

The Paradox of Eco-Logic:

The Art of Agnes Denes

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My work is a composition, a process, an inspired place, a field of grain, a mathematical forest, benign problem solving, philosophy in the land, nature articulated through human intelligence.

—*Agnes Denes*

In reading [Milton's] works, we feel ourselves under the influence of a mighty intellect, that the nearer it approaches to others, becomes more distinct from them.

—*William Hazlitt, Lectures on the English Poets,*
quoted by Harold Bloom, The Anxiety of Influence

To consider properly the art of Agnes Denes, one must begin by appropriately positioning her in relation to the art of our time, appreciating the place held by her work among the artistic advances that most deeply characterize our moment in history. For the work of Agnes Denes looms above the landscape of contemporary art. Much of what we consider the high watermarks of the art of our time exists only because

of her innovations—much of it is illuminated by the potent and penetrating glow of her imagination.

Which is to say that Agnes Denes must be considered one of the “strong” artists of our time, one of the few artists who fits the character of dominant artistic achievement and influence outlined by the literary critic Harold Bloom.

In his book *The Anxiety of Influence*, Bloom theorized the difference between “strong poets” and weak poets, between poets who are capable of absorbing and digesting the influence of the great poets who preceded them, who drew their inspiration from the poetry they inherited, and those poets who are too weak to withstand the pressure of having to live up to the great tradition in the art they had chosen to take upon themselves. Weak poets, in Bloom’s estimation, become intimidated, feel they have come upon the scene too late, and inevitably resort to mere imitation, parody, and various expressions of anxiety—the anxiety of influence. They remain, throughout their artistic careers, epigones—immature practitioners of an art they believe, often unwittingly, eludes them. The weak poet “fears his precursors as he might fear a flood.” However, strong poets remake the work of those who came before them. They read it by their own lamplight, take what they need to hear for the sake of their own strong imaginations, and by their very natures, reconceive the art that precedes them and use it to fashion a new art. They are unbowed by the majesty of what they’ve learned from, undaunted by the stature of that which has drawn them to it. Out of what they obtain from their forebears, they mold the principles of their own distinctiveness.

It is an easy inference to conclude that Bloom’s analysis of literature can be applied to all the arts, for what is at issue is the freedom of the imagination—the

ability to develop and exercise distinctive and incisive thought in any field in which one learns one's craft from a tradition freighted with masterpieces. Any artist confronts the problems of Bloom's poet: how to absorb the lessons of past masters without the depth and breadth of their achievements taking the heart out of you, without acquiring the feeling that there is nothing left to be done.

But in every age there are those who surmount the intimidation, for the will to accomplish is not pulled from the sources of craftsmanship, from the models of technique, which can be found only in prior works of impeccable execution. The will stems from an internal drive, an inborn not inbred capability and innate insistence to dream, to make real—to think and convey. Such people are always with us. They take what they need from where they find it, without blanching at the magnificence that precedes them. There is only one magnificence they know.

Agnes Denes is one of the strong artists of our time, one of our foundational artists who has transformed our heritage and set the standards for future artistic achievement. She has been one of the most significantly original thinkers in contemporary art over the past several decades, having established a body of work that is varied in the media and styles of expression she has mastered and employed, demonstrating an astonishing scope and depth of achievement, and yet each of her works always is recognizable as having been done by her hand, each work clearly has been conceived by her mind. She has dominated, and in some instances initiated, the fields of site-specific sculpture, ecological or environmental art, mixed media, installations, poetry, drawing, sculpture, printmaking, and photography.

The scale of her accomplishment can only be appreciated by recognizing the fields in which she has been a key or the primary innovator. Denes is one of the first Conceptual Artists, one of the first artists to move away from the exploration of pure abstraction in the aftermath of Abstract Expressionism and look to the amplification of the pure idea as the conveyance of the artistic experience—thought itself at the extremities of rational analysis as a portal to depth of experience. In her methods, she has been a defining force in her use of serial imagery, linguistic analysis, and Deconstructive tactics. Denes is also the originator of environmental art—in 1971, she coined the term “eco-logic.” Her particular emphasis has been on art with an ecological orientation, a focus on the analysis of what we are doing to our environment and the ways in which we are making it incapable of sustaining us.

It is clear from even this short list of achievements that Denes, in much of her early work, presaged many of the art movements that are now considered the essence of post-modern art. In particular, she was one of the first artists in the contemporary era to observe and employ in her work the alignment between art and science. Throughout her career, her work has demonstrated a mastery of mathematical and scientific concepts that is virtually unique among practicing artists.

During a time when, increasingly, far lesser artists are regularly catapulted to fame with little of clear accomplishment in their work, Denes for decades has consistently produced art with real depth, substance, and imaginative and intellectual prowess.

