



Review: The New Paradigm in Science and Public Administration

Author(s): Linda F. Dennard

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The New Paradigm in Science and Public Administration

By Linda F. Dennard, California State University at Hayward

Margaret Wheatley, *Leadership and the New Science: Learning about Organizations from an Orderly Universe*. (San Francisco: Berrett-Koehler, 1992), 139 pp.; \$39.95, hardcover.

George Sessions, ed., *Deep Ecology for the 21st Century: Readings on the Philosophy and Practice of the New Environmentalism*. (Boston & London: Shambhala, 1995), 488 pp.; \$30.00, paperback.

Ken Wilber, ed., *The Holographic Paradigm and Other Paradoxes: Exploring the Leading Edge of Science*. (Boston & London: Shambhala, 1985), 301 pp.; \$20.00, paperback.

Scanning the management literature on the new sciences, one is struck by the pervasive concern for how this emerging paradigm might rescue order and coherence from the disorder of social complexity. One also notes the expansion of technoscience, which is intriguing and very useful but which also threatens to overshadow the deeper meaning for public administration of this major paradigm shift. For this change represents not only a boost for computer sciences but also an opportunity to reexamine some basic assumptions about the nature of government.

The New Paradigm sciences—quantum physics, chaos physics, and new evolutionary theory—do not necessarily offer methodological relief for the administrative problems of efficiency and service delivery. And, as one practitioner recently put it, “What good is a science of chaos, if it doesn’t tell us how to overcome chaos and complexity? Isn’t that what management is about?” In fact, the New Paradigm for management views chaos and complexity not as problems to be solved but as meaningful aspects of a process by which living systems adapt, renew, maintain, and transcend themselves through self-organization.

According to this view, the problems of management are not even necessarily methodological but rather ontological. That is, the new sciences do not simply offer more information about how to manage better, they question the basic logic of most management philosophy, arriving at a true turning point in our understanding of organizations and government. The profound change that the new sciences repre-

sent is akin to the Enlightenment in many ways. It allows academics and practitioners the grace of once again asking the big questions: How do we want to live together? What is the meaning of work to the development of the human project? And, perhaps most important for the field, What is government’s role in the lives of its people?

This article will relate the ontological implications of the New Paradigm to public administration and its evolving identity as a democratic institution. I discuss three books that explore these matters in language accessible to the lay person: Margaret Wheatley’s *Leadership and the New Science: Learning about Organizing from an Ordered Universe*; *Deep Ecology for the 21st Century: Readings on the Philosophy and Practice of the New Environmentalism*, edited by George Sessions; and Ken Wilber’s, *Holographic Paradigm and Other Paradoxes: Exploring the Leading Edge of Science*.

The Paradigm of Fragmentation

The classical ontology of management science relies on certain Enlightenment assumptions about our relationships with each other and the planet. The primary assumption has been that the social universe is a disorderly place and people, like other life forms, constantly compete with one another for limited resources. This ontology is embodied in Hobbes’ idea of a Social Contract, which grants philosophical legitimacy to regulatory government as the mediator of human behavior in the pursuit of common goals. By this means, order is presumably brought out of chaos. The need to impose order seemed to be supported by Newtonian physics, which describes the universe as a place where things “push and pull each other around,” as physicist David Bohm puts it. This adversarial view of natural processes and human nature gained further momentum from the biology of Darwin, whose perspective on evolution confirmed that life is indeed a dreary battle for domination among stronger and weaker life forms. These views reinforced the Cartesian need to separate human life from nature and natural processes. Indeed, this older ontological perspective seems to support Hobbes’ assertion that we have nothing in common but our fear of each other (Wolin, 1990).

Cartesian science, manifested in management, has been considered a way to control this seemingly inevitable, and cer-

tainly dangerous, social conflict among competitors. In this view, roles are easily replicable and manageable forms of human behavior that have been used to maintain social stability by keeping people “within the hedges,” as Hobbes described it (Wolin, 1990). For public administration, this has meant reducing life processes and individuality to easily manageable classes, categories, problems, and behaviors, and the procedures meant to regulate them. These practices tend to produce a sense of a social order that is not unified but fragmented for the sake of predictability. Operating from this world view, public administrators have come to see their responsibility as reducing conflict, controlling chaos, and creating coherence out of enormous complexity. This nearly impossible role has forced the field to rely on mental constructs of the social environment. Administrators routinely compare what is out there with how it fits their managerial methodologies or models in here. The assumption, reinforced by the reductive decision-making models of Herbert Simon, is that order is in the mental models themselves and is realized through objective expertise, and not in the experience of the citizen or administrator (Dennard, 1995).

