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16. Nature, water symbols, and the human quest for wholeness

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Few words so commonplace in everday vocabulary are so elusive to grasp as "the whole."[1] Like mirrors, notions of what constitutes a "whole picture" may reflect quite as much of what is in the eye of the beholder as they do about reality. Herein lies a profound dilemma. Once a person, group, or culture articulates its own conception of the whole, immediately antennae on other possible wholes become fixed; receptors to foreign insights become restricted to those categories which are familiar and, therefore, limited.

Martin Heidegger's reflections on thought and being prod imaginations toward horizons beyond those of the taken-for-granted.[2] They evoke a thirst for more holistic ways of understanding than can be achieved via reductionist or scientific ways.[3] Favored among human scientists is his concept of *dwelling* as "gathering of the fourfold" – Earth, Heavens, Mortals and Divinities – as the essential feature of humanness.[4] Inevitably, however, his whole idea is couched in the myth and symbolism of European civilization; it may be best exemplified in the agrarian landscapes of the Black Forest or Rhineland. His "mortals" are exclusively human, his "divinities' presenced in cathedral and shrine; a momentary glimpse may be snatched at the interplay of "earth" and "sky" via the march of seasons and such artifacts as bridges, buildings, and artisan crafts. Ocean and tide, island and beach, seem remote.

Despite this focus on European experience, one of Heidegger's enduring gifts is the invitation to probe worlds beyond one's own – to reach beyond whatever whole may have sedimented itself in cultural consciousness and gaze attentively at others. It is in this spirit that this essay draws attention to water, an element which does not play an explicit role in Heidegger's fourfold, but is nevertheless one of the most fundamental elements in Creation

– a *sine-qua-non* for terrestrial life. Through reflections on water symbolism in various civilizations, this essay seeks broader horizons on nature, thought, and being than those which our anthropocentric and settled worlds of the West have deemed edifying, ideologically defensible, or rationally arguable. Indirectly, the aim is to elucidate neglected aspects of human dwelling, a central aim of this volume.

If one is justified in construing Heidegger's notion of dwelling as metaphor for stability and settlement in space, then one can surely construe water symbols as metaphors for adventure and journey, for an element which lubricates, emancipates, renews and recreates human existence through time. In fact, if there can be a universal conception of dwelling on the earth relevant to all world civilizations, it must include this fluid, liberating element. If not, the conception must fall short of that wholeness toward which Heidegger himself pointed when he wrote, "poetically, man dwells . . . ."[5]

At the outset, then, let me define wholeness as horizon rather than destination: a horizon which recedes as the journey through life unfolds. I wish to share some reflections on water symbols in diverse milieux, regarding these as horizons which people have charted in their own quests for wholeness. Against the background of this cross-cultural and historical evidence, albeit filtered through the lenses of a Westerner, I propose some categories through which our own taken-for-granted "wholes" can be evaluated. The challenge, as I see it, in these later years of the twentieth century, is not so much one of rationalizing or analyzing how particular "wholes" are constituted or held together; rather, it is one of discovering ways beyond them toward a broader vision of humanity and world.

Symbols, experience, and the whole

Most Western academics use symbols – texts, maps, equations, diagrams – to unravel and analyze parts; symbols to put the parts back together again. A distinction should, of course, be made between signs and symbols: the equations and acronyms which scholars use to facilitate unequivocal meanings in conversation should more appropriately be called *signs*, while insignia, shrines, art and architecture, myth and metaphor, should be regarded as *symbols*. The latter point beyond themselves, and appeal to imagination, intuition, and memory, as well as to intellect; the former can function with just the sensory-motor or mechanical capacities of humanness.[6] We share one of the most characteristic habits of anthropoids, viz., the transformation of direct experience into symbols, be they articulated via sound, taste, literature or algebra. Symbolic transformations are the stuff of

human creativity.[7] To use one's own categories in interpreting the symbols of another is also a universal human trait. The interpretation of signs and symbols, however, so clear and efficient for the insider, may be a matter of shock, scandal, or puzzlement for the outsider. Consider the Dragon, sacred symbol of palace and temple in China, symbol of evil to European eyes.[8] The painting of Saint George and the Dragon which for English eyes represented the triumph of virtue over vice, when once displayed in Beijing, was not surprisingly construed as a symbol of European imperialism. When Western eyes alight on a Japanese painting of water turbulence, how is it to be interpreted? As art to be evaluated in aesthetic terms, as an invitation to research on hydro-dynamics, or as a story about the cosmos?

Symbols per se are obviously not adequate to facilitate mutual understanding. In the case of water symbolism, the potential for confusion is especially so, for the symbol cannot be interpreted correctly until placed in the context of a civilization's physical milieu and cosmology. A higher level of symbolic transformation from experience to language is clearly needed: what one seeks is some horizon for discourse which could enable each of us to come to appreciate diverse images of wholeness.[9] It is in this emancipatory, lubricating sense that water symbolism may yield its greatest gift, viz., a thirst for something beyond those circumscribed wholes in which we all now "dwell" in our worlds of experience and expertise.

Let me offer an illustration from intellectual history. The progress of scientific knowledge is commonly documented via the record of major products, by author and date, as well as via the labelling of theories and models. Historians of thought, however, be they idealist or materialist in orientation, when describing or interpreting this story, resort to metaphors such as "currents of thought," "watersheds," "convergence of streams," "cycles," or "phases" of knowledge production and diffusion. Literature on human creativity is permeated with water symbolism. When individual scholars are asked specifically about their own moments of insight they often speak in metaphors like "wellspring of inspiration," "flood of insight" or "stream of consciousness."[10] Isaac Newton, reflecting on his life's work, described his own experience as that of "a little boy playing on the seashore and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the *great ocean of truth* lay all undiscovered before me."[11] Sabres clash in the verbal sportmanship over "internalist" versus "externalist" interpretations of Western intellectual history, but few discussants acknowledge how culturally confined the whole theater is.[12] None of the signs and symbols used by either contending party is really understandable until it is placed in the context of deeper myths, e.g., Promethean or Faus-

tian myths of progress which hold the conviction that through time there has been a progressive refinement of thought and an inevitable trajectory toward "truth." Few seem aware that this very practice of entertaining discourse on intellectual developments per se, apart from their connections with other, material, political, or emotional developments in human experience, may be quite incomprehensible to fellow humans in other civilizations. In short, if one is to seek understanding of water symbols, one has to recognize that they probably make sense within a cultural and geographical context whose guiding myths are imbibed and mutually affirmed without rational analysis or reflection.

