

PAUL LAFFOLEY (b. 1940, Cambridge, Massachusetts)

Dimensionality: The Manifestation of Fate, 1992

Oil, acrylic, ink, vinyl lettering on canvas
98 ½ x 49 ½ in.

Exhibitions:

Portaling. Kent Gallery, New York, 2001

Architectonic Thought-Forms: A Survey of the Art of Paul Laffoley. Austin Museum of Art, Austin, Texas, 1999

Literature:

Paul Laffoley Architectonic Thought-Forms: 1967–1999. Austin, Texas: Austin Museum of Art, 1999.

Subject:

The Natural Octave of Spatiality and Temporality

Symbol Evocation:

The Geometric Force of the Tension between Fate and Free Will

Comments:

I

Rationalized dimensionality above and below the third dimensional realm – the dimension that has been defined as “consensus reality” – is the work of the Geometer and Astronomer Carl Friedrich Gauss [1777-1855], who conceived of a higher-dimensional analytic geometry, and the mathematician-physicist Georg Friedrich Bernhard Riemann [1826-1866], who as a student was influenced by Gauss. From 300 B.C.E. to 1854, the third dimension of the ancient Greek geometer Euclid held sway over the spatial imaginations of most of the population of the western world. Even a mind as brilliant as that possessed by Sir Isaac Newton [1642-1727] was not immune. The sense of the misplaced absolutism concerning space and time was never challenged, with the exception of G.W. Leibniz [1646-1716], until the beginning of the nineteenth century. Then a number of mathematicians began to voice a new direction such as Nikolay Ivanovich Lobachevsky [1792-1856] and Janos Bolyai [_____]. But it was ultimately Riemann who advanced the concept of dimensionality into an n-dimensional manifold with a metric so as to establish a quantitative rule for assigning lengths to paths. This now meant that one could consider force or energy to be consequence of geometry, making the laws of nature seem simpler when viewed from the context of a more comprehensive dimensional space. The apotheosis of his thinking resulted in the revolution in physics initiated in the early twentieth century by Albert Einstein [1879-1955] and continues to influence contemporary physics although modified into quantum geometry.

II

From the mid-nineteenth century until now, dimensionality has gradually replaced the traditional concept of fate, first anthropomorphized by the ancient Greeks as three female sovereigns who determine the course of human life. The Fates from the Latin “fata” [singular – “fatum”] derives from the ancient Greek word “moirai” [singular – “moira”]. Both words mean “prophetic declarations” or “oracular utterance.” When an event is said to be fated, it is the same as that particular event being decreed to come to pass. But for humanity the future always remains unknowable except for an occasional divine inspiration, which is seldom heeded. The interlocutor for the Romans was Jupiter, while the decisions of the Fates for the Greeks were spoken by Zeus. Cassandra, a daughter of Priam [king of Troy], was endowed with the gift of prophecy but fated never to be believed. This is the condition the human species finds itself in relation to the future, never to know the absolute future, but always believing it can. In Greek and Roman cultures, the three Fates:

- 1) Clotho- the spinner – she who spins the thread of life
- 2) Lachesis- the disposer of lots – she who determines the length of life
- 3) Atropos- the inflexible – she who cuts off the thread of life

all three were called goddesses. They were, however, of such primordial nature that even early Greek commentators such as the poet Hesiod [fl. ca. 800 B.C.E.] and the historian Herodotus [ca. 484-420

B.C.E], considered them Titans [the parents of the gods]. Eventually even that description would not suffice. Ultimately the function of the Fates in the universe became associated with the term “anagke” or necessity. This is a concept that includes the notions of both the abstract and the concrete, an idea for which we have no word because it is assumed that they are opposites.

Even the ancient Greek philosopher Plato [ca. 428-348 B.C.E.] was unable to find a principle that would act as a sufficient contrary to necessity. He proposed the concept “nous” or reason. In the Timaeus, one of his last writings, he had to accept that reason – the highest and most perfect knowledge humans could strive for – could only persuade the dictates of necessity, that is sometimes the fact that necessity has no particular concern for the human condition either individually or collectively cast a shadow on the efficacy of reason to persuade anything. This doubt led in classical Greek drama to a tragic sense of life in which humanity lives in a tension of faith in the future and hope for personal control in the present by reason. And since life seems like an abrupt vacillation between joy and agony, passion and apathy, success and struggle, it was assumed that all human concerns are subject to the whim of the gods. And sometimes even the gods are dominated by necessity.