It is no wonder, given these assumptions, that government has become increasingly isolated from the real world of its citizens or that practitioners often have difficulty fitting academics’ modeled abstractions to their own experience. Nor is it difficult to see why the idea of a true democracy sometimes seems nearly impossible. The field all but denies the possibility of a more inclusive democracy by narrowing our democratic aspirations from the pursuit of individuality to the security needed to pursue economic goals. This watered-down democracy has been the best the field could imagine, given Newton’s violent physics. If our social order, therefore, seems too close to the Hobbesian jungle it is perhaps because we have chosen the wrong metaphors for constructing reality. The growing body of New Paradigm literature addresses the social outcomes of the old science, while developing a new science to address the challenges of a new era.

For example, an essay by Chellis Glendinning in Sessions’ book describes the post-managerial culture in this way:

I believe Western Culture is suffering from “Original Trauma,” caused by the systematic removal of our lives

from nature, from natural cycles, from the life force itself. . . . Some symptoms of this psychological distress displayed by our culture and government are recognized symptoms of post-traumatic stress disorder: hyperreactions; inappropriate outbursts of anger; psychic numbing; constriction of emotions; and loss of a sense of control over our destiny (Sessions, 1995, p. 36).

The New Paradigm's major implication for public administrators is that the field is being asked to regard the consequences of its actions in a framework that is broader than a simple cause and effect relationship between its models and the mistakes it makes in implementing them. The social dilemmas created by the management philosophy that Glendinning chronicles are perhaps not solved simply by more management (which would be a little like suggesting that a flood can be cured by more water). If the emerging sciences of complexity have any significance to public administration it is not because they introduce new management methodologies, but because they allow us to ask different questions about government than the ones posed by Newton's science and the neo-Darwinism it sustains.

For the sake of argument, for example, what would management's role be if life is not naturally competitive but rather naturally cooperative? What if complexity and ambiguity are not sources of entropy but rather how systems stabilize themselves through self-organization by co-evolving with phenomena in the environment? What is the role of mediation if systems tend to seek a balance of their own? Can managers really separate themselves from the chaos they are attempting to control as "machine operators" or do their very actions increase complexity by giving the system something new to adapt to? What if the boundaries placed between things, organizations, people, and countries are only mental constructs, not hard and fast reality? What then is citizenship participation and where are the boundaries of government?

These are troubling questions because they seem to undermine many traditional administrators' deep sense of social responsibility for controlling outcomes. Chester Barnard (1938) has been the archetype of the manager who defines his personal responsibility as recreating meaning in

workers' lives while sheltering them, within the mental walls of organizations, from the chaos of life out there. Yet Barnardian-style management has not created social stability and a shared sense of responsibility as much as it has generated a widespread narcissism—organizations and individuals concerned most with defending very narrow interests, roles, and lifestyles.

The implicit patriarchy of Barnard's approach, however, is not easily dislodged from public administration. This sense of social duty is the institutionalization of government's role in the Social Contract as an aloof, all-knowing mediator. Asking managers to give up this deeply imbedded notion of how things are also requires a recognition of the fear that underpins it—a fear of loss of control, a fear of chaos. If, however, the New Paradigm can be considered from an ontological perspective rather than a merely methodological one, it does offer an antidote to this Hobbesian fear and perhaps a new, more meaningful life for government beyond management.

For example, managers who have discovered the New Paradigm and its liberating sense of wholeness and nonduality commonly express the feeling that they have a new, more humane sense of purpose. This is true of Margaret Wheatley, whose *Leadership and the New Science* ranks among the most accessible books on the subject. She does a particularly good job of connecting the three streams of the New Science—quantum physics, self-organizing systems (new evolutionary theory), and chaos theory—and their relationship to management theory. From her personal experience as an executive, Wheatley explores the ontological possibilities of this dramatic shift. For example, in describing how the New Paradigm leads to a sense that our complex world is not half as scary as we make it, she writes that "[m]any organizations I experience are impressive fortresses. The language of defense permeates them: in CYA memo-madness; in closely guarded personnel files; in activities defined as campaigns, skirmishes, wars, turf battles, and the ubiquitous phrases of sports that describe everything in terms of offense and defense" (p. 16).

