology (Rogers, 1962; Walker, 1969; Rogers and Shoemaker, 1971).

6. **Regeneration.** Action can be seen as resulting from the intentions and competencies of organizational actors. Turnover in organizations introduces new members with different attitudes, abilities, and goals. The underlying process is one in which conditions in the organization (e.g., growth, decline, changing requirements for skills) or deliberate strategies (e.g., cooptation, raiding of competitors) affect organizational action by changing the mix of participants. The model is one of regeneration (Stinchcombe, McDill, and Walker, 1968; White, 1970; McNeil and Thompson, 1971).

These six perspectives are neither esoteric, complicated, nor mutually exclusive. Although we may sometimes try to assess the extent to which one perspective or another fits a particular situation, it is quite possible for all six to be pertinent or for any particular history to involve them all. An organization uses rules, problem solving, learning, conflict, contagion, and regeneration to cope with its environment, actively adapt to it, avoid it, seek to understand, change, and contain it. The processes are conservative. That is, they tend to maintain stable relations, sustain existing rules, and reduce differences among organizations. The fundamental logic, however, is not one of stability in behavior; it is one of responsiveness. The processes are stable; the resulting actions are not.

## SOME COMPLEXITIES OF CHANGE

Organizations change in mundane ways, but elementary processes sometimes produce surprises in a complex world. As illustrations of such complexities, consider five examples: the unanticipated consequences of ordinary action, solution-driven problems, the tendency for innovations and organizations to be transformed during the process of innovation, the endogenous nature of created environments, and the interactions among the system requirements of individuals, organizations, and environments.

## Unanticipated Consequences of Ordinary Action

Each of the six perspectives on action described above portrays organizations as changing sensibly; that is, solving problems, learning from experience, imitating others, and regenerating their capabilities through turnover of personnel. These processes, however, may be applied under conditions which, though difficult to distinguish from usual conditions, are sufficiently different to lead to unanticipated outcomes. In particular, we can identify three such conditions:

First, the rate of adaptation may be inconsistent with the rate of change of the environment to which the organization is adapting. Unless an environment is perfectly stable, of course, there will always be some error arising from a history-dependent process (e.g., learning, selection); but where an environment changes quickly relative to the rate at which an organization adapts, a process can easily lose its claim to being sensible. It is also possible for an anticipatory process (e.g., problem solving) to result in changes that outrun the environment and thereby become unintelligent. Second, the causal structure may be different from that implicit in the process. If causal links are ignored, either because they are new, or because their effects in the past have been benign, or because the world is inherently too complex, then changes that seem locally adaptive may produce unanticipated or confusing consequences. Such outcomes are particularly likely in situations in which belief in a false or incomplete model of causality can be reinforced by confounded experience. Third, concurrent, parallel processes of *prima facie* sensibility may combine to produce joint outcomes that are not intended by anyone and are directly counter to the interests motivating the individual actions (Schelling, 1978).

Most of the time, these unanticipated outcomes are avoided, but they are common. Consider the following illustrations:

**Learning from the response of clients.** Clients and customers send signals to organizations, the most conspicuous one being the withdrawal of their patronage. We expect organizations to respond to such signals. For example, although customer withdrawal is a major device used by market organizations to maintain product quality, it is not always effective. As Hirschman (1970) observed, it is likely that the first customers to abandon a product of declining quality will be those customers with the highest quality standards. If it is assumed that new customers are a random sample from the market, a firm is left with customers whose standards are, on the average, lower and who complain less about the reduced quality. This leads to further decay of quality, and the cycle continues until the quality consciousness of new customers equals that of lost customers; i.e., until the firm's most quality-conscious customers are no more concerned about quality than the average customers in the market. This cycle of regeneration can lead to a fairly rapid degradation in product or service.

**Rewarding friends and coopting enemies.** Employees of governmental regulatory agencies sometimes subsequently become employees of the organizations they regulate. The flow of people presumably affects the relations between the organizations. In particular, the usual presumption is that expectations of future employment will lead current governmental

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officials to treat the organizations involved more favorably than they would otherwise. However, if the regulated organizations provide possible employment as an incentive for favorable treatment, they risk producing a pattern of turnover in the regulatory agency in which friends leave the agency, and only those unfriendly to the organization remain. Alternatively, some organizations attempt to coopt difficult people (e.g., rebels), on the assumption that cooptation leads to controlled change, since opponents are socialized and provided with modest success. However, insofar as the basic strategy of cooptation is to strip leadership from opposition groups by inducing opposition leaders to accept more legitimate roles, a conspicuous complication is the extent to which cooptation provides an incentive for being difficult, and thereby increases, rather than reduces opposition.