If it is human to make symbols, one can justifiably argue that it is quintessentially human to create and live by myths. Even Western philosophers today claim that the mythopoetic mode of knowing is the necessary complement to the rational.[13] It would appear, for example, that one of the guiding myths of Euro-American university life is failing, viz., that a rational division of labor and functional specialization among knowledge experts will eventually yield understanding of "the whole." In the last few decades, the result has been a turn toward the humanities, with a hope that something could be learned from an exploration of aesthetic, intuitive, or volitional dimensions of our humanness. Perhaps the time has come for a rediscovery of the dialectic nature of wholeness: that no structure makes sense without process, that functional specialization can only lead to a Tower of Babel if provision is not made for communication among those who occupy its well-engineered rooms. Even from a rational vantage point, the West already senses a thirst for symbolism which connotes lubrication, flow, and dynamism of a circulatory system which could connect parts and wholes.[14]

In the late twentieth century, problems of water resources – their use, abuse, scarcity or abundance – evoke something more than metaphysical speculation. There is obviously a sense of problem felt among hydrologists and political scientists throughout the world. The United Nations announces a decade of research on water; a recent report from an eminent group of hydrologists assembled at Zurich warns that by the year 1990 only half the world's population will have access to unpolluted drinking water.[15] In Rio de Janeiro live more than two million *favelados* without access to running water or sewage disposal.[16] The world of research busies itself in the quest for solutions, and the quest seems worthwhile for reasons beyond those of intellectual curiosity.

A sensitivity about life as a whole and the motivation to explore problems and seek solutions belong to realms of humanness which transcend the purely rational. They could be regarded as religious, for *religio* (literally, "to bind") refers to a felt bond among creatures, and its opposite is negligence (from *negligio*, "to unloosen"). Concern about water resources might be one of the best entrances to reality which other civilizations take for granted, viz., that nature, cosmos, and humanity form a whole, and that whole means holy.

If water symbolism is to be catalyst for holistic understanding, or a potential facilitator of improved communication between those who now find themselves in the roles of victim or oppressor in the international drama of water resources, one needs to reflect not only on the everyday experiences of humans in diverse milieux; not only on the scientific explanations of water dynamics and use; but also on the contexts of faith in which perceptions, uses, and abuses of water are formed and sanctioned.

Water symbols in experience, expertise, and myth

At the basic level of sensory experience, water appeals to the whole: it can be seen, felt, smelled, touched, and tasted. What would the day be like without the morning shower, the cool drink of water after a hike, the refreshment of a swim, or the beauty of falling snow? Socially speaking, the beach, oasis, river or stream has been the meeting place for humans and animals throughout history. Water functions as magnet and shrine, in whose presence all kinds of communication barriers seem to dissolve. The fixing of international boundaries – one of the most significant challenges for mankind's symbolic interaction – has nearly always used watersheds, rivers, straits and sounds. In 1982, the United Nations Law of the Sea Conference could still not reach agreement on offshore limits or provisions for deep-sea mining. The survival of humanity may depend upon whether agreements can be reached about access to and use of water.

At the scientific level, one is today much better informed than ever about the nature and dynamics of water, a theme which in Judson's phrase, "has tempted the eye of the artist, the sinews of the engineer, the intelligence of the scientist, and its mysteries are not yet fathomed."[17] A better theme on which interdisciplinary communication could be fostered could scarcely be found. There is the factual as well as the fictional, hard data and soft, which could be shared among our fields. Why the enormous fascination of the ocean in human history? On any globe one can see that ninety seven percent of all the world's water lies in the oceans and seas; only three percent on land. And of this three percent, seventy-seven percent is locked up in

icecaps and glaciers, twenty-two and a half percent is underground, and only a tiny one and a half percent is available for plants, animals, and humans.[18] The West has long sought explanation for the disposition of land and water. The theory of continental drift which speculated about Pangaea, Tethys Sea, Gondwanaland, and Laurasia – a theory readily dismissed as "myth" by hard-nosed scientists in this century – is now resurrected thanks to the discovery of tectonic plates. Intellectual historians are today less cavalier about dismissing the role of myth in scientific discovery.

Thales, one of the earliest Western philosophers, once hypothesized that "all is water." In this brief statement, one finds perhaps the best symbolic prototype of that perennial quest for simple propositions and unifying principles of the "whole" which has characterized our Western intellectual heritage. Spinoza later sought to explain the whole in terms of one Ultimate Cause and thus reduce multiplicity to unity. What a contrast this perspective is to the Oriental approach, where imagination and aesthetics played a far greater role than intellect, but where the Absolute was identified with nature, in all its multifarious forms, rather than in One Supreme Being existing outside or above nature.[19]

The West, of course, has no monopoly on monistic thinking. *Varuna*, the Vedic god, was monarch of the universe, upholder of both physical and moral orders (*rta*).[20] A distinction can also be discerned between the philosophy of *Tao*, which advocated sensitivity to nature's own "nature," as it were, and a variety of Confucianism which justified the mastering of it. The Western world, however, albeit its impressive record of monasticism and mysticism, has stubbornly pursued the route of empirical and hypothetico-deductive reasoning in its investigations of nature, whereas other civilizations have appealed to art, music and poetry in their journeys toward understanding the world. Parallels can be found, of course, between the lyrical expressions of *Fraticelli* and Romantic poets in Europe and the homilies of a Shintō priest, e.g., Takasumi Séngé: "There is no place in which a god does not reside, even in the wild waves' eight hundred folds or in the wild mountain's bosom."[21]

Western architecture would celebrate One (albeit Triune) God, but Chinese landscape artists would seek to display "the principle of organization connecting all things."[22] Already, superficial evidence seems to suggest that what sets the West apart from other civilizations in its journey toward wholeness is (a) emphasis on the intellectual and rational; (b) visual perception as somehow more reliable than the other senses; and (c) mythological grounds for a hierarchical conception of power in the design and dynamism of reality. In other civilizations, one finds a blending of the intellectual with aesthetic, emotional, and volitional faculties of understanding wholeness; indeed, it seems that water symbolism has served to generate this multi-sensory array of perceptions, as well as openness to a plurality of styles in which order could be found in various social settings.