What this phobic activity denies, according to Wheatley, is two facts, supported by the New Paradigm, that require managers to be more reflective and less adversarial about their relationships to their

environment. One fact is interdependence; the other is self-organization.

Interdependence

Interconnection and interdependence are often described by quantum physicists as an exchange between all matter at the subatomic level. That is to say, interdependence is not merely a mental connection but a physical one. Indeed, chaos might be understood as the turbulence implicit in these interconnections of living things as they accommodate each other (Briggs and Peat, 1990). Perhaps this interrelated turbulence was what Thomas Jefferson meant when he referred to the "excitable geometry" of democracy.

Waging war, literally or metaphorically, is simply cannibalistic in a interdependent system. Yet we are, in truth, waging war against ourselves and fragmenting our relationships in a manner that makes us adversaries rather than co-creators of our environments. In essence, Wheatley says, people become too busy defending themselves to recognize their interdependence and the responsibility it engenders (p. 17). In fact, her description of the mean streets of organizational life has come to represent the real world to many managers—inside and outside of organizations. This reality, of course, is not necessarily the one administrators would prefer; rather, it seems an inevitability to which they must adapt, given certain Darwinian ontological traditions. From this older perspective, cooperation is merely a way to maximize value as alliances and coalitions form to defeat environmental forces. However, this explanation of human behavior, common to rational choice theories, for example, does not promote a sense of responsible interdependence but rather reinforces its own ontological assumption of an adversarial existence (Wolfe, 1989).

Our realities are based on our assumptions and may not be real in any immutable way, according to physicist David Bohm, speaking in Ken Wilber's book, *The Holographic Paradigm and other Paradoxes*. According to Bohm, "[t]he true state of affairs in the material world is wholeness. If we are fragmented, we must blame it on ourselves" (pp. 44-71). Wheatley makes a similar point—that social interdependence exists before interests, goals, or even thought. Interdependence is this wholeness that Bohm refers to. Further, the sense of interdependence can be used to

guide managers in creating organizational cultures that are both sustainable and socially responsible (p. 132).

In dealing with citizens, for example, it may be more productive to focus more on the interdependence that citizens experience and less on the interests that divide them. In any citizen encounter, it is possible to imagine (as a quantum physicist might) how the many dimensions of a citizen's life cannot be separated for the sake of efficiency. There is always more at stake than the task at hand, for a citizen embodies whole sets of relationships and experiences. It is possible to imagine that spontaneous, intimate connections between citizens and individual public administrators could change entire communities. In these encounters, the administrator would address individual circumstances in a direct, holistic way, instead of filtering the many dimensions of the experience through a procedure meant only to address the symptom of a generic problem.

Self-Organization

The second fact of the New Paradigm is the phenomenon of self-organizing systems or autopoiesis, as biologist Erich Jantsch terms it. Jantsch (1979) describes self-organization as "the characteristic of living systems to continuously renew themselves and to regulate this process in such a way that the integrity of their structure is maintained." In essence, he says that systems are indeed living and, further, that they are never at rest but are constantly changing and creating with the environment, while maintaining a stable integrity of recognizable structure (Wheatley, p. 18). David Bohm describes self-organization as our realization that we cannot discover order in our world by breaking the world into parts. Rather, he says, reality is indeed holographic in the sense that the process that sustains life must also be considered when analyzing what this process creates. Classical reality, Bohm says, has focused on secondary manifestations—the "unfolded" aspects of things, not their source (Wilber, p. 6). In public administration, for example, we have traditionally focused on the problem or the goal and how it relates to our methodologies or model for right action, rather than on the less mental and more relational process by which these things appear in our reality.

For the public administrator, this phenomenon of self-organization means that

he or she can justify a faith, with empirical science, in the citizens' ability to co-create goals, plans, and outcomes that can be sustained by them and their communities. Self-organization also means that administrators cannot rely on their expertise alone to address social conditions but instead must participate with citizens in their own governance. In other words, public administrators must learn to support democracy as it occurs rather than planning for it as something that *might* occur once conditions have been perfected.