III

The discovery of chance or caprice to be paradoxically at the heart if the Fates led the ancient Greeks to wonder to what extent the human soul might be in some similar fashion free and not just a marionette of the gods. From then on the history of Western thought became a philosophical investigation based on the theme of fate and human freedom. On the one hand, fate was viewed as the phenomena of existence that we all have to endure regardless of who we are, while on the other hand, the soul and or consciousness became the repository of an endless investigation over the centuries on precisely how free we actually are and under what circumstances.

The concern for the phenomena of existence became naturphilosophie or the philosophy of nature. Its subject matter was, at the end of the nineteenth century, nearly all the objective sciences, which eventually fell under the rubric of quantitative science. For years the study of physics was known as the most favored among the absolute or formal studies. As we enter the twenty-first century it seems that biology has pulled ahead and now physics is becoming one of the applied sciences. Lebensphilosophie or the philosophy of life was at mid-nineteenth century defined as an overall vision of / or attitude toward life in general and the purpose of human life in particular. Deriving from The Zeitgeist – a concept invented by Johann Wolfgang von Goethe [1749-1832] in 1790 – Lebensphilosophie was gradually fleshed out as the intellectual, moral, historical, religious, and cultural climate of an era. In order to discover the degrees of freedom possessed by the human soul, it became necessary to throw out the widest net possible to encompass those subjects, which eventually were called the humanities. These are the branches of learning such as philosophy languages or arts that investigate human constructs and concerns as opposed to natural processes as in physics or chemistry. The humanities, of course, began by being concerned with quality – one of the basic categories of Aristotle [384-322 B.C.E]. Quality is defined as that by virtue of which a thing is such and such. It may be a habit, disposition, capacity, or the form and figure of a thing. Qualities were considered primary and secondary. The primaries of things are solidity, extension, figure, motion, rest, and number. Secondary qualities are colors, sounds, tastes, smells, etc. But by the beginning of the eighteenth century, George Berkeley [1685-1753], Irish philosopher and bishop, challenged Aristotle’s distinction with his identification of being with perception. “Esse est percipi” [To be is to be perceived] was his philosophical slogan. Berkeley called his philosophy of life Immaterialism, that is, nothing material exists, agreeing with the English philosopher John Locke [1632-1704] that all ideas originate in sense experience. We have, therefore, no immediate perception of our three-dimensional world. Instead, claimed Berkeley, we experience our sensations by means of cooperation amongst the senses, while learning to refer these impressions to their appropriate spatial distances, and thereby correctly interpret their magnitudes.

IV

For most of the nineteenth century and for seventy years into the twentieth century, the philosophy of nature held sway as objective quantitative science, while the sense of quality associated with the philosophy of life was looked upon with suspicion, if tolerated at all. This reign of quantity [that is useless to assess the nature of consciousness, let alone such concepts as soul and spirit] became the intellectual means by which pseudoscientific statements of the time could be tolerated and eventually fostered. One statement that was particularly vicious and so typical of the mid-nineteen fifties could be heard on the

campus of any college teaching the school of psychology known as behaviorism. And that was: “The mind is just an outmoded nineteenth century concept – soon to be as extinct as the dodo.” The preaching of behaviorism entails the taking of the objective evidence of behavior [as measured responses to stimuli] as the only concern of its research and the only basis of its theory. Any reference to conscious experience was strictly eschewed.

The main advocates of this position were:

First: Ivan Petrovich Pavlov [1849-1936] A Russian professor of physiology who developed a theory of what he called “conditioned reflexes,” that is training dogs to respond to bells so that they associated the sound with the presence of food; eventually Pavlov was able to induce his dogs to salivate to at the sounds of a bell even when food was not forthcoming; the inspiration for these experiments came from the American poet and short story writer Edgar Allan Poe [1809-1849]; one of Poe’s tales of crime and mystery written in a more scientific than supernatural mode and set in Paris, became the specific source of Pavlov’s literary influence; the title was, of course, “Murders in the Rue Morgue,” in the story a chimpanzee had been trained by the sound of a bell to rob and sometimes murder those individuals who got in the way of the theft; the trainer is a member of a carnival, who preaches a kind of proto-evolution to an indifferent world and utilizes the great anthropoid ape as his educational autoscope; eventually continuous ridicule of his precious theories drives the animal trainer into full psychosis after that he exacts punishment on his mockers by relieving them of their most precious jewels and occasionally their rude and obtuse lives by means of bell, beast, and reward;

Second: The real Father of Behavioral Psychology was John Broadus Watson [1878-1958], an American psychologist born in Greenville, South Carolina who taught at Johns Hopkins; his strategy was to summarily reject any form of introspection and make sure that all psychological data is restricted to direct observation and laboratory experiments; any references to consciousness, purpose, or the concept of the mind were ruled out by his methods;