Denes has been marginalized and overlooked through much of her career, to a great extent because she had to work in an art world dominated by male artists and,

as she has put it, a “male mania for supremacy.” It is also an art world oriented on competition and thus, not at all ironically, filled with male artists afraid of competing with women. Even so, increasingly over the course of her career, she has been recognized by a now constantly compiling array of honors. She has had over 375 solo and group exhibitions in museums and galleries on four continents, including Documenta VI in Kassel, four Venice Biennales and the “Master of Drawing” Invitational at the Kunsthalle in Nürnberg (1982). She has shown at the Museum of Modern Art, the Metropolitan Museum of Art, and the Whitney Museum in New York. In 1992, she had a major retrospective at the Herbert F. Johnson Museum at Cornell University. Denes has written four books and holds an honorary doctorate in fine arts. Among her numerous awards are the Watson Transdisciplinary Art Award from Carnegie Mellon University (1999), the Rome Prize from the American Academy in Rome (1998), the Eugene McDermott Achievement Award from M.I.T. “In Recognition of Major Contribution to the Arts” (1990), the American Academy of Arts and Letters Purchase Award (1985), four National Endowment Individual Artist Fellowships, the DAAD Fellowship from Berlin, and the “Anonymous Was a Woman” award (2007). She was a Research Fellow at the Studio For Creative Inquiry at Carnegie Mellon University and the Center for Advanced Visual Studies at M.I.T. She lectures extensively at universities in the U.S. and abroad and frequently at global conferences, where she speaks on the issues most significant for human survival.

Her work has entered the permanent collections of the Metropolitan Museum of Art, MoMA, and the Whitney Museum in New York; the National Museum of American Art, the Corcoran Gallery of Art, the Hirshhorn Museum, and the Smithsonian Institution in

Washington D.C.; Kunsthalle, Nürnberg,; Moderna Museet, Stockholm; the Israel Museum, Jerusalem; the Wexner Center for the Arts, Columbus, Ohio; the San Francisco Museum of Modern Art; the Honolulu Academy of Arts, Hawaii; the Philadelphia Museum of Art, Pennsylvania; the Herbert F. Johnson Museum, Cornell University; and numerous other institutions.

The breadth of her influence becomes evident. Denes has been recognized by museums and educational institutions throughout the globe as a major force in the art world and beyond. Artists around the planet owe much to her for their methods and ambitions, if not for the very possibility of the art form they practice. Not to know the work of Agnes Denes is not to know the history of contemporary art.

The most distinctive and defining mark of Denes's stature as one of the foundational artists of our time is not the influence she has exerted but the influences she has adopted and made her own. Although she is adept at numerous traditional artistic practices, the primary influences on her art are intellectual, and the range of her interests and intellectual capabilities is as astonishing as is the range of the media she has mastered. The conceptual frameworks within which her art is executed include physics, mathematics, technology, philosophy, logic, linguistics, psychology, anatomy, botany, biology, ethics, theology, art history, music, and ecology. And she is not a dabbler, as is the norm within contemporary artistic practice—she does not “reference” these subjects for the sake of irony, political diatribe, or personal viewpoint. Her knowledge across what is a large swatch of our civilization's intellectual concerns is studied and possesses substantial depth—Denes bothers to know what she is talking about, which is to say that in the manner in which she practices Conceptual Art, there are actual concepts involved.

As a result, she is one of the most prominent intellectual presences in contemporary art. The stunning array of intellectual disciplines her work assembles and puts in service of her aesthetic ambition challenges the viewer's ability to comprehend the depth of her learning and the power of her imaginative transformation of her materials. Or to put the matter differently, among Conceptual Artists, Denes is an authentic intellectual.

In the past, many writers have compared Denes to Leonardo da Vinci, and the alignment is correct in one way most particularly. As is demonstrated by but not limited to her fusing of art and science in her work, she is one of the contemporary world's examples of a "Renaissance" mind, and she is one of the few, one of the few working in any field of imaginative endeavor. In particular and in common with the Renaissance master, she has combined the visually imaginative and the intellectually articulate, and produced an art that is a seamless amalgamation of the two, an art whose visual symbolism possesses all the clarity and lucidity of an impeccable logical argument combined with the lyricism of a beautiful melody.

Underlying this remarkable range of intellectual ambition is not only an extraordinary mind but also a coherent and unified intellectual objective. Denes's aim is to employ her art as an integrative methodology, to draw together, or rather to demonstrate the inherent relationships among, the variety of areas of advanced inquiry that she investigates and that otherwise remain isolated in their self-defined fields of specialization. She takes art to be a language of visual perception, a form of *lingua franca* capable of opening a flow of information among what she terms "alien systems and disciplines." What makes such integration possible, and what innately subtends these self-distinguishing areas of investigation, is a system of universal forms and concepts. It

is, for Denes, the business of art *per se*, and in particular of the art she has striven throughout her career to create, to visualize such forms, to dramatize them, and thereby to render a language for seeing the universal concepts—a language of “pure form,” and thus a language of “pure meaning.”

The “pure meaning” that Denes seeks is in fact an aesthetic objective, for it is not merely a replacement for the aesthetic experience, with its inevitable mystical overtones, of traditional art—it is comparable to that quality of deep insight. Denes takes upon her the mystery of things, but she does so not through mystification and the sidestepping of rational inquiry, not through aesthetics as an alternative to rational inquiry—this is precisely the sense in which she is a true Conceptual Artist. It is the concept as a result of a scientific analysis of the world that, when taken to the limit of the determinable, renders something that steps beyond the range of lucidity, that lies outside the perimeters of the fully expressible. It can be said that Denes’s mystery of knowledge is set not in the sub-rational but in the super-rational, beyond the farthest reach of the analytic.