A more radical difference between the Western and other worlds is, of course, that of underlying *myth*. The lessons to be learned from nature for a Chinese scholar of the Han or Sung dynasties were not only to be gleaned via aesthetic rather than calculative methods – they were to be learned from natural events themselves. The human and cosmic orders were intimately interconnected, so hurricanes, storms and floods were signs of divine displeasure with a particular regime: wise government was something which nature patrolled. The term for revolution, *Ko-ming*, literally meant a "cutting off" or "taking away" of that mandate from Heaven from some particular ruler.[23]

It is far easier to speak of symbolism with respect to experience or expertise than it is to delve into the world of myth. Ever since Xenophanes chided Homer and Hesiod for their "mythological" expressions, the main thrust of Hellenistic thought has been to empty *mythos* of all possible religious or metaphysical value.[24] Myth has come to connote all that is false. Proper knowledge – "truth" – required *Logos*, or at least *historia*. In our Western tradition, both Socratic and Christian, myth has become suspect, the very opposite of truth. One might well wonder whether those capacities to regain touch with a mytho-poetic level of understanding have atrophied beyond repair? Atrophy, one hopes, does not signify death; to reawaken tired muscles, one appeals to emotion as well as aesthetics in gazing at how other civilizations have construed their "wholes."

Water plays a cardinal role in most Creation myths, frequently associated with the female element, in reciprocal relationship with the male elements of Sky and Earth. But the story is usually suited to the normal life experience of men and women within particular physical milieux. In the arid and semi-arid Navajo world, for example, the process of creation is seen to emerge through the conjunction of Mother Earth and Father Sky, the basic ingredients being cornmeal, pollen, and powdered plants or flowers.[25] In Polynesia, where the Ocean is the ubiquitous horizon of life, one reads the following account of creation:

> In the beginning there were only the Waters and Darkness. Io, the Supreme God, separated the waters by the power of thought and of his words, and created the Sky and the Earth. He said: Let the waters be separated, let the heavens be formed, let the earth be.[26]

People still utter those powerful words when faced with serious problems in life; they are believed to be effective in shedding light into secret places, in providing inspiration for composing songs, and in times of despair or war.[27] Buddhism, which has diffused throughout a great variety of physical milieux in Asia, recognizes a heterogeneity of deities (*kami*) and levels of being.[28] In Japan, the sacred lotus, floating on the ocean, holds a key symbolic role in creation.[29] In the Judaeo-Christian account of creation, it is the Spirit which breathes over the waters. When people disobeyed, a great flood came to cleanse the world. The symbolism of universal flood, of course, is as old as Gilgamesh, oldest perhaps of human records.[30]

A provocative contrast can be discerned between the Western account of Noah who, after the flood, gathered specimens of all living creatures into the Ark, and the Hindu account of Vishnu, incarnated as a Fish-God, who salvaged specimens of all vegetables and their seeds as well as all animal species.[31] "Since the Fish-God was incarnated in water," a contemporary Hindu scholar writes, "people believe that water is sacred."[32] Might one not speculate that for the Western mind sacredness is symbolized in fixed property (the Ark) whereas for the Hindu the sacred flows like water? For the West, wholeness (holiness) may consist of reaching a clearly defined destination, whereas for the Hindu it emerges from pilgrimage? On the level of myth, then, two contrasting images of wholeness emerge: one implying home, enclosure, and protection in time and place; the other implying movement, flow, and immersion within the stream of life.[33] For the nomadic forebears of Judaeo-Christian symbolism, The Ark of the Convenant was a sealed box, eventually to be enshrined, enthroned, within temple or cathedral, whereas for the Hindu, holiness flowed within the waters, particularly in the sacred waters of the Ganges.

Stereotypes, of course, are hazardous. In the Christian liturgy, water symbolizes the Holy Spirit who comes to dwell within the believer upon Baptism. To the Samaritan woman at the well, Christ said: "Whoever drinks the water that I will give him will never be thirsty again. The water that I will give him will become in him a spring which will provide him with living water, and give him eternal life."[34]

Cosmology and metaphor in Western conceptions of nature

Within the Western world, it would seem relatively easy to discern connections among myth, symbol, and attitudes toward the whole. The taken-for-granted is more complex, however, than might appear at first glance. Even a cursory look at Western history shows how myths have been used to justify, baptize, and steer our ways of life. Nor is it possible to separate out the cosmologies of the West from the peculiar kinds of environmental experiences which Europeans have known over the past two-thousand years. Permeating Western symbols and myths are certain key images of nature, varying over time, which have provided a kind of canvas, or framework, for the creative work of artists and scientists during successive periods.

More specifically, one could claim that symbols, arising from experience or myth, have been harvested via *metaphor* in the pursuit of cognitive certainty. From Greece the Western tradition has inherited the conviction that intellect was queen among human faculties, and that human reason (*logos*) should provide the ultimate criteria for assessing truthfulness. From Greece, as well as from the Hellenic stream of the Judaeo-Christian tradition, has come a legacy of suspicion about the emotional, sensory, and intuitive features of our humanness. The distinction, and eventual separation, of intellectual and moral virtues in education is one which split Western approaches to thought and being, truth and goodness.