**Competency multipliers.** Organizations frequently have procedures to involve potentially relevant people in decision making, planning, budgeting, or the like. The individuals vary in status, knowledge about a problem, and interest in it. Initial participation rates reflect these variations; however, individuals who participate slightly more than others become slightly more competent at discussing the problems of the group than others. This induces them to participate even more, which makes them even more competent. Before long, the de facto composition of the group can change dramatically (Weiner, 1976). More generally organizations learn from experience, repeating actions that are successful. As a result, they gain greater experience in areas of success than in areas of failure. This increases their capabilities in successful areas, thus increasing their chances of being successful there. The sensibleness of such specialization depends on the relation between the learning rates and the rate of change in the environment. The process can easily lead to misplaced specialization if there are infrequent, major shifts in the environment.

**Satisficing.** It has been suggested that organizations satisfice, that is, that they seek alternatives that will satisfy a target goal rather than look for the alternative with the highest possible expected value (March and Simon, 1958; Cyert and March, 1963). Satisficing organizations can be viewed as organizations that maximize the probability of achieving their targets, but it is not necessary to assume quite such a precise formulation to suggest that organizations that satisfice will follow decision rules that are risk avoiding in good times, when the best alternatives have expected values greater than the target, and risk seeking in bad times, when the best alternatives have expected values less than the target (Tversky and Kahneman, 1974). As is noted below, the association of risk-seeking behavior with adversity requires some qualification; but insofar as such a pattern is common, it has at least two important consequences. First, organizations that are facing bad times will follow riskier and riskier strategies, thus simultaneously increasing their chances of survival through the present crisis and reducing their life expectancy. Choices that seek to reverse a decline, for example, may not maximize expected value. As a result, for those organizations that do not survive, efforts to survive will have speeded the process of failure (Hermann, 1963; Mayhew, 1979). Second, if organizational goals vary with organizational performance and the performance of other com-

parable organizations, most organizations will face situations that are reasonably good most of the time. Consequently, the pool of organizations existing at any time will generally include a disproportionate number that are risk-avoiding.

**Performance criteria.** Organizations measure the performance of participants. For example, business firms reward managers on the basis of calculations of profits earned by different parts of the organization. The importance of making such links precise and visible is a familiar theme of discussions of organizational control, as is the problem of providing similar performance measures in non-business organizations. However, in an organization with a typical mobility pattern among managers, these practices probably lead to a relative lack of concern about long-term consequences of present action. Performance measurement also leads to exaggerated concern with accounts, relative to product and technology. Measured performance can be improved either by changing performance or by changing the accounts of performance. Since it is often more efficient, in the short run, to devote effort to the accounts rather than to performance (March, 1978a), a bottom-line ideology may overstimulate the cleverness of organizational participants in manipulating accounts.

**Superstitious learning.** Organizations learn from their experience, repeating actions that have been associated with good outcomes, avoiding actions that have been associated with bad ones. If the world makes simple sense, and is stable, then repeating actions associated with good outcomes is intelligent. Yet relative to the rate of our experience in it, the world is sometimes neither stable enough nor simple enough to make experience a good teacher (March and Olsen, 1976). The use of associational, experiential learning in complex worlds can result in superstitious learning (Lave and March, 1975). Consider, for example, the report by Tversky and Kahneman (1974) of the lessons learned by pilot trainers who experimented with rewarding pilots who make good landings and punishing pilots who make bad ones. They observe that pilots who are punished generally improve on subsequent landings, while pilots who are praised generally do worse. Thus, they learn that negative reinforcement works; positive reinforcement does not. The learning is natural, but the experience, like all experience, is confounded, in this case by ordinary regression to the mean.

These six examples of unanticipated consequences are illustrative of the variation in behavior that can be generated by elementary adaptive processes functioning under special conditions. They suggest some ways in which undramatic features of organizational life can lead to surprising organizational change.