The means by which Denes reaches beyond the intelligibility of rational knowledge by adopting and following the findings of rational inquiry is *paradox*. She is focused in all her work on the paradoxes of the human situation, or more precisely, on the paradoxes of the human being as a knowing animal, on the self-contradictory aspects of awareness in which both arms of an essential, inescapable contradiction are of an insistent credibility, reinforcing each other and rendering, in every attempt to know anything about ourselves and the world we occupy, the dilemma of the knowing creature. They provoke complex questions regarding not only the legitimacy and the pertinence of

knowing but also the efficacy of knowledge, the capacity of knowledge to direct action, straight through from the tenuous possibility of self-willing to our capabilities to act in the effort to maintain ourselves, to save our species before we destroy the planet's ability to sustain us. In Denes's art, evident paradox takes the place of unintelligible, otherwise inexpressible insight in traditional art, which is to say that the recognitions in her work can be expressed in languages of thought other than art, for all the good that will do, for the paradoxes she locates are incorrigible—they are real. Which is to say in other words still, Denes is a philosopher among artists—she evidently believes not in the quasi-mystical aspects of the aesthetic emotion but in the light shed by pure logical thought into even the most inexplicable regions of exploration.

Once comprehended, her paradoxes surround the effort to think and act like an embracing atmosphere—they are revealed in her work as the region within which our efforts are committed, within which our lives occur. And they are to be found in the two primary categories into which her body of work can be divided—two categories that are neither mutually exclusive nor exhaustive but that serve to identify the principal concerns that have revealed themselves over the course of Denes's career: ecological, environmental art, or eco-art, and her art of intellectual investigation, or, for lack of a more appropriate covering term, philosophical art. Between them, they demonstrate the wisdom in the term Denes devised early in her career to encapsulate the significance of her work—"Eco-Logic"—for the term fuses together the two primary fields of her artistic investigation, and it is on the bridge between them, between the logical and the ecological, between thought and life, that the most urgent paradox is to be found, and the

heart of her insight is to be located. It is on the bridge between them that Denes stands as a public figure, and as a visionary artist in our time.

Among her philosophical works, there are frequent examinations of knowledge as an unambiguous accomplishment, virtually celebratory investigations of sheer theoretical knowledge and mathematics as a crowning achievement of civilization. *Systems of Logic/Logic of Systems—Studies for Steel Cable Structure in Red, Black & Silver*, 1983, is a set of drawings for a steel-cable structure the form of which is rooted in the mathematics of Pascal's triangle.*

Pascal's triangle appears to be a rudimentary exercise in the simplest number theory, in pure counting, but more than that, it is a pattern of structure and growth, an essential pattern of dynamic function in the physical universe. This is precisely how Denes uses it, for as she has written about the work, "The number system represents a universal concept (the essence or nature of a thing) that becomes the vehicle through which analytic propositions are visualized (given form, created) Pattern-finding is the purpose of the mind and the construct of the universe." Universal concepts are not merely attributes of thought or arbitrary assertions of the mind. They are the structures of things outside the mind. Pascal's triangle is not an invention, not a theoretical mind game that fulfills itself according to a proposed set of ultimately arbitrary rules—it is a discovery, one that has consistently demonstrated its pertinence as a foundation for probability theory. And *Systems of Logic/Logic of Systems* is an unequivocal statement of the power of thought to find the truth of things.

So, too, with Denes's *Introspection* works. *Introspection I—Evolution*, 1968-71, is a 17-foot monoprint portraying the evolutionary developments of the species

“from the Psychozoic Era and the separation of man and ape to the development of intelligence and the beginnings of knowledge, science, and art.” *Introspection II—Machines, Tools, & Weapons*, 1972, is a 60-by-42-inch monoprint mapping the growth of technology through the ages. The series of *Introspection III—Aesthetics*, 1972, uses x-ray images to probe the hidden anatomy of master paintings, the substructures of some of the highest achievements of our species. And the works of the *Introspection Series—X-Ray Structures*, 1972, display the hidden structures of monumental architectural accomplishments: including the Coliseum, Hadrian’s Tomb, and the Column of Marcus Aurelius. Implicitly part of the *Introspection* series are the works of *The Kingdom Series*, 1971-73: x-ray images of organisms in the animal and plant kingdoms, images revealing the delicate beauty of hidden natural structures. Included in *The Kingdom Series* works are images Denes calls “Ciliagraphs,” magnifications through electron micrography of a living world so small its beauty is unknowable to the unaided eye, but is revealed by the artist’s mind and probing craft. The *Introspection* works are testimony to the power of the mind to discover, the power of the mind as the defining characteristic of the species and as the essence of humanity’s achievement.

Syzygy—“The Moment of . . .”, 1972-73, is one of Denes’s most potent and demonstrative testaments to the legitimacy of thought as revelatory of the truth of the world. The drawing contains 65 straight lines laid down at random, which intersect at 1,255 points and thus form 10,919 different triangles. The proposition that the drawing enacts is that it is “the nucleus of a design that extends into infinity, whose invisible lines encircle the universe, mapping and recording events that occur within its fabric.” Of course, if the universe simply extends to infinity, so do the lines as we imagine them

leaving the paper. However, under the more likely Einstein-de Sitter structure of a curved universe—a universe that is not infinite but finite and unbounded, like the surface of the earth—each line would return to its starting point. If the universe were of a constant curvature, with matter evenly distributed throughout, each line would close into a circle as a single circumference. With matter unevenly distributed, closure would occur only with some number of circumferences, in some instances, an infinite number—but it would occur. Everything would return whence it began.