Self-organization also implies that change is easier than administrators have been trained to believe. Perhaps classical management theory, concerned as it is with imposing order instead of discovering it in relationships, has always bucked the natural system in this regard. For example, public administrators commonly discount personal action—on their own part and on the part of citizens. Public administrators are constrained by layers of bureaucratic structure, rules and procedures, and power. However, in an interconnected and turbulent environment, small actions are as powerful as cumulative ones. It is possible to change lives by listening, empathizing, and caring. Indeed, these holographic practices—those which address the entire reality, rather than its parts—would help create a sustainable democracy by maintaining the stable relationships by which democracy continues. These actions might also be described as creating democracy by practicing it—what Bohm refers to in physics as "enfolding," but which we might also understand as administrative praxis.

Yet these two phenomena—self-organization and interdependence—pose particularly sticky problems for classical management. As Wheatley implies, we have traditionally seen systems' self-organizing tendencies as chaotic or out of control. For example, Barnard concerns himself with informal unofficial groupings within organizations. He believes that while they are helpful and benign at times, they are largely aberrations, rather than proofs of human systems' ability to organize themselves in meaningful ways (Barnard, 1938).

The policy subsystem literature has also described the boundary-spanning nature of interagency life (Wamsley and Zald, 1973). However, it tends to see self-organization as grounded largely in a mental response to the environment's demands. As B.F. Skinner would say, these systems are seen to be

evolving by consequence rather than as part of a more intrinsic evolution by a process implicit in their relationship with their environment (Ho and Fox, 1986). This is at least partly true, but it is also true, from the New Paradigm perspective, that boundary-spanning in organizations may reflect a broader process of change that is not purely rational.

This nuance is perhaps the most difficult to convey to the older ontological consciousness—that self-organization is phenomenological rather than a rational, strategic act. At the same time, the self-organizing process is not as mysterious as it might sound. It is perhaps most easily understood, as it is by new evolutionary theorists like Erich Jantsch, as co-evolution. Put simply, co-evolution is how living systems co-create environments and relationships that sustain and accommodate everything within that environment (Jantsch, 1979).

For example, from a Darwinian perspective, we might see life in the jungle (bureaucratic or otherwise) as "red in tooth and claw" as Tennyson did. Creatures devour each other; not everything survives. There seems to be a predisposition towards the survival of certain members of each species. These phenomena are, of course, real. But a closer look afforded by new evolutionary theory, and the deep ecology movement it supports, reveals that these phenomena as aspects of a more general order of things, not simply individualized, brutal acts. That is to say, the species living within an ecosystem have co-evolved—worked out interactions—that sustain the environment and the relationships within it in a way that permits all species to survive. They do not compete as much as they cooperate. The focus is on individual and system sustainability rather than on the mediation of individual claims to specific resources (Sessions, pp. 64-83).

Sessions' and Wilber's books are both collections of essays from leading-edge theorists of the New Paradigm. Both offer an international perspective that should be welcomed in public administration as the world village rapidly becomes a reality. Both cover a wide range of scientific and philosophical questions related to the paradigm shift. The collection of essays allows the reader to understand the differences between the old paradigm and the emerging one from a historical and scientific perspective along with the implications

for social policies, organizational arrangements, community, and personal lifestyle.

However, neither book offers a conventional management view. Some of the essays in Wilber's book, for example, explore the New Paradigm's potential for reviving the sustaining social spirituality and sense of community that was depleted by Cartesian dualism. Yet these books, because they do put the New Paradigm in a broad context, may be as helpful as any management manual for administrators seeking to understand its implications for their work. Indeed, it would be difficult to embrace the new sciences without considering the big picture rather than a more reductive cause-and-effect analysis. From the perspective of the New Paradigm, even the walls between the professions and the sciences are thin. This is good news for public administration because it supports the field's tendency to be interdisciplinary. We may have worried too much about public administration's place within the professions or in relation to business and not enough about what this ambiguity in our identity might mean about the nature of democratic government.