And Third: The final major player in behaviorism was Burrhus Frederik Skinner [1904-1990], although he changed its name to “Operationalism,” or “Operationism,” or finally to the more clinical designation of “Operant Conditioning” [this is a form of conditioning in which the desired behavior or increasingly closer approximations of it are followed by a rewarding or reinforcing stimulus]; Skinner was born in Susquehanna, Pennsylvania, the site of Utopian interest by English Quakers since 1681, the chemist Joseph Priestly [1733-1804], and the proposed site of an intentional community of radical design both politically and architecturally called “Xanatopia” by the poet Samuel Taylor Coleridge [1772-1834]; Skinner was educated at Hamilton College and Harvard University before entering the field of psychology and prior to Harvard itself, he spent a short time trying to become a writer in the Greenwich Village section of Manhattan; realizing then he had nothing to say as a novelist, he stepped out of The Philosophy of Life and plunged headfirst into The Philosophy of Nature and brought to Harvard a new direction in the study of psychology, which at that time was more culture than science; his now classic “Skinner Box” of the nineteen forties [a laboratory apparatus in which an animal is caged for experiments in operant conditioning and which typically contains a lever that must be pressed by the animal to gain reward or avoid punishment] became the focus of his detractors; when he switched his subjects from rats to people in the boxes, they claimed he had moved from science to science-fiction; and his detractors were right because it was no longer possible to tell who was conditioning whom; eventually Skinner realized he had not lost his talent as a writer of fiction, because in 1948 he published a major novel entitled “Walden Two”; this was his version of Utopia based on the operant conditioning of all its inhabitants into a perfect harmony of behavior; in the early nineteen sixties and intentional community called Twin Oaks was based on the book, but it soon became just another commune; even the name “Walden Two” was literary and dramatic; his reference to the writer Henry David Thoreau [1817-1862] and his journal about a few months of living at Walden Pond was one thing, but to do it in such an obviously redux manner turned out to be the forerunner, by thirty years, of the Hollywood practice of developing enumerated sequels to movie blockbusters; the nineteen sixties, however, brought an unexpected backlash with it, suddenly the “Reign of Quantity” was over, at least as far as pop culture was concerned; now Skinner became as annoyed with the world as he had made the world annoyed with him.

V

The advent of pop art in the late nineteen-fifties made way for the sixth incarnation of “The New Age”. From the mid-nineteenth century to the present, to be in “The New Age” meant to subscribe to a utopian social movement that drew upon ancient concepts, especially from Egyptian to Eastern and Native

American traditions. It incorporated such themes as holism, a concern for nature, alternative modes of science-like free energy and mind-physics, mediumship, and a spiritual form of metaphysics. The philosophical basis of the movement coalesced at the turn of the twentieth century around the independence and external relatedness of objects of knowledge. Seeking a “new realism” that united acts of awareness with these objects of knowledge, “New Age” philosophers called upon the work of American philosopher William James [1842-1910]. Philosophically, the thought of James emerged from the tension between his commitment to science and the attractiveness of a personal religious faith. To resolve this tension, he developed a new view of “pure experience” to steer his way between the extremes of idealism and materialism in order to propose the existence of a neutral entity underlying both “mind-stuff” and “matter-stuff.” His new ontic position was very close to the primary insights of The Vedas and Zen [a Japanese sect of Mahayana Buddhism].

The difference between the first five forms of “New Age” thinking and what became prominent during the sixties was an inordinate concern for the mass media and crass commercialism by many of its self-styled leaders. This delayed the integration by academia of this new thought by at least twenty-five years, leading people like B.F. Skinner to believe their positions were still viable. In 1971, Skinner published what became, I believe, the twilight of The Reign of Quantity. His final book, entitled Beyond Freedom and Dignity, attempted to take the concepts of operant conditioning that had been applied to a fictive and isolated utopian community and assume these principles could work in the real world of large-scale cultures and eventually the design of the whole earth. His idea follows the form of Plato who took his utopian thinking from the thought experiment of The Republic to the specific community planning and social engineering of The Laws. Skinner, nevertheless, eschewed the spirit of Plato in the end.