### **Solution-Driven Problems**

There seems to be ample evidence that when performance fails to meet aspirations, organizations search for new solutions (Cyert and March, 1963), that is, for new people, new ways of doing things, new alliances. However, changes often seem to be driven less by problems than by solutions. Daft and Becker (1978) have argued the case for educational organizations and Kay (1979) for industrial organizations; but the idea is an established one, typical of diffusion theories of change.

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We can identify at least three different explanations for solution (or opportunity) driven change. In the first, organizations face a large number of problems of about equal importance, but only a few solutions. Thus, the chance of finding a solution to a particular problem is small; if one begins with a solution, however, there is a good chance that the solution will match some problem facing the organization. Consequently, an organization scans for solutions rather than problems, and matches any solution found with some relevant problem. A second explanation is that the linkage between individual solutions and individual problems is often difficult to make unambiguously. Then, almost any solution can be linked to almost any problem, provided they arise at approximately the same time (Cohen, March, and Olsen, 1972; March and Olsen, 1975). When causality and technology are ambiguous, the motivation to have particular solutions adopted is likely to be as powerful as the motivation to have particular problems solved, and many of the changes we observe will be better predicted by a knowledge of solutions than by a knowledge of problems. A third interpretation is that change is stimulated not by adversity but by success, less by a sense of problems than by a sense of competence and a belief that change is possible, natural, and appropriate (Daft and Becker, 1978). Professionals change their procedures and introduce new technologies because that is what professionals do and know how to do. An organization that is modern adopts new things because that is what being modern means. When a major stimulus for change comes from a sense of competence, problems are created in order to solve them, and solutions and opportunities stimulate awareness of previously unsalient or unnoticed problems or preferences.

## Transformation of Innovations and Organizations

Students of innovation in organizations have persistently observed that both innovations and organizations tend to be transformed during the process of innovation (Browning, 1968; Brewer, 1973; Hyman, 1973). This is sometimes treated as a measurement problem. In that guise, the problem is to decide whether a change in one organization is equivalent to a change in another, or to determine when a change has been implemented sufficiently to be considered a change, or to disentangle the labeling of a change from the change itself. To treat such problems as measurement problems, however, is probably misleading. Seeing innovations as spreading unchanged through organizations helps link studies of innovation to models drawn from epidemiology; but where a fundamental feature of a change is the way it is transformed as it moves from invention to adoption to implementation to contagion, such a linkage is not helpful.

Organizational change develops meaning through the process by which it occurs. Some parts of that process tend to standardize the multiple meanings of a change, but standardization can be very slow, in some cases so slow as to be almost undetectable. When a business firm adopts a new policy (Cyert, Dill, and March, 1958), or a university a new program (March and Romelaer, 1976), specifying what the change means can be difficult, not because of poor information or inadequate analysis, but because of the fundamental ways in which changes are transformed by the processes of change. The developing character of change makes it difficult to use stan-



standard ideas of decision, problem solving, diffusion, and the like, because it is difficult to describe a decision, problem solution, or innovation with precision, to say when it was adopted, and to treat the process as having an ending.

Organizations are also transformed in the process. Organizations develop and redefine goals while making decisions and adapting to environmental pressures; minor changes can lead to larger ones, and initial intent can be entirely lost. For example, an organization of evangelists becomes a gym with services attached (Zald and Denton, 1963); a social movement becomes a commercial establishment (Messinger, 1955; Sills, 1957); a radical rock radio station becomes an almost respectable part of a large corporation (Krieger, 1979); and a new governmental agency becomes an old one (Selznick, 1949; Sproull, Weiner, and Wolf, 1978).

These transformations seem often to reflect occasions on which actions taken by an organization (for whatever reasons) become the source of a new definition of objectives. The possibility that preferences and goals may change in response to behavior is a serious complication for rational theories of choice (March, 1972, 1978a). Organizations' goals, as well as the goals of individuals in them, change in the course of introducing deliberate innovations, or in the course of normal organizational drift. As a result, actions affect the preferences in the name of which they are taken; and the discovery of new intentions is a common consequence of intentional behavior.