The essays illustrate how Cartesian egocentrism—the belief that creativity and order are generated by the rational capacity of the human brain alone—is giving way to the vastly different sense of our relationship to our world that Sessions calls *eco-centrism* (p. ix). In particular, the New Paradigm allows administrators to see both diversity and complexity as representing living systems' tendency to be inclusive and to create life forms and structures that will sustain their own diversity—again an enfolding. Diversity is sustained by the creation and maintenance of diversity itself, and it in turn supports the continued evolution and survival of the human project.

However, according to this view of sustainability, government must come to see its responsibility not just in terms of specificity, consistency, and predictability. Pragmatically, public administration's efforts to control reality are impeded by its limited tolerance of ambiguity and its deeply ingrained belief that individuals must be categorized, treated with conformity, and made to comply. Yet, in the emerging views, complete predictability is not possible and probably not even desirable. For example, from the new perspectives of scientists like Jantsch, evolution is irreversible without being completely deterministic.

Therefore, if organizations cannot be separated from their environments as quantum physics suggests, we probably cannot correct mistakes made in the past, however precise our diagnosis or our models. This is so because the mistakes themselves emerged from conditions that no longer exist; they have been transformed by the self-organizing process of evolution. As the old saying goes, "one can't step into the same stream twice." At the same time, the potential for future change remains constant. One could imagine, for example, how the very human act of forgiveness may be a more effective evolutionary tool than retribution and reform. Focusing on retribution forces the system to adapt to what was wrong instead of evolving in some new direction, and retribution fragments the relationships needed to sustain evolution. This insight alone, if embraced by government, could do much to heal our deep social wounds.

This new sense of evolution also implies that true equality, as well as social stability, may be realized in administrative practice by addressing the real individual differences of citizens in an inclusive and accepting manner. This runs contrary to managing the artificial and exclusionary generic categories created by administrative practices. The assumed need for conformity in a very diverse world is by its nature exclusive and therefore inequitable (Sessions, pp. 213-221).

The Paradigm of Paradox

The logic of the New Paradigm depends on accommodation to certain paradoxes—ideas that contain their opposites and are related to and interdependent with them. Chief among these paradoxes is, of course, the idea that order derives from disorder. For Newton, a state of entropy or chaos signaled a system's decline. It would therefore seem natural that too much conflict might signal the impending death of a social order or organization. It also stood to reason that mediating conflict might be the most profound act of social responsibility, since it reduced this potential for entropy and kept the organization in a steady state of equilibrium. New complexity physics, without totally rejecting Newton, dispels this fear of chaos and in doing so reframes the nature of social responsibility for public administrators. Instead of taking responsibility for the strict maintenance of social equilibrium, administrators

might more appropriately assist this creative evolutionary chaos.

Chaos can be understood in a nontechnical way as occurring when (1) a system or organism can no longer sustain a particular pattern of behavior in an increasingly turbulent environment and (2) when the system or organism sets about reorganizing itself to accommodate these environmental changes. In this view, conflict is only a symptom of a social system seeking to appropriately reorganize and rebalance itself. This different view of equilibrium raises these questions for policy makers and managers: Is it more effective to address the conflict itself (conservatism); to address the underlying imbalance that created it (liberalism), or, from the implications of the New Paradigm, is it more appropriate to assist the system in seeking a new, less divisive balance?

The Paradox of Nondualism

The limits of reform as social policy are illustrated by a second paradox of the New Paradigm, that of nondualism. Dualism is, in essence, the Cartesian belief that two aspects of the same system can be treated as separate and distinct entities operating without affecting each other except by clear intent. For example, administrators often assume that, as Woodrow Wilson would have it, democracy is only possible if government keeps itself separate from the people's lives and engages in objective, dispassionate administration of the people's business. According to this logic, public administration is duty bound to be a necessary evil, so it is no wonder that public service is not as venerated as we would like. Indeed, our experience as citizens and administrators is that this disconnected view of government has created a sullen, alienated, and fragmented culture reflective of the bureaucratic model itself. This has occurred despite our belief that we can create democracy by being merely bureaucratic.

The paradox in this regard is one of structure. In effect, organisms or systems are being and becoming by means of a single evolutionary process. We can recognize our plans, our buildings. We can recognize each other. We can maintain institutions and cultures. But these manifestations also exist as part of, and as participants in, a continual chaotic process of change and accommodation. Change comes not by rational intent or in increments over time,

but spontaneously and continuously.