And there lies the testimony. We can no longer claim credibly to stand at the center of the creation, but we have discovered that we can in a sense that includes all else in the universe. In the curved model of universal structure, every point in the universe is the center. (Think of the surface of a balloon that is being blown up. There is no one center, no single point of expansion, because at every point on the surface, every other point on the surface is moving away. The expansion is in all directions. Every point is the center.) It is an ancient idea resurrected by implication by Einstein and put most famously by Pascal. Even as he claimed to feel the terror of being surrounded by the “eternal silence of these infinite spaces,” Pascal observed the structure of those spaces as being “an infinite sphere, the centre of which is everywhere, the circumference nowhere.”

If the center is everywhere, it is with us—it is where we stand. As one holds Denes’s drawing in the palm of one’s hand, as she requests the viewer to do, the center of the universe is there—in the palm of one’s hand, the demonstration of it mapped in her drawing. And it is significant to recognize that the drawing is not a metaphor for its thought or an expression of the effusion of emotion—it is not a mere statement. *Syzygy* is more on the order of a mathematical proof of its point. It is the thing itself, the insight

recorded, rendered as a work of art, rendered as a work of the artist's hand, which delivers the center of the universe into the hand of the viewer. It is a moment in which the artist's hand enters the viewer's hand, one imaginatively becoming the other, and together, they hold the soul of creation as if it were water in the desert, held in a pair of cupped hands

Denes's ratification of the power of thought also has entered into some of her many public works. In *Poetry Walk*, 2000, 20 granite stones, each one approximately four feet by five feet, were incised with poetry and quotations by writers from the canon and embedded in the lawn at the University of Virginia. Offered on the millennium to the students of Thomas Jefferson's university for their contemplation and education, the work is a statement of the indispensability of great thoughts, and the resurrection of the some of the most significant moments of insight in our history. *Stelae—Messages from Another Time—Discoveries of Mind and People*, 1986, are two hand-carved marble tablets that record the major scientific breakthroughs of the twentieth century. Included on the tablets are Einstein's field equations for the Theory of General Relativity, Schrödinger's wave equation for Quantum Mechanics, Maxwell's equation for electromagnetism, the NAND gate, which is the logical basis of all computer technology, the bases of DNA and RNA, and the Hubble law for the expansion of the universe. Intended for preservation, to be discovered thousands of years from now, the discoveries incised in the marble are urged upon us—something not to be lost.

The most famous philosophical works by Denes, as well as many of her most impressive examples of drawing, are no doubt the works from the *Pyramid Series*, 1970-present—a large and increasing number of drawings of pyramids that are

beautifully rendered and polished works of art using Pascal's triangle to address the paradox of knowledge and thereby raise questions regarding the value of thought. They are a continuing series of fully realized philosophical speculations executed as fully accomplished art works.

Many of the drawings are straightforward renditions of the ideally proportioned, undeniably beautiful pyramid—beauty generated from so simple an arithmetic formula. Others are less straightforward but equally beautiful—they twist, contort, and transform into languid, almost liquid forms that remain pyramids even as they seem to arch with a will of their own. Each transformation involves a minor change in a coefficient involved in plotting the arithmetic formula as geometric form—in picturing the equation. *Probability Pyramid—Study for Crystal Pyramid*, 1976, has a subtle, elegant arc that seems to aspire to the heavens. *When the Pyramid Awakens—Study for Environmental Sculpture*, 1983, *Flying Fish Pyramid—A Floating Water Habitat*, 1984, *Bird Pyramid*, 1984, and *Flying Pyramid for the Twenty-Second Century*, 1984, appear to waft in the air, almost purling as they follow and visualize the invisible currents in the atmosphere. *Egg Pyramid—Study for Future Self-Contained, Self-Supporting City Dwelling*, 1984, and *Teardrop Pyramid*, 1984, look like precisely what they claim to simulate. *Teardrop—Monument to Being Earthbound*, 1984, an exquisite execution in silver ink on vellum, is a lament over the power of gravity, over the sorrow of being laden by weight, as the apex of the pyramid breaks off from its base but cannot escape, hovering over its foundation in the form of a tear, aloft but still tethered by force to the earth.

Other works begin to shape an almost nightmarish quality, carrying through an implication in the very philosophical idea that lies at the core of this systematic rendition of knowledge and beauty. In *Pascal's Perfect Probability Pyramid & The People Paradox—The Predicament*, 1980, the slots in the pyramid, the three-dimensional triangle, are filled not by numbers but by people. The drawing is a *tour de force* of execution: according to Denes, there are over 16,000 small silhouetted figures in the work, each one different from the others. Yet, seen together, they seem identical and indistinguishable, occupants of a system with no other function than to constitute the structure that encompasses them—the structure that is what they truly are. As Denes puts it, the work “depicts a society composed of individuals who stand in protected isolation, alone but without privacy. They cannot escape the structure yet seem to be fooled by illusions of freedom The pyramid they form is a society of visual mathematics in which they are but patterns and processes, number components of a mathematical system who believe they are unique entities.”

It is a vision of imprisonment and the eradication of individuality, and the danger is inherent in the very idea of knowledge. If knowledge is systematic, and accurate rather than an arbitrary invention of our own, if concepts are not just mental products but the structures of things outside the mind, then we are mere particles of a system, prisoners of a system not of our own making. If knowledge is systematic and the system is a given, then what will can we exercise through our thinking? If knowledge is systematic, then we are compelled in all we think and all we determine to do.

And therein lies the paradox of knowledge, and the essential paradox of the human predicament. Our knowledge appears to us to have been freely chosen, but it is not so much that we think the system; it is the system that thinks us.