### **Created Environments**

In simple models of organizational change, it is usually assumed that action is taken in response to the environment but that the environment is not affected by organizational action. The assumptions are convenient, but organizations create their environments in part, and the resulting complications are significant. For example, organizations are frequently combined into an ecology of competition, in which the actions of one competitor become the environment of another. Each competitor, therefore, partly determines its own environment as the competitors react to each other, a situation familiar to studies of prey-predator relations and markets (Mayr, 1963; Kamien and Schwartz, 1975). Also, if we think of adaptation as learning about a fixed environment, the model is somewhat different from one in which the environment is simultaneously adapting to the organization. The situation is a common one. Parents adapt to children at the same time that children adapt to parents, and customers and suppliers adapt to each other. The outcomes are different from those observed in the case of adaptation to a stable environment, with equilibria that depend on whether the process is one of hunting or mating and on the relative rates of adaptation of the organization and the environment (Lave and March, 1975). Finally, organizations create their own environments by the way they interpret and act in a confusing world. It is not just that the world is incompletely or inaccurately perceived (Slovic, Fischhoff, and Lichtenstein, 1977; Nisbet and Ross, 1980), but also that actions taken as a result of beliefs about the environment do, in fact, construct the environment, as, for example, in self-fulfilling prophecies and the construction of limits through avoidance of them (Meyer and Rowan, 1977; Weick, 1977, 1979).

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It is possible, of course, for organizations to act strategically in an environment they help create, but created environments are not ordinarily experienced in a way different from other environments. For example, the experience of learning in a situation in which the environment is simultaneously adapting to the organization is not remarkably different from the experience of learning in simpler situations. The outcomes are, however, distinctive. When environments are created, the actions taken by an organization in adapting to an environment are partly responses to previous actions by the same organization, reflected through the environment. A common result is that small signals are amplified into large ones, and the general implication is that routine adaptive processes have consequences that cannot be understood without linking them to an environment that is simultaneously, and endogenously, changing.

## Individuals, Organizations, and Environments

Although it is an heroic simplification out of which theoretical mischief can come, it is possible to see an organization as the intermeshing of three systems: the individual, the organization, and the collection of organizations that can be called the environment. Many of the complications in the study of organizational change are related to the way those three systems intermesh, as is reflected in the large number of studies that discuss managing change in terms of the relations between organizations and the individuals who inhabit them (Coch and French, 1948; Burns and Stalker, 1961; Argyris, 1965), between organizations and their environment (Starbuck, 1976; Aldrich, 1979), and among organizations (Evan, 1966; Benson, 1975).

Much of classical organization theory addresses the problems of making the demands of organizations and individuals consistent (Barnard, 1938; Simon, 1947; March and Simon, 1958); the same theme is frequent in modern treatments of information (Hirschleifer and Riley, 1979) and incentives (Downs, 1967). Although it is an old problem, it continues to be interesting for the analysis of organizational change. In particular, it seems very likely that both the individuals involved in organizations and systems of organizations have different requirements for organizational change than the organization itself. For example, individual participants in an organization view their positions in the organizations, e.g., their jobs, as an important part of their milieu. They try to arrange patterns of stability and variety within the organization to meet their own desires. However, there is no particular a priori reason for assuming that individual desires for change and stability will be mutually consistent or will match requirements for organizational survival. Moreover, the survival of an organization is a more compelling requirement for the organization than it is for a system of organizations. Survival of the system of organizations may require organizational changes that are inappropriate for the individual organization; it may require greater organizational flexibility or rigidity than makes sense for the individual organization. The organizational failure rates that are optimal for systems of organizations are somewhat different from those that are optimal for individual organizations. Complications such as these are common in any combination of autonomous systems. They form a focus for some standard issues in contemporary population genetics (Wright, 1978), as well as extensions of those ideas into social science in general (Wilson, 1975; Hannan and Freeman, 1977).

That observed systems of individuals, organizations, and environments have evolved to an equilibrium is questionable, but it is possible that some of the features of organizations that seem particularly perverse make greater sense when considered from the point of view of the larger system of organizations.

Other illustrations of complications could easily be added, including problems introduced by the ways in which humans make inferences (Nisbet and Ross, 1980), and by the ways in which organizational demography affects regeneration (Reed, 1978). Each of the complications represents either a limitation in one of the standard models or a way in which a model of adaptation can be used to illuminate organizational change under complicated or confounding conditions. Familiar activities, rules, or procedures sometimes lead to unanticipated consequences.