The contemporary German theologian Paul Tillich [1886-1965], who taught theology in the United States from 1933 to his death presented the problem of Utopia in 1951 in an essay entitled: “Critique and Justification of Utopia”. It is a living tension between, on the one hand, the desires and the collective elements of society and, on the other hand, the needs of the immiscible self – this living tension appears to be “the suspension between the possible and the impossible” according to the perspective of reason. But the existence of Utopia depends upon the type of reason you use. He distinguished among three types: 1) Heteronomous Reason – that takes its principles from outside itself and is therefore artificial, serves the collective; 2) Autonomous Reason – that takes its principles from within, but thereby reveals itself as vacuous and tautological, serves only the immiscible self; and 3) Theonomous Reason – that which is more deeply based, its fundament is “The Ground of Being” itself and thus transcends the concepts of the possible and the impossible.

“Beyond Freedom and Dignity” reveals Skinner to be caught up in heteronomous reason only. He defines concepts such as “freedom” and “dignity” as presuming what he calls the fiction of the autonomous individual. According to him, what should occur is a crisp and explicit intentional culture and world design employing a technology of behavior, which will reinforce those who have been induced by its cultural planning principles to work for its survival. What Skinner is describing, of course, is society planned as a military complex such as ancient Rome at its height during the time of Hadrian, its fourteenth emperor [76-138], or an insect colony. The problem with these social structures is that they require preemptive violence to bring them into being, and preemptive violence to maintain their form. While this situation is tolerated on the non-human level by humans [with the exception of personal pets or societies for the ethical treatment of animals and ecology groups – but even these organizations reflect human values and not the values of any particular animal]. On the human level it is, nevertheless, a rare person who can care about the destination of an individual bee or ant unless that individual insect stings or bites. Then any potential care turns directly into respect for the caliber of the insect’s personal weaponry. And what are we to say about the average mosquito?

VI

In a recent book called “The Beehive Metaphor” [1998] by Juan Antonio Ramirez [professor of art history at El Universidad Autonoma de Madrid] argues that the natural architecture and social life of bees [apis mellifera] was one of the major inspirational metaphors for the artists and architects of “The Modern Movement”, coming out of the nineteenth century into the early twentieth. The metaphor extols the virtues of bees: hard work, parsimony, creativity, dedication to duty, a common purpose, and a monarchical matriarchy.

Where some have seen an “apicultural utopia” others have seen nothing but a potential for fascism of either the right or the left as the result of the principle of modifying human behavior by architecture, in

the same way that it is possible to substantially modify the work efficiency of honey bees. As Ramirez notes: “The panopticon, developed at the end of the eighteenth century by Jeremy Bentham, reveals a similar desire to modify behavior by means of increased observation of the convicted criminal. A single person observes and controls the cells of many prisoners arranged radially around a central tower. This arrangement, as Michel Foucault has demonstrated, had important consequences for the design of hospitals, prisons, and educational institutions. I believe that the grand plan of transferring these principles to the design of ordinary dwellings did not develop until the 1920s, when the ideological suppositions of the modern movement began to take shape.”¹

When the bottom dropped out of modernism leading to post-modernism, “The Beehive Metaphor” was blamed. A form of art was presented to the masses to educate and save them from themselves. But this art was ultimately sold to the privileged elite who are able to substitute money for taste and understanding until they reached a level of acquaintance with something new to them. In terms of architecture – “housing for the ever increasing masses” – the rallying cry of The Bauhaus School along with many of the modern master-builders, was also subverted. The goal of “affordable housing” produced an imagery derived from new materials and economies of structure developed from standardized, industrialized, and modular building systems, became less an architectural solution to pressing social problems and more a symbolic form of language that could be used for extremely expensive custom design. The years after the nineteen thirties and forties, when the planning principles of modernism began to be put into effect for their “stated purposes,” the mass housing projects that were built proved to be hotbeds of physical abuse and terror-violence. By the nineteen seventies, other solutions for architecture were sought and mass housing projects were for the most part ignored. The quest for utopic space, one of the goals of modernism, was for a while completely thwarted.

VII

Now that the world has moved on to the third phase of modernism, called by various authors, as: “transmodernism,” “post-postmodernism,” “the bauharoque,” or “neo-modernism,” the quest for utopic space has been once again revived, and the strategy is to move from heteronomous and autonomous reasoning directly to the theonomous. In returning to modernism with the advantage of understanding in what ways it has failed, it is possible to see that what went wrong was the fact that the version of modernism that was passed on to succeeding generations consisted mainly of an exhortation to be concerned with the advanced of science combined with the artist’s and architect’s intuitive plastic-vision. This meant the intuition of the traditional Euclidean-Renaissance space in terms of visual implications plus a conditional addition of new science facts and the subtraction of those considered to be obsolete. While this program gave the appearance of the new, it was little more than a repetition of the nineteenth century agenda. Much of the real heart of modernism was hidden from those who would help build a true tradition by its innovators. In the attempt to appear oracular and laconic in order to preserve for themselves the power that their cultural inventions had generated, the originators of modernism remained within the domain of autonomous reasoning, indulging in non-sequiturs, and allowing advocates of heteronomous reasoning or The Philosophy of Nature to hold sway over the direction of culture free from opposition. What is necessary and what is now occurring, in this third phase of modernism, is the use of theonomous reasoning. While often being called transdisciplinary, theonomous reasoning is actually a first step back to ancient wisdom in which methodological sensation [or what we now know as science] has completely merged with methodological revelation [or totally known mystical knowledge in which every aspect of the occult has been overcome]. A true tradition has no occult or hidden phases left in its process. The creators and the audience are in perfect harmony.