Yet one suspects that in those key metaphors for the whole which were built on symbols of nature – particularly those of water – one could find lurking assumptions about the nature of being itself. The intellectual history of the West has been variously interpreted. I draw here mainly on the works of Glacken, Yi-Fu Tuan, and Mills[35] and add a further consideration, viz., that of "root metaphor" as expounded by Pepper.[36] Pepper describes four world hypotheses in Western intellectual history which claim to give the "whole picture" about reality, and it seems worthwhile to examine how the nature of water was construed in each. The fit is scarcely comfortable, but as a heuristic exercise, this interpretation may help to unmask connections between cosmology, science, and wholeness in our Western traditions. A rendering of Pepper's four root metaphors in terms relevant to understanding water is: (1) nature as appropriate *form*, designed by Divine Providence as fit abode for mankind – a fitness evidenced, for example, in the balancing of moistures; (2) nature as *organism*, demonstrated primarily in the analogy to the human body; (3) nature as *machine*, evidenced through scientific experiments in alchemy and hydrology; and (4) nature as *theatre of events*, which staged spontaneous and unpredictable happenings, such as floods, droughts, and storms. In each of these "whole pictures" lurks implications about truth and rightness; each bears implicit or explicit guidelines for how humans should deal with nature. These examples make no claims to exhaustiveness, nor shall I confine them to the West. Wherever possible, some parallels with non-Western thought will be drawn.

1. Nature as appropriate form

Babylonians considered the stars as the "writing of the sky." Arabs calculate time according to the stars. For the first millenium of European history, one could say that nature was "read" in terms of how well it displayed God's ultimate plan for humanity on earth.[37] In *Romans*, Paul claims that because God's truths are so plainly written in his Creation, pagans could not plead ignorance of Him. "Some peoples, in order to discover God, read books," Augustine wrote, "but there is a great book: the very appearance of created things. Look about you. Look below you. Note it, read it."[38] Viewing Nature as a book implies that there is an author, therefore natural forms were legible, and reflective of that author's intentions. This theocentric view contrasts, for example, with Hindu and Buddhist traditions where each natural form was, as it were, its own author. The Dogen (Japan) says: "There are many thousands of worlds comparable to the *sutras* within a single speck of dust. Within a single dust there are innumerable Buddhas. A single stalk of grass and a single tree are both the mind and body of us and Buddhas."[39] Zen gardens and miniaturized natural forms are "not merely symbols but ways of pointing immediately at what is called in Chinese the *Tao*."[40] The Meghaduta of Kalidasa ascribes conscious individuality, a real personal life, to all forms of nature; in fact, the poet describes aspects of nature that correspond to various human emotions.[41] What seems to be common to all these diverse approaches to nature is the attempt to explain visible forms in terms of some underlying set of rules or norms. The root metaphor of *form* implies a world of diversity, a mosaic of variegated pattern and fitness.

In Medieval times, European geographers were considered the "anatomists of the great world."[42] They described the visible patterns of land and water, human landscapes and social forms, all in terms of "fit," viz., how human civilizations adapted themselves to the natural environment. The Greeks had already paved the way by classifying the earth into zones (*klimata*) of varying appropriateness for human life. The role of water symbolism in this formistic conception appealed directly to life experience. Health of mind and body, as well as that of society, demanded a careful balance of the humors (moistures), and this, in turn, demanded a sensitive attunement to milieu, especially to climate.

Largely because of its role in balancing the humors, climate was linked with all forms of deformity, insanity, greed and warlike habits. Health meant the wholeness of the organism. So, too, a healthy society operated like an organism. A vast literature developed around the question of the optimal

climate for human life.[43] It was first considered to be Greece and, later, northwestern Europe; all other societies were stereotyped in terms of their tempers and their ability to lead a healthy life. What is intriguing is the consistent curiosity about appropriate social forms, appropriate government, for people with different temperaments, viz., inhabitants of different climatic milieux. Bodin usually wound up his essays with a plea for strong central monarchy as the only means of dealing with the schisms and strife of the sixteenth century French world about which he wrote.[44]

2. Nature as organism

In the sixteenth century a vast new world opened up for the West as the ocean was gradually mastered. Political imaginations flew to the prospect of world empires: Portugal, Spain, Belgium, Holland, France and England sent out their antennae for conquest. Throughout European history, of course, the sea had always offered horizons of opportunity for Greek, Viking, Hansa and Goth – counterpoint symbol to that settled, land-based agrarian civilization which ruled "at home." Skills for overcoming physical constraints of mountain and moor could be passed on orally from generation to generation, but to build cumulative knowledge of the sea demanded a scientific attitude.[45] The sixteenth century also witnessed enormous upheavals in religious, military, and economic life. The Renaissance was dawning and the Reformation moved full steam ahead; with both came a radically altered image of nature. Before the sixteenth century, people may have looked to nature for signs of what lay beyond; now they studied it for its own sake.[46] The world was viewed from an anthropocentric rather than a theocentric vantage point. The human body became the symbol of perfection: men and women were themselves the image of the cosmos.[47]

In the Renaissance version of water symbols and the whole, nature's work of art could be understood from one's body. The human body provided an excellent model: composed of many parts, it is still one. Analogy to the life cycle could enable one to conceptualize change over time; the same principles of order could be postulated for both natural and human life. "In every man . . . a world, a universe, regards itself," said Bruno.[48] Adherents to this view include such eniment figures as Leonardo, Gilbert, Kepler, Bruno, Harvey and, possibly, Newton. In many ways this view echoes elements of Arab thought, imported possibly via Aquinas and developed by Albert.[49] The cosmos now possesses life, intelligence and soul; it goes through the stages of infancy, youth, maturity and old age; it has skin, hair, a heart, stomach, veins, and arteries.[50]

Two aspects of this Renaissance image seem particularly relevant to water symbolism and metaphor. First, the extraction of precious stones was considered somewhat like abortion: alchemists believed that all minerals, left to themselves, eventually "ripened" into gold.[51] Secondly, an enormous curiosity arose about the hydrologic cycle and the role of water in the workings of the earth as a whole.[52] Leonardo wrote: "The body of the earth, like the bodies of animals, is intersected with ramifications of veins which are all in connection and are constituted to give nutriment and life to the earth and its creatures. These come from the depths of the sea and, after many revolutions, have to return by the rivers created by the bursting of these veins high up."[53]

The "scientific" puzzle was to figure out how water moved from the oceans to the tops of mountains:

> The waters circulated with constant motion from the utmost depths of the sea to the highest summits of the mountans, not obeying the nature of heavy matter; and in this case they act as does the blood of animals which is always moving from the sea of the heart and flows to the top of their heads; and he who bursts veins – as one may see when a vein bursts in the nose, that all the blood from below rises to the level of the burst vein. When the water rushes out of a burst vein in the earth it obeys the nature of other things heavier than air, whence it always seeks the lowest places.[54]

It was this parallelism between body and earth which evidently inspired Harvey's discovery of the blood circulation system – a discovery appreciated more by geologists than it was by medical authorities at the time.[55] Geologists sought some central fire in the earth that performed a role analogous to that of the heart in man.