And the implicit irony in the fact that we are looking at a drawing, we are looking at a visual proposition of the paradox that itself has been conceived by a mind—by the mind of the artist—alleviates nothing. Denes stands above the drawing. She has conceived the assertion that all is contained in the system; the assertion itself is contained in her mind. Yet, the first proposition of the system is that the system is natural, is a given. Thus, if Denes stands above the drawing, it is only because the drawing portrays the idea about the nature of the system and not the system itself, and above Denes herself stands the system. One can drive this back as far as one likes, into an infinite regress, but it can do no good. Any containment must be of an idea about the system, and all ideas are contained by the system.

And the implications are no better were we, somehow, to break the system, as Denes demonstrates. In the two *Magic Mountain* drawings—*Magic Mountain I*, 1982, and *Magic Mountain II*, 1985—we are shown the first of three potential predicaments. In the first of the two drawings, the figures spiral down the slopes of a curving pyramidal landscape, almost like skiers gliding down a mountain on mathematically perfect trails. In the second drawing, “a quiet unrest can be detected”—some of the figures break formation and a small crowd begins to form at the bottom of the slopes. But they fail to realize that they are the slopes and by disputing the system, the landscape begins to disintegrate, for the landscape is nothing but the system.

In *Theories Tampered With—The Second Predicament*, 1982, the spiraling pyramid of the *Magic Mountain* drawings begins to contort and resemble an hourglass. What we are seeing is a crimp in the system, a bottleneck in its dynamics. A system altered is a system with its integrity violated, and there will be systematic results. In short, even a break in the system is an occurrence in the system, for the system is a given. According to Denes, this is a depiction of “a society in the process of tampering with its destiny.” She imagines that the system will quietly explode, “setting off inevitable consequences”—the systematic response.

In *Snail People—The Vortex*, 1989, a new pattern is generated to replace the old one—the original pyramid—due to the efforts of “very sophisticated individuals.” The result, however, is a product of the law of unintended consequences, for the particles of the system cannot have whatever they wish. They merely set off unpredictable, to them, reactions of the system. What Denes envisions is whirlpools in the system, vortices, in which the recalcitrant individuals are captured by their own disturbances, alone in their own universes, isolated from each other.

The work is a mathematical comprehension, and prediction, of existential crisis. It is also a fully realized artistic rendition of existential crisis, and despair. For the delicate precisions of mathematical order are more than exacting executions of numeric balance. They are also the display of harmonic integration, of order on the order of musical harmonies. And when those harmonies break, they break like a cry, like a sobbing voice, like a world gone mad—like sorrow in the gestures of pure line.

Denes’s series titled *Isometric Systems in Isotropic Space—Map Projections*, 1973-79, is a set of drawings in which the globe of the earth is altered into

various geometric forms. The results are similar to those of the more benign and affecting images from the *Pyramid* series. The earth is re-envisioned as a spiraling snail's shell, a pyramid, a cube, an ovoid (lemon shape), a hot dog (a sphere elongated in one direction), a dodecahedron, an egg shape, a droplet, a doughnut. All the forms are topological transformations of the original sphere of the earth—each is a topological equivalent of the sphere. All the forms can be transformed back into a sphere—the integrity of the initial form has been retained.

Beautiful and entrancing as these image are, there is a disturbing implication. If virtually all the forms are topologically equivalent, then they are equivalent as representations of the data regarding the reality of the earth. They are all equally valid visual representations of the facts. And yet, only one—the original sphere—is accurate, as we now know from space photography. The perfect alignment of concept and structure in the world, structure beyond the range of our thinking, is being pulled apart. The precise visual form of the concept is becoming arbitrary.

The paradox of knowledge thus is the simultaneous accuracy of what we are capable of knowing coupled with the implications of the systematic nature of knowledge—coupled with the compelled aspect of knowing, the lack of freedom in formulating knowledge—as well as the evident arbitrary nature of the forms in which we know, regardless of the fact that knowledge is compelled. (It seems there are paradoxes within paradoxes here.) With *Syzygy*, we find ourselves in the center of the universe through holding a demonstration of the point in the palm of the hand. At the same time, with *Pascal's Perfect Probability Pyramid & The People Paradox—The Predicament*, we find ourselves particles and prisoners of the very system that has just shown us that

we are standing at the center of all things. Clearly, there is a mystery in it. And in the face of this recognition, questions are forced, or compelled. If we are part of the system of all things, and everything is as it must be according to the system, then what is knowledge that itself is merely part of the system? Can we trust what we know since it was not freely chosen on the basis of its demonstrated accuracy? And, since we are just events in the system, can we do anything to change the direction of the system? Are we not just the system acting as it will?

These questions directly pertain to the other primary category of Denes's *oeuvre*—environmental art, ecological art—for the very point of ecological art is to call for a change in the system, in the pattern of what we have been doing. They are all the more pertinent for Denes, in that, aside from the fact that she has raised them herself, much of her ecological work goes beyond an attempt to make a theoretical point, goes beyond the raising of an idea, beyond the “raising of consciousness.” Much of her ecological work is carried out to demonstrate the methodology of an improved technology; much of it constitutes an act of ecological reclamation in itself. Denes is devoted to bringing about action in the cause of our own survival. But, are we sufficiently apart from the system to redirect it, to pilot it? Or is anything we do, regardless of its theoretical profile, just a further carrying through of the system?