A chaotic system is both self-referential and transformational. It adheres to a set of organizing principles to which the change process always reconnects to create an enduring, stable, recognizable, and evolving structure. Yet the structure itself is not deterministic as much as it is accommodating to the environment of which it is also a part. This accommodation, which is the essence of chaos, allows the system or individual to remain stable within its environment. How an organism or system responds is determined both by its structure and its environment. More important, neither the structure nor its environment exists independent of the other or independent of this inherent life force. The question is, What organizing principles does government enact on a continuing basis in recognition of this process? One might ask, for example, If government is organized according to the assumption of violence, will it not create a violent citizenry?

This self-organization, which is stabilized through self-reference, is akin to what organizational theorist Mary Parker Follett referred to as the creation of "the law of the situation" in group process. According to Follett, the "dynamics" of organizations tend to produce their own balance as that solution or understanding which accommodates everything within the environment at the moment (Follett, 1940). In other words, the group evolves to accommodate diversity (which would also include changes within specific individuals) and creates new forms, structures, ideas, identities, and understandings that will support those relationships and changes. The New Paradigm explains this process by recognizing that change does not occur along a planned, incremental line of history, according to a specified outcome or single ideal. Instead it is the remarkable ability of living systems to democratically adapt, moment by moment, to the turbulence caused by interrelationship and interdependence. Physicists see this process, which Follett sensed intuitively, as accomplishing three things: (1) accommodating diversity in the environment, (2) creating something new out of this accommodation, and (3) maintaining, in an inclusive manner, the relationships that allow the process to continue (Wilber, pp. 44-104).

The Paradox of Identity

Yet another paradox of the New

Paradigm concerns personal identity. For some, the terms interdependence and interrelationship may conjure up a sense that the New Paradigm is peddling communism or some form of New Age social conformity. The readings in Weber's and Sessions' books indicate that the opposite is true. Because we are human, our freedom is qualified by our interdependence. Indeed, the idea of self-organization through self-reference suggests that we need a dialogue about values (organizing principles) for supporting community and action. The difference from an older ontological understanding is that the values would be sustaining rather than regulatory. This means that rather ambiguous values, like justice or equality, would be connecting points for a continuing dialogue about the values themselves. This dialogue allows the values to interact with the environment in an inclusive and adaptive manner. This kind of evolutionary approach would create an enduring dialogue about how we should live together that is neither exclusive nor prohibitory. In other words, the values embody the process by which life continues, and community and individual identity is formed—the essence of our democratic aspirations (Sessions, pp. 65-85).

From the perspective of the New Paradigm, the negative tension between the traditional concern for social stability and the demands of democratic individuality is a false one. The community and the individual are simply different aspects of the same entity. One does not and cannot exist without the other. Yet New Paradigm theory addresses diversity in a less restrictive manner than does a management model. The individual—not the category—is the reference point for analysis. Diversity itself, in this view, refers not to classes or groups but rather to individuals, each of whom is personally engaged in a responsible, creative collaboration with the environment (Sessions, p. 217). The New Paradigm prescribes a more conscious, responsible individuality than the adversarial and compliant one framed by Descartes.

What these trends in the philosophy of science do for a public administrator, Wheatley suggests, is invert the usual responsibility of the manager. This responsibility is not in the control of outcomes—reinforcing conformity, for example. Instead, the new manager is more concerned with the maintaining the relationships in which this implicit, inclusive order of self-organization realizes itself. In effect,

goals are secondary to those relationships that make it possible to achieve goals (pp. 130-139). It also suggests that a public administrator must be self-aware and grounded in a sense of responsibility and the common good that goes beyond mediating conflict or efficient, expert problem-solving.

Beyond Fear

These books offer no real comfort to managers who are seeking a quick application of the New Paradigm that does not require them to change the basic ontological structure of their management philosophy. The fear of chaos that legitimized much of classical management theory has proved dysfunctional both within our organizations and within the broader society which organizations serve and to which they belong. The New Paradigm provides us with both the rationale and the metaphors for reconsidering, in more democratic terms, public administration's role in the social order. The new archetype for an effective public administrator in a chaotic world may not be the one-dimensional "Rational Man," but instead may be the inclusive, engaged, and multidimensional human being. Simon's bounded rationality may belong to an older ontological understanding of our consciousness and not to our future evolutionary potential as a people or as a government.

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