3. Nature as machine

To introduce the post-Galilean view of the world as a giant machine, water symbolism also helps. In contrast to Leonardo's "organic" explanation of water circulation, the "machine" metaphor suggested the alembic, or alchemist's alternative. In his distillation flask, water is heated to boiling point and the steam so generated is then cooled to produce condensation in the head of the flask.[56] The earth is seen to operate in similar fashion: inside there is a central fire that heats the incoming water flowing downward

through subterranean passages from the oceans. Water then rises as steam to the earth's surface, where it condenses – for example, in mountains and hills. The alembic model could explain clouds, rain, thunder, and lightning – even earthquakes. The geologist Hutton (familiar with James Watt, inventor of the steam engine) saw the world in mechanist terms – the earth as a perfectly constructed machine, bearing the marks of its Creator's power and wisdom.[57] Whatever in it is subject to decay must, through its own internal mechanisms, also be restored. Its mechanisms are, however, to be distinguished from those of its creation, which remain beyond speculation. The most favored metaphor which ushered in this new image was, of course, the clock.[58]

The use of water and water symbols in the "clocking" of time is perhaps one of the most famous examples of metaphor in science and technology. One commentator claims that Galileo and his generation inaugurated "a new attitude for man before nature: he ceased to regard her as a child watches his mother, modelling himself after her; he wishes to conquer her, to make himself 'lord and possessor'."[59] There is a certain Oedipal aspect to this interpretation of the sudden adoption of the "machine" metaphor in various parts of Europe by scholars of widely different background. The violation of nature which ensued was accompanied by feelings of guilt and anxiety to which we are still heir.

Mechanism is, of course, traceable to early sources in Greek and Roman philosophy, and Cicero eulogized the power of mechanist thought and *techne* already in the first century B.C.[60] Mechanism probably arose, like other metaphors, from the attempt to explain the unfamiliar in terms of the familiar. Instead of the human body, however, the analog arose from experiences with objects – carpentry, architecture, clocks, levers and pulleys; and later with steam engines and computers.[61] Throughout the seventeenth century mechanism actually supported a teleological and a religious conception of the universe: there was still a maker, and objects were made for a purpose. An added nuance, however, came through the Enlightenment faith in human ingenuity: the well-constructed object – for example, the clock in the Strasbourg Cathedral – did not need constant maintenance. In fact, the better the construction, the more it could be left to its own devices. If there was a God, then, His Omnipotence would be best shown by his absenting himself. God became a "retired engineer," and the environment could become secularized.[62] People believed they could tinker with and ultimately control nature; what had been put together could easily be taken apart. Attitudes of analysis and dissection joined those of curiosity about how mechanisms might be controlled. Nature became a reservoir of poten-

tially exploitable resources, and each major technological innovation – dams, pumps, irrigation, and so forth – brought with them a changed image of the environment.

4. Nature as theater of events

In marked contrast to the integrated pictures of the whole offered by the metaphors of organism and machine, a fourth view returns to the plurality of events and phenomena on the earth.[63] A contextual view sees the world as stage for spontaneous and possibly unique events. Each flood, hurricane, earthquake or storm is seen as a unique occurrence, each to be analyzed and described holistically in its own terms.

In many non-Western civilization, natural events are construed as signs of something else, or as "personalities" in their own right. During the early Han period in China, it was believed that natural events and human institutions were mutually interrelated, and if the king governed well, weather, wind and rain would be favorable, whereas if the king's reign was bad, natural calamities would arise.[64] Greek myth also personified storm and drought, and these signified not only part of nature's drama but were also indicators of how appropriate the earth's *klimata* were for human dwelling.

The contextual approach to particular events in the modern West bears little relationship to the Chinese and Greek versions. It may be more typical of the trans-Atlantic corner of the West – from the land where Pilgrims sought to finally make the Reformation work and rid human consciousness of old dogmatisms and intellectual effetism.[65] The emerging natural philosophy would be pragmatic: the truth of yesterday would no longer suffice for today and would most probably be false tomorrow. The ultimate test of credibility was whether something would work.[66] To understand an event meant to look at it contextually, and build a whole picture from the strands and textures of references surrounding that particular event.[67]

Here, then, is a fourth version of the cognitive whole which does not demand an integrated picture of the cosmos, but promises a synthetic understanding of particular problems and situations. Tensions, of course, arise when this holistic mode of reaching understanding of an event is stretched toward normative ends, viz., as base for solving problems. Researchers with applied aims in mind often move from the event itself to the "systems" in which that event appears to be implicated; they then draft plans for its management or monitoring, which may eventually become insensitive to context. On the North American continent, for example, the

United States Corps of Engineers had already spent millions trying to harness the Mississippi River before they discovered that Flood Plain Indians had in many cases already understood how to adapt their ways of life to the giant stream and its floods.[68] A contextual view of the world could only work if all were to agree on the principle of cultural pluralism and geographic autonomy – i.e. that in each valley people had responsibility to and for its own niche.

Identity, order and niche

What lessons may be derived from these four world views and the patterns of water symbolism they suggest? How do Western conceptions of water relate to those of other civilizations? What guidelines for a journey toward a wider horizon on wholeness can be gleaned from this comparative sketch?

A central theme in this essay is that the key metaphors for "wholeness" in any civilization may be best elucidated in terms of mythological foundations and physical milieux. At the same time, their endurance could scarcely be explained without reference to those institutional structures and power arrangements which prevail between political regimes and scholars in a society. In the modern West, for example, there can be little doubt that academic fields of expertise must somehow demonstrate their value in terms of society's ongoing public interests. Let me conclude with some suggestions about how water symbolism enters explicitly or implicitly in the discourse between expertise and experience on three distinct levels of public interest, viz., *identity*, *order*, and *niche*.