There is a difference of tone in Denes's ecological works, as compared to many of the works of her philosophical art, particularly those that engage the paradox of knowledge. There is a hopefulness about these works, and a certain alacrity, an enthusiasm and a deep sincerity—there is a sense of possibility, as if our fate, our chances of survival, were unambiguously in our hands, as if we had all the chances in the

world to do what we can readily know we must do. There are no paradoxes here. The paradox emerges only when we view her ecological work within the larger context of her entire body of accomplishments. Taken by themselves, her ecological works ring with the reassuring tenor of an optimistic announcement of good news.

Her earliest ecological work of art is one of her earliest works as a public artist—this is where, for all intents and purposes, Denes began. She has called *Rice/Tree/Burial*, 1968, her “first exercise in Eco-Logic.” In *Rice/Tree/Burial* as enacted as a symbolic event in 1968 in Sullivan County, NY (the work was reenacted in 1977-79 in Artpark, Lewiston, NY, at the invitation of Artpark), Denes planted rice to represent fecundity and life, and chained trees together to represent the interference with life and natural processes. She then buried her only copy of haiku poetry she had written in her search for a language of expression during her student days, when she had begun her artistic endeavors as a poet and painter. The burial of poetry symbolized the intellectual powers and creativity of the mind being returned to the earth. The rice and the poetry were symbolic of the Far East, sowing together cultures as geographically separated as possible. The work is an artistic statement—a philosophical statement practiced as a work of art—rather than an active reclamation project, and it announces Denes’s most enduring and influential message as a public artist.

Rice/Tree/Burial is a Conceptual Art work in the recognizable mode—an action committed in a public forum whose implications are to be contemplated by the audience, or by those who read about it afterward, something of a “private ritual” (to use Denes’s own characterization of the work) for public consumption. Other works of hers employ the same method. For example, with *Sheep—American Academy in Rome*, 1998-

2002, she brought live sheep into the academy, as a living installation. According to Denes, “Even though sheep are not yet endangered, they are intended to represent all the animals and plants that go on that list daily The sheep also suggest today’s humanity, racing without seeing an objective, running and being pushed without the ability to think clearly, freely, objectively, and then act on a vision.” The sheep are the symbol of life threatened with extinction, and we are the sheep.

However, the most famous of Denes’s works of ecological art involve actions committed directly on the land. With *Wheatfield—A Confrontation*, 1982, Denes planted and harvested two acres of wheat on a landfill at the foot of the then newly constructed World Trade Center, the terrain that would later become Battery Park City. The work is a reminder of misplaced priorities—more, it is an insistence on the need for sane priorities, and it is a revealing of the truth behind worldwide trade: a reminder of what ultimately is being traded, what commerce is finally about.

Tree Mountain, 1983, consists of 11,000 fir trees planted on a mountain in the Pinziö gravel pits in Ylöjärvi, Finland. The trees are arranged in an intricate elliptical pattern derived from a complex mathematical formula, realizing on a geographical scale an integration of art with nature in such a way as to create an intellectually coherent ecological vision. Here, the patterns of the mind and the patterns of nature are in ideal synchronization, and the union is ecologically sound. The work stands as a monument, and a corrective, to depleted forests, and it will outlive the minds that conceived and executed its pattern, as it will the minds that act to threaten nature’s intrinsic pattern. It is one of Denes’s most hopeful conceptions—the action of the mind reclaiming the ecological balance. There is no schism here between mentality and nature.

Two of Denes's projects take the principle of *Tree Mountain* to the next, and final, stage—fusing together thought and nature into actual reclamation projects that set a model for future ecologically sound planning. *North Waterfront Park Master Plan, Berkeley, California, 1990*, is a plan for transforming a 97-acre municipal landfill, a garbage dump, located along the eastern shore of the San Francisco Bay, into a park as a sustainable natural ecosystem. The plan includes bioremediation programs along with a 12-acre wetland/wildlife sanctuary and 17 art elements, including petroglyphs carved in the local stone, tidal pools with sculptures, an amphitheater with stone terraces, and two lighthouses, one to burn off methane produced by the landfill and the other to collect sunlight for use in illumination at night. There is also a deliberate balance between mathematical precision and natural processes: “What is created as precise, formal, or even mathematical, has a built-in openness to change, erosion, and softening into abstraction, representing the natural deterioration of things, while the natural, soft, and random can evolve into a lush precision or stability (amphitheaters, sculptured rocks, stone terraces, protected alcoves).” The plan was adopted by Berkeley in 1991. Subsequently, due to pressure from the local community, the city decided to use the area for a dog run.

Nieuwe Hollandse Waterline—25 Year Masterplan, The Netherlands, 2000-, is a plan to make environmentally sustainable an 85-kilometer-long defense line of 70 forts that were built in The Netherlands from the sixteenth to the mid-nineteenth centuries. The project is intended to install bicycle routes, wildlife preserves, 100,000 trees to prevent erosion and hold the land, and windmills to pump water and generate electricity. Also included will be water and flood management, urban planning, historical

preservation and restoration, landscaping, tourism, and community participation. The project is now ongoing under the auspices of the Dutch Ministry.

These projects take Conceptual Art to its logical conclusion, to its ultimate form of implication—to the implementation of the concept. In these projects, Denes turns thought to action, as Goethe admonished us to do: “Knowing is not enough; we must apply. Willing is not enough; we must do.” Rather than opine on a situation, the projects commit action to resolve it. Rather than call for an ecologically sound approach to the environment, these projects practice one. This tactic is a natural outgrowth of Denes’s scientifically oriented art. Science automatically takes its application in technology: applied science. Denes’s scientifically rooted art moves to take action in applying itself to the problems it has analyzed.