### **FOOLISHNESS, CHANGE, AND ALTRUISM**

Organizations need to maintain a balance (or dialectic) between explicitly sensible processes of change (problem-solving, learning, planning) and certain elements of foolishness that are difficult to justify locally but are important to the broader system (March, 1972, 1978a; Weick, 1979). Consider, for example, a classic complication of long-range planning. As we try to anticipate the future, we will often observe that there are many possible, but extremely unlikely, future events which would dramatically change the consequences of present actions and thus the appropriate choice to be made now. Because there are so many very unlikely future events that can be imagined, and each is so improbable, we ordinarily exclude them from our more careful forecasts, though we know that some very unlikely events will certainly occur. As a result, our plans are based on a future that we know, with certainty, will not be realized. More generally, if the most favorable outcomes of a particular choice alternative depend on the occurrence of very unlikely events, the expected value of that alternative will be low, and it would not be sensible to choose it. Thus, the best alternative after the fact is unlikely to be chosen before the fact by a rational process. For similar reasons, the prior expected value of any specific innovation is likely to be negative, and organizations are likely to resist proposals for such change. Indeed, we would expect that an institution eager to adopt innovative proposals will survive less luxuriantly and for shorter periods than others. Though some unknown change is almost certainly sensible, being the first to experiment with a new idea is not likely to be worth the risk.

The problem becomes one of introducing new ideas into organizations at a rate sufficient to sustain the larger system of organizations, when such action is not intelligent for any one organization. The conventional solution for such problems involves some kind of collaboration that pools the risk (Hirschleifer and Riley, 1979). Explicit risk-sharing agreements exist, but for the most part, organizational systems have evolved a culture of implicit altruism which introduces decentralized nonrational elements into rational choice procedures rather than relying on explicit contractual arrangements. These cultural elements of manifest foolishness have latent implications for innovation and change in organizations. New ideas are sustained in an organization by mechanisms that shield them,

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altruistically, from the operation of normal rationality, for example, by organizational slack, managerial incentives, symbolic action, ambiguity, and loose coupling.

Slack protects individuals and groups, who pursue change for personal or professional reasons, from normal organizational controls. As a result, it has been argued that one of the ways in which organizations search when successful is through slack (Cyert and March, 1963; Wilson, 1966). Several studies of change seem to lend support to this idea (Mansfield, 1968; Staw and Sz wajkowski, 1975; Manns and March, 1978); but Kay (1979) concludes that it is hard to see consistent evidence for slack search in the data on research and development expenditures. Daft and Becker (1978) suggest that slack is associated not with excess resources but with high salaries and a consequent high level of professionalism.

Since managers and other leaders are selected by a process that is generally conservative (Cohen and March, 1974), it is probably unreasonable to see them as sources of intentional foolishness. Managerial incentives seem unlikely to stimulate managerial playfulness; incentive schemes try to tie individual rewards to organizational outcomes, so that managers help themselves by helping the organization. The ideology of good management, however, associates managers with the introduction of new ideas, new organizational forms, new technologies, new products, new slogans, or new moods. Consequently, some fraction of organizational resources is dedicated to running unlikely experiments in changes as unwitting altruistic contributions to the larger world.

Choice and decision making touch some of the more important values of modern developed cultures, and thereby become major symbolic domains in contemporary organizations. Symbolic values, including those associated with change, are important enough and pervasive enough to dominate other factors in a decision situation (Christensen, 1976; Kreiner, 1976; Feldman and March, 1981). Symbolism shades into personal motivations easily for professionals (e.g., engineers, doctors) or managers, since they express their competence and authority by the introduction of changes or symbols of changes (Daft and Becker, 1978). In a more general way, the symbolic elaboration of processes of choice becomes more important than the outcomes, and the outcomes thus reflect more foolishness than would otherwise be expected.

Organizations do not always have a well-defined set of objectives; their preferences are frequently ambiguous, imprecise, inconsistent, unstable, and affected by their choices (March, 1978a; Elster, 1979). As a result, problem solving and decision making assume some of the features of a garbage can process (Cohen, March, and Olsen, 1972), learning becomes con-founded by the ambiguity of experience (Cohen and March, 1974; March and Olsen, 1976), and actions become particularly sensitive to the participation and attention patterns of organizational actors (Olsen, 1976). Moreover, the uncertainties associated with trying to guess future preferences increase considerably the variance in any estimates that might be made of the expected utility of present action and thus decrease the reliability of the process.