Water as symbol of identity

Naming is one of the ubiquitous techniques used by mankind to establish and maintain a sense of personal and social identity. Scandinavia offers ample illustration: consider how many place and family names include water symbols (e.g., *-sjö*, *-ström*,*-å*, *-bro*). Lakes, rivers, oceans and seas have served the interests of human identity in most human cultures, and the earth's toponymy yields deeper insight into the history of civilizations than does its topography. Even today, Merseyside, Clydeside, Östersjön can provide symbols of home for emigrant or native, more effectively than Liverpool, Glasgow, or towns around the Baltic Sea. Mediterranean and Levant – despite all the vicissitudes of political history – still resonate the music of

a particular region. Similarly, the Rhineland, Danubian Plain and Po Valley offer symbols of cultural identity which transcend the many discrete "wholes" which inhabit those regions. Hydrological projects from Tigris-Euphrates through Tennessee Valley to Mekong all bear out the practical as well as ideological implications of "river valley identity": to be effective, the whole valley has to be involved, whatever the realignments of political or administrative structures which this might necessitate. A shining example in Europe is, of course, the Dutch *wattenschaffen* dating from the twelfth century.[69] Today, as pollution and other problems mount in the North Sea and invasions of the Baltic steel strains international nerves, it becomes clear that the definitions of political "whole" and regional identity might well align themselves with those of water.

All humans presumably develop an identity which involves elements of "home" and "reach." River valleys and seas can provide horizons for different homes. Today's challenge seems to demand global horizons of concern as well as knowledge, but the legacy of symbolism in this respect is marred with the record of imperial conquest (political or economic) and its scientific support, which Heidegger called *Herrschaftswissen*.[70] A challenge outlined not only by him but by many others is to conceive an identity (home and reach) which could emerge from *Besinnliches Nachdenken*: how water works and how it is symbolized in various civilizations could be the wellspring for such an approach to our fields of knowledge.

Water as symbol of order

A sense of identity is intimately associated with implicit conceptions of optimal order in society as well as in spatial and temporal affairs. Wittfogel's hydraulic civilizations exercised autocratic control over highly diverse pockets of local order; the Nile valley, by contrast, had a loose federation of village communities. The Swedish tradition of *lag* burgeoned around marine operations; the Admiralty in Britain provided symbols for team work on municipal as well as military operations. Even in everyday language, we often speak of "launching" or "piloting" a project, "pooling resources," a "wave of success," work "flowing smoothly," leadership "running a tight ship," workers "inundated" or "swamped" with agenda. The everyday language of teamwork, social management and policy is permeated with terms drawn from human experience with water and sea during precisely that period when Europeans sought to conquer ocean and ports.

At an earlier time and in other civilizations, water symbolism pointed to

alternative models of order: models of community life adapted to different cultural, natural, and historical milieux. In the West, the vast literature on connections between health, climate, and human behavior was readily dismissed as "environmental determinism," but it contained many provocative ideas about the appropriateness of political form to particular milieux. If there is one realm of contemporary life that really thirsts for creative imagination, it is surely politics, in the radical meaning of the term; public life needs the irrigation and free flow of political energies throughout all parts of society. A body politic modelled on hydrological symbolism could make an interesting alternative to those grotesque charades of mechanism which reduce the citizen to an automation to be policed rather than a potential co-creator of political life.

Water as symbol of niche

To substantiate and maintain one's sense of identity and order – personally and socially – humans require a *niche*. In this ecological term, one could embrace not only livelihood and resource base, but all the proxemic and sensory elements of the everyday milieu. Throughout the record of farming and fishing societies, of artisan and industrial economies, of empires desirous to expand their *Lebensraum*, water symbolism has been used to connote both "home" and "horizon." It is scarcely possible to understand the history of Viking, Hansa, Phoenician, Portuguese or English without understanding how their language symbolized water as horizon for adventure. All over the world one finds in art and poetry, in science as well as fiction, water as symbol for home and reach, security and adventure. For so many writers and artists, the very presence of water – lake or ocean – was an indispensable condition for creative work. Vilhelm Moberg, it is claimed, always sought a view over lake or sea for his working milieu. Dan Andersson, writing in Värmland, spoke of "något bakom bergen . . ." [something beyond the mountain], but the cargo cults of his Polynesian or Caribbean counterpart would have sung of something beyond the horizon.[71] It could be that creative insight is peculiarly sensitive to the milieu in which it dawns. Could one not compare the record of maritime civilizations with that of continental ones, in terms of water symbolism? For example, could not one compare the gentle Shinto symbols with those of the Hydraulic civilizations, those of the mounted nomad or those of the peasant, and find how wise or vain were the dreams of *niche* which have shaped the surface of the earth?

Niche implies both ecological and economic resources whose quality and

scale reflect different societies' images of identity and order. The great irony in today's discussions about water resources in the West revolves around an ethno- and egocentrism. As long as one portion of humanity frames for itself an identity which surpasses its own geographical horizons and employs experts to chart its strategies of order without acknowledging the rights of all humanity to its own niche, all the rhetoric of peace and justice remains hollow.

An enduring challenge

Any experientially grounded probe using symbols to identify the "whole" is understandable in the context of particular cosmologies, and needs to be interpreted with rational as well as mythopoetic lenses. This enormous hermeneutical challenge is confounded by the ever present shadow of Narcissus. During the era when nature was regarded as the handiwork of God, I presume theology was without question the interpreter. When the secrets of civilization and climate were to be studied in terms of the human body, geographers could be regarded as "the anatomists of the great world." In the machine era, I presume the technologist has felt at home. But the rejection and succession of basic metaphors was never a function of epistemology alone; such changes were born and steered from aesthetic, moral, and emotional judgements; in short, they were due to changing mythological horizons – horizons which receded as knowledge and experience unfolded. Can water symbolism, in cross-cultural perspective, help us to interpret these shifting horizons and reach toward higher levels of symbolic transformation which I claimed at the outset were needed? If we can not manage to transcend our own institutionally-defined pools of expertise, how can we imagine that we have anything useful to offer in the resolution of problems relating to world water resources?