And so the final question is forced, the one that lies at the heart of Denes’s body of work: if, as many of her philosophical works indicate, we are bound by the system that generates the world and that understands it according to the same mathematical logic that forms the world, then how can we change our minds? If our thoughts are compelled by the logic that drives them, then how can we trust our conclusions to bring about different results from the ones we reached previously? If we are merely part of the system, like the denizens of Denes’s probability pyramid, then how can we know we are altering the system, making it ecologically sound, rather than just carrying through the dynamic impulses of the system, regardless of what we think we are doing? If the system is and always has been us, how can we make it something different from what it always has been?

Denes's answer is specified in one of her artist statements, the statement written for her exhibition at the Samek Art Gallery at Bucknell University in 2003:

“Agnes Denes: Projects for Public Spaces.” There, she wrote, “In a time when meaningful global communication and intelligent restructuring of our environment is imperative, art can assume an important role. It can offer skillful and benign problem solving and communicate expressions of human values through its metaphors.”

“Human values”—that is the key. Science and mathematics are not value laden. They are, in themselves, value free. They are potentially precise, and often potentially beautiful, ideas, or more precisely, the tools and languages for formulating ideas, but they are absent all values, judgments, preferences. They possess no degrees of emphasis, no specifications of importance. That is the missing element, and any set of values, of tendencies of choice, can be invested as easily as any other. The same tools that can be used to destroy can be used to build. The same means that can strangulate can nurture. Science and mathematics are capable of carving out degrees of efficacy, but there remains the issue of what we would use them to be effective at.

The system has room for choices, it is capable of alternatives—the variables in the equations can be filled with a variety of quantities—but are we, as particles of the system, in any position to exercise choice?

For Denes, the answer is clearly “yes,” because, just as clearly, she understands the implications of the system. If the system is capable of alternative outcomes, if it is flexible within the limits implied by its parameters, then we are part of the flexibility as much as we are part of the system. Put differently, if we are the system, then the system is what we do, and it is nothing more. And if the science and

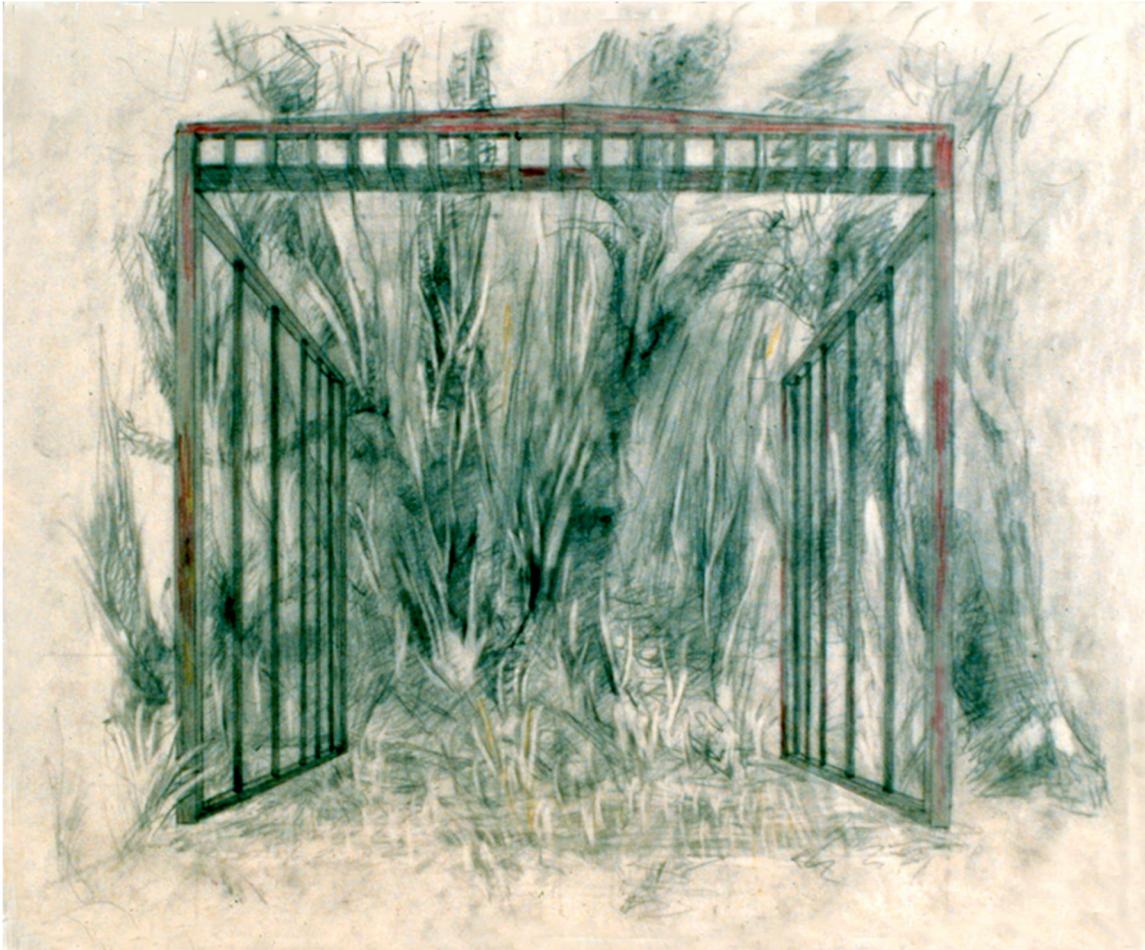
mathematics we learn harbors an ecologically sound alternative, it harbors it as much as it does an ecologically unsound approach to the world, the one we have been following to our imminent peril. Neither has prominence because both are functions of the same science and mathematics. All scientifically sound alternatives are, equally, possibilities. Thus, there is choice because the system that constitutes the ground rules of both thought and reality provides it.