Finally, organizations are complex combinations of activities, purposes, and meanings; they accomplish coordinated tasks that would be inconceivable without them, and without which it is difficult to imagine a modern developed society. This impressive integration of formal organizations should not, however, obscure the many ways in which organizations are loosely coupled. Behavior is loosely coupled to intentions; actions in one part of the organization are loosely coupled to actions in another part; decisions today are loosely coupled to decisions tomorrow (Cohen and March, 1974; March and Olsen, 1976; Weick, 1976, 1979). Such loose coupling does not appear to be avoidable. Rather, limits on coordination, attention, and control are inherent restrictions on the implementation of rationality in organizational action.

These organizational phenomena ensure that some level of foolishness will occur within an organization, no matter how dedicated to rational coordination and control it may be. Although it is easy to argue that foolishness is a form of altruism by which systematic needs for change are met, it is much harder to assess whether the mixture of rationality and foolishness that we observe in organizations is optimal. The ideology underlying the development of decision engineering probably underestimates the importance of foolishness, and the ideology underlying enthusiasm for some versions of undisciplined creativity probably underestimates the importance of systematic analysis. What is much more difficult is to determine whether a particular real system errs on the side of excessive reason or excessive foolishness. We can solve the problem of appropriate foolishness within a specific model by assuming some characteristics of the environment over the future; solving the problem in a real situation, however, is not ordinarily within our ability.

Nor is it easy to devise realistic insurance, information, or contractual schemes that will reliably ensure reaching an optimum. Not only are the difficulties in analysis substantial, but, quite aside from those problems, there is also a difficulty posed by the cultural character of the existing solution. The mix of organizational foolishness and rationality is deeply embedded in the rules, incentives, and beliefs of the society and organization. It is possible to imagine changing the mix of rules, thereby changing the level of foolishness; but it is hard to imagine being able to modify broad cultural and organizational attributes with much precision or control.

## DISCUSSION

The five footnotes to organizational change suggested at the outset are comments on change, not a theory of change. Nevertheless, they may have some implications for organizational leadership and for research on adaptation in organizations. The general perspective depends on the proposition that the basic processes by which organizations act, respond to their environments, and learn are quite stable, and possibly comprehensible. These stable processes of change, however, produce a great variety of action and their outcomes are sometimes surprisingly sensitive to the details of the context in which they occur.

A view of change as resulting from stable processes realized in a highly contextual and sometimes confusing world em-

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phasizes the idea that things happen in organizations because most of the time organizational participants respond in elementary ways to the environment, including that part of the environment that might be called management or leadership. Managers and leaders propose changes, including foolish ones; they try to cope with the environment and to control it; they respond to other members of the organization; they issue orders and manipulate incentives. Since they play conventional roles, organizational leaders are not likely to behave in strikingly unusual ways. And if a leader tries to march toward strange destinations, an organization is likely to deflect the effort. Simply to describe leadership as conventional and constrained by organizational realities, however, is to risk misunderstanding its importance. Neither success nor change requires dramatic action. The conventional, routine activities that produce most organizational change require ordinary people to do ordinary things in a competent way (March, 1978b). Moreover, within some broad constraints, the adaptiveness of organizations can be managed. Typically, it is not possible to lead an organization in any arbitrary direction that might be desired, but it is possible to influence the course of events by managing the process of change, and particularly by stimulating or inhibiting predictable complications and anomalous dynamics.

Such a view of managing organizations assumes that the effectiveness of leadership often depends on being able to time small interventions so that the force of natural organizational processes amplifies the interventions. It is possible to identify a few minor rules for such actions (Cohen and March, 1974), but a comprehensive development of managerial strategies (as well as of effective strategies for frustrating managers) requires a more thorough understanding of change in organizations, not a theory of how to introduce any arbitrary change, but a theory of how to direct somewhat the conventional ways in which an organization responds to its environment, experiences, and anticipations. The footnotes to change elaborated in this paper are much too fragmentary for such a task, but they indicate a possible way of understanding change. They argue for considering the fundamental adaptive processes by which change occurs, in terms of broader theoretical ideas about organizational action. They direct attention particularly to how substantial changes occur, as the routine consequence of standard procedures or as the unintended consequence of ordinary adaptation. And they suggest that understanding organizational change requires discovering the connections between the apparently prosaic and the apparently poetic in organizational life.

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