The most brilliant analyses and rational plans in the world do not motivate people to change their actual behavior with respect to water use and abuse. Ways of life are built upon taken-for-granted habits and practices, most of which are not consciously considered. European farmers are not asked to question or change their daily practices every time a new machine arrives or when efficiency in agribusiness unleashes massive doses of fertilizer and mechanized systems on a formerly subsistence-base economy. Nor does the housewife who always counted on chickens, dogs, or pigs to consume leftovers change her habits when plastics and canned foods replace the home-grown kind. Habits "cling;" they are not moralized about but are

simply taken-for-granted. A great deal of venom and rhetoric has been aired at huge capitalistic enterprises which are so apparently insensitive to ecology; legal mechanisms are gradually being implemented to muzzle the giants. Yet I suspect that on a global scale, it is the farmers and nomads of the world, now suddenly finding themselves in a radically changed economic and technological world, who are the worst offenders and victims of water pollution. One could say that their technosphere has been radically altered with damaging effects on their biosphere, and yet their images and values have not changed concomitantly.

It is much easier, however, to blame others than to look at ourselves and our academic *genres de vie*. It may well be that fragmentation and specialization of our expertise reflects itself in the landscapes and life forms within which we pursue our everyday agenda. A look at water symbolism and its cardinal role in world cosmologies helps here: *ceteris* are never *paribus*. Water symbolism beckons us beyond our academic niches, offering a cleansing of encrustated routines, and suggests some alternative ways of perceiving ourselves and our world. Like a river flowing past a rich diversity of landscapes and regions, the contemporary world sweeps past our traditional "boxes" of expertise which seem in many ways like oxbow lakes and levees of forgotten relevance. Water permeates the whole of life, inviting all to ongoing creation.

So might one dare to dream of a theology where Eros rejoins Logos, where spirituality, emotion, and worship rejoin intellect as equally valuable sources of insight into truth and goodness? Might one dream of a technology where Prometheus is reconciled with Epimetheus, and the drama of Faust and Gretchen rewritable? Can we envision environmental and human sciences ready to be tamed of their managerial hybris and listening to a reading of the earth's surface in terms of the accumulated wisdom of civilizations – and thereby led to a sense of Creation as a whole? Teilhard de Chardin's poetic vision of the universe has something to offer us all: a vision of humanity finally become conscious of itself and aware of a Unity, founded on Infinite Love, which supports diversity and the integrity of all things.[72] Few metaphors could be more helpful in the journey toward understanding the whole.

Notes

1. This essay is an abbreviated version of a presentation to theologians and hydrologists at a symposium on water problems, Lund University, October 1982; see Anne Buttimer,

"Water Symbolism and the Understanding of Wholeness," in Reinhold Castensson, ed., *Vattnet bär livet* (Linköping, Sweden: University of Linköping, 1984), pp. 57–92.

2. See Martin Heidegger, *Being and Time* (New York: Harper and Row, 1962); *On the Way to Language* (New York: Harper and Row, 1971); *Poetry, Language, Thought*, (New York: Harper and Row, 1971). Also, see J.J. Kockelmans, *On Heidegger and Language* (Evanston, Illinois: Northwestern University Press, 1972).
3. Heidegger, *Being and Time*; Heidegger, *Poetry, Language, Thought*. Also, see W. Biemel, *Martin Heidegger* (New York: Harcourt-Brace Jovanovich, 1976).
4. Heidegger, "Building Dwelling Thinking," in *Poetry, Language, Thought*, pp. 143–162.
5. Heidegger, "Poetically, Man Dwells . . . ," in *Poetry, Language, Thought*, pp. 211–229.
6. See C.G. Jung, *Man and His Symbols* (New York: Doubleday, 1965), pp. 20–21.
7. Ernst Cassirer, *The Philosophy of Symbolic Forms* (New Haven, Connecticut: Yale University Press, 1944); Ernst Cassier, *Language and Myth* (New York: Dover, 1946); Suzanne Langer, *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art* (Cambridge, Massachussetts: Harvard University Press, 1957).
8. See F. Huxley, *The Dragon: Nature of Spirit, Spirit of Nature* (London: Thames and Hudson, 1979).
9. One allegory from the Judaeo-Christian world may illustrate the prospect: on that first Pentecost Day, after the pouring out of the Holy Spirit, thousands of people from diverse civilizations could suddenly communicate as though they possessed a common vernacular language.
10. See H.F. Judson, *The Eighth Day of Creation* (New York: Simon and Schuster, 1979); H.F. Judson, *The Search for Solutions* (New York: Holt, Rinehart and Winston, 1980).
11. Cited in Judson, *Search for Solutions*, p. 5.
12. See E. Mendelssohn, *The Social Production of Scientific Knowledge: Sociology of Sciences Yearbook* (Dordrecht: Reidel, 1977); S. Lilley, "Cause and Effect in the History of Science," *Centaurus* 3 (1953): 58–72.
13. C.O. Schrag, *Radical Reflection and the Origin of the Human Sciences* (Lafayette, Indiana: Purdue University Press, 1980).
14. I have attempted a sketch in "Reason, Rationality, and Human Creativity," *Geografiska Annaler* 61B (1978): 43–49.
15. See Norman and Dorothy Myers, "From the Duck Pond to the Global Commons: Increasing Awareness of the Supranational Nature of Energing Environmental Issues," *Ambio* XI (1982): 195–201.
16. Janice Perlman, *The Myth of Marginality: Urban Poverty and Politics in Rio de Janeiro* (Berkeley: University of California Press, 1976).
17. H.F. Judson, *Search for Solutions*, p. 12.
18. *The Illustrated Encyclopedia of Planet Earth* (New York: Exeter Books, 1979), p. 106.
19. See Hajime Nakamura, *The Idea of Nature, East and West* (London: Encyclopedia Britannica, 1980), p. 284.
20. See John B. Noss, *Man's Religions* (New York: Macmillan, 1956), p. 98; and Nakamura, pp. 262 ff. A provocative critique of the assertion that only Western thought can claim universality is articulated in Hajime Nakamura, *Ways of Thinking of Eastern Peoples: India-China-Tibet-Japan*, P.P. Wiener, trans. (Honolulu, Hawaii: East-West Center Press, 1964), pp. 25–29.
21. Cited in Nakamura, *The Idea*, p. 253.
22. See Judson, *Search for Solutions*, p. 14.
23. Nakamura, *The Idea*, for 260 ff.