There is, of course, more than a small article of faith in this. It must be possible that one of the perceived available options for thought and action is a delusion, an error in calculation, and since the ecologically unsound approach to our world has already been carried out, clearly that one is not a delusion. But there need not be any delusion, and faith is, as it always is, tempered by testing.

Denes's art is the testing. If *Nieuwe Hollandse Waterline—25 Year Masterplan*, *The Netherlands* won't work, then it won't work, and we'll know. If *North Waterfront Park Master Plan, Berkeley, California* can't be carried out, then it won't be carried out. And, if *Tree Mountain* were an impossibility, then it wouldn't exist. Like a scientist, Denes tests her art, and the concepts in her art, in the physical world. Like a mathematician, she carries through her computations to the last decimal place. And if our choices are illusory—and if the paradox of knowledge holds, such that, for all our envisioned possibilities of action, we are always merely playing out the same game, fated to end up with the same results—then her art will discover the trap.

But the final message in her art is that there is a choice, that we have the capability of saving ourselves—that the system of which we are a part is flexible. Her final message to us is to leave the paradox behind, to cross over from the intellectual

paradox to the practical improvement of our situation in the natural world.



Boundaries Defined—*The Portal*, 1987

The message is encapsulated in a drawing: *Boundaries Defined—The Portal*, 1987. The work is a delicate pencil drawing of a large garden gate, beyond which there is a mass of vegetative growth. The gate is open; it offers access. For Denes, it is an essential symbol. “This is a simple structure dealing with complex issues. The Portal is to be placed at borders, where one thing ends and another begins . . . The Portal is a threshold through which things pass, a door frame that stands alone, erect, mysterious, and inviting . . . The Portal is a line of demarcation, an entrance, or an exit. Passing

though it, one experiences transition, crossing a boundary, moving from one state to another. One experiences the conflict of opposing forces and elements affecting each other . . . Boundaries and limits are tenuous markings at the outer edges of existence, made of resilient material . . . They can be exciting places that lead to new beginnings. All through life we pass through barriers of one kind or another, often unaware Recognizing and being aware of them is what matters.”

The message of Denes’s art is the call to cross over, to leave behind the intellectual fascination with the images of paradox and act on our best possibilities. We have made our dilemma, and the danger of our extinction is evident and imminent, and it is unequivocal, for all the perceptible ambiguity in the heart of the knowledge that led us to it. So, too, are the possibilities of extricating ourselves—they are just as unequivocal in the result, as results always are, for they are results of the same system.

It is the nature of life to cross boundaries, to cross over—to pass through barriers to new beginnings. Denes calls upon us to know this: that our knowledge is not futile, that our fate is not sealed, that the paradox of the ecological and the logical can be subsumed. It is not a naïve and empty aspiration, it is not a vision uninformed by a clear understanding of what we are doing to ourselves. When Denes speaks on these matters, it is evident that she is aware of the odds against our survival: that our idolizing of progress and money and possessions militates against our better instincts, that for all the calls for sanity by her and by so many others now, finally, it appears we will not extricate ourselves from the predicament we have bestowed upon ourselves. Even so, the message in her art is unmistakable: we *can* cross over from intellectual conundrums to the transformation of what we know into testable actions committed in the attempt at self-

preservation. We can learn, and will ourselves to survive. In the art of Agnes Denes, the final message is hope.

The paradoxes of our existence: alienation in togetherness, uniformity in specialization, illusions of freedom in group mentality, ignorance in the midst of information overload, greed in the face of neglect, self-aggrandizement in response to ineffectuality.

It is comparable to going into the ice age and the heat wave of the greenhouse effect simultaneously.

—Agnes Denes, *The Book of Dust*

* Pascal's triangle, named after the mathematician, scientist, and philosopher Blaise Pascal, is constructed by beginning with number "1" at the apex. Below the "1" are rows of numbers, each row containing one more number than the row above it, so the second row has two numbers, the third row has three numbers, and so forth. Each row begins and ends with the number "1," and each number between is the sum of the two numbers in the row above that are closest to it. So, the first five rows look like this:

$$\begin{array}{c}
 1 \\
 1 \ 1 \\
 1 \ 2 \ 1 \\
 1 \ 3 \ 3 \ 1 \\
 1 \ 4 \ 6 \ 4 \ 1
 \end{array}$$

The triangle specifies the probability of multiple events in situations where each event can have one of only two outcomes, such as tossing a coin numerous times. The probability is determined by dividing each event by the sum of all the numbers in the appropriate line.

So, if one tosses a coin once, there are two possible results: heads and tails. Go to the second row, the one with two numbers in it, and the odds of each outcome are determined by dividing each number by the total of the two numbers. If we say the first “1” represents heads, then the odds are “1” divided by the sum of “1” plus “1”: “2”—a 50 percent chance. And it’s the same for the other “1,” representing tails.

As Denes has put it: “Each line of this pyramid of binomial coefficients is constructed by writing the sum of each pair of adjacent numbers of the line above and putting ‘1’ at each end. The relative probability is given by one particular term divided by the sum of all terms in that line.”