24. See Mircea Eliade, *Myth and Reality* (New York: Harper, 1963), pp. 1–4.
25. D. McClagan, *Creation Myths: Man's Introduction to the World* (London: Thames and Hudson, 1977), pp. 56–57.
26. E.S.C. Handy, *Polynesian Religion* (Honolulu: University of Hawaii Press, 1927), pp. 10–11; also, see Richard Cavendish, ed., *Mythology: An Illustrated Encyclopedia* (London: Orbis Publishers Ltd., 1980); and A. Cotterell, *A Dictionary of World Mythology* (New York: G.P. Putnam's Sons, 1980).
27. Eliade, *Myth and Reality*, p. 31.
28. Nakamura, *The Idea*, p. 243.
29. McClagan, *Creation Myths*, p. 46.
30. N.K. Sanders, ed., *The Epic of Gilgamesh* (Hamondsworth, Middlesex: Penguin Books, 1960).
31. Rana P.B. Singh, "Sacred Space, Sacred Time, and Pilgrimage in Hindu Society: A Case of Varanasi City," in R.H. Stoddart and E.A. Morinis, eds., *The Geography of Pilgrimages* (London: Academic Press), in press.
32. Ibid.
33. Rana P.B. Singh, "Geographical Approaches Towards the Lifeworld in Indian Context," in *Professor M.R. Chaudhuri Felicitation Volume* (Calcutta: Indian Geographical Society), in press.
34. *New Testament*, Gospel of John 4:13. For a discussion of water symbolism in oceanian, monsoonal and Moslem worlds, see Buttimer, "Water Symbolism."
35. Clarence Glacken, *Traces on the Rhodian Shore* (Berkeley: University of California Press, 1868); Yi-Fu Tuan, *The Hydrological Cycle and the Wisdom of God: A Theme in Geoteleology* (Toronto: University of Toronto, Department of Geography, 1968); W.J. Mills, "Metaphorical Vision: Changes in Western Attitudes to the Environment," *Annals of the Association of American Geographers* 72 (1982): 237–253.
36. Stephen Pepper, *World Hypotheses* (Berkeley: University of California Press, 1942); Anne Buttimer, "Musing on Helicon: Root Metaphors in Geography," *Geografiska Annaler* 64 B (1982): 89–96.
37. Mills, "Metaphorical Vision."
38. Cited in Glacken, p. 204.
39. Nakamura, *The Idea*, p. 283.
40. F. Spiegelberg, *Zen, Rocks and Waters* (New York: Random House, 1961), p. 19.
41. See R.M. Kale, *The Meghaduta of Kalidasa* (Bombay: Booksellers Publishing, n.d.).
42. Mills, "Metaphorical Vision," p. 241.
43. E. Leboulaye, ed., *Oeuvres complètes de Montesquieu* (Paris: Garnier Freres, 1975–1979).
44. Jean Bodin, *The Six Books of a Commonweal (The Republic)*, R. Knolles, trans. (London: G. Bishop, 1906); Jean Bodin, *Method for the Easy Comprehension of History*, B. Reynolds, trans. (New York: Columbia University Pres, 1945).
45. P. Vidal de la Blache, *Principles of Human Geography*, E. de Martonne, ed., M.T. Bingham, trans. (London: Constable, 1926), pp. 424–446.
46. Glacken; also see A.O. Lovejoy, *The Great Chain of Being: A Study in the History of an Idea* (Cambridge: Harvard University Press, 1936).
47. Mills, "Metaphorical Vision," p. 242.
48. Mills, "Metaphorical Vision," p. 242; also, see L. Barkan, *Nature's Work of Art: The Human Body as Image of the World* (New Haven: Yale University Press, 1975).
49. Glacken, pp. 254–284.
50. F.D. Adams, *The Birth and Development of the Geological Sciences* (London: Bailliere, Tindall and Cox, 1938).

51. Mills, "Metaphorical Vision," p. 244.
52. Yi-Fu Tuan, *Hydrological Cycle*.
53. J.P. Richter, ed., *The Literary Works of Leonardo da Vinci* (London: Phaidon, 1970).
54. Ibid., vol. 2, p. 158.
55. M. Nicolson, *The Breaking of the Circle: Studies in the Effect of the 'New Science' upon Seventeenth Century Poetry* (London: Oxford University Press, 1960); J. Hutton, *Theory of the Earth with Proofs and Illustrations* (Edinburgh: Cadell, Junion and Davis, 1795).
56. E.H. Duncan, "Satan-Lucifer: Lightning and Thunderbolt," *Philogical Quarterly* 30 (1951): 441–443.
57. Hutton, vol. I, p. 3.
58. E.J. Dijksterhuis, *The Mechanization of the World Picture* (London: Oxford University Pres, 1961), pp. 442–443.
59. R. Lenoble, *Esquisse d'une histoire de l'idée de nature* (Paris: Editions Albin Michel, 1969).
60. Cicero, *De natura Deorum* (London: Loeb Classical Library), II, 60.
61. Pepper, pp. 221–231.
62. Dijksterhuis, p. 491.
63. William James, *Pragmatism* (New York: New American Library, 1955).
64. Nakamura, *Idea*, p. 260.
65. M. Eliade, *The Quest* (Chicago: University of Chicago Press, 1969) pp. 94–101.
66. See James; and Pepper, pp. 268–279.
67. Pepper, pp. 232–279.
68. G. White, *Natural Hazards: Local, National, Global* (New York and London: Oxford University Press, 1974).
69. See Jean Gottman, *A Geography of Europe* (New York: Holt, Rinehart and Winston, 1969), pp. 277–279.
70. Heidegger, *Being and Time*.
71. Dan Andersson, *Visor och ballader* (Stockholm: Tidens Förlag, 1950), p. 89.
72. P. Teilhard de Chardin, *Toward the Future*, Rene Hague, trans. (London: Collins, 1975), pp. 163–208.