VIII

A tradition of culture is like a mighty river flowing to the oneness of open sea, but a tradition like a river is fed by many streams and tributaries. In the case of modernism – a very rich and complex tradition still in formation – a few of its streams of inspiration can be mentioned:

- 1) The Quest for Utopia: In terms of producing a harmonious living system or an intentional community, and an analysis of utopic space – the space that initiates and supports a utopian community on earth or in outer space;
- 2) The Commitment to Science: In terms of following the scientific method in relation to an ethical code which does not distort the truth of science; and utilizing the technology and systems of science, producing a design science;

3) The Use of History: For modernism, history is not just the imaginative reconstruction of the past, but a design tool to determine the authentically new from the past as opposed to what has been lauded as original and turns out not to be; this is history as the inverse of science fiction [which attempts to project ideas developed in the present onto a future scenario to help separate the merely fashionable from the new]; and to create a morgue of ideas from the past that can be revived because they have shown to be authentically new as history unfolds;

4) The Metaphors of Modernism: There are many metaphors such as: the biomorphic; the mechanical; “The Beehive Metaphor” [previously mentioned] which is a subset of the urban metaphor that states that urbanism is the controlling structure throughout the universe, from the microcosm to the macrocosm [from the world of architecture such terms to describe land use like wild wood, rural, exurban, suburban, all point to a potential urbanism]; the systematic and the diagrammatic; etc.;

5) Dimensionality: A) In terms of imagery, dimensionality belongs to the systematic and diagrammatic, but its unique context has caused it to be considered in a category by itself; although dimensionality as a rational concept has been in existence in the west for 2301 years, it is only in the past 147 years that it has become an issue which places it in the realm of the authentically new; as the contemporary physicist Brian Greene, advocate of string theory, said of that period in the mid-nineteenth century: “Nevertheless, we should not lose sight of the favorable historical circumstances that strongly contributed to Einstein’s success. Foremost among these are the nineteenth century mathematical insights of Georg Bernhard Riemann that firmly established the geometrical apparatus for describing curved spaces of arbitrary dimension. In his famous 1854 inaugural lecture at the University of Göttingen, Riemann broke the chains of flat-space Euclidean thought and paved the way for a democratic mathematical treatment of geometry on all varieties of curved surfaces.”ⁱⁱⁱ; now while space and time have been considered as two of the ultimate categories of natural philosophy [naturphilosophie], dimensionality is somewhat different; the difference began with the eighteenth century German philosopher Immanuel Kant [1724-1804] who initiated his thought process from consciousness rather than the products of consciousness; his position on space and time is to the raw data of sensation we add the concepts or forms of spatiality and temporality; space is the form of the external sense and time the form of the internal sense; but we never experience anything except that which is within the spatiality and temporality; and yet somehow we never experience space and time directly; therefore, the space and time in which we order phenomena must derive not from sensation, but from consciousness itself; Kant’s position goes a long way to explain why space has been more acceptable than time; space deals with the discontinuous, the discrete, the concrete, the finite; whereas time doubles the effect of consciousness and its expression is the continuous, the abstract and the infinite; because of the differences between spatiality and temporality, space has always been more easily understood and has resulted in the spatializing of time and in many cases an actual disbelief in the existence of time itself; Henri Bergson [1859-1941] the philosopher of time, criticized the space-time continuum of Hermann Minkowski [1864-1909] –Einstein’s teacher of mathematics – by saying that this structure was another attempt to spatialize time’s nature out of existence similar to the attempt of the pre-Socratic philosopher Parmenides [ca. 515-450 B.C.E.]; opposing reason and concept and space to intuition and metaphor and time, Bergson re-established for modern Europe the insights about space and time developed by the Indian philosopher Shankara [788-820]; his Vedic position is called the Advaita [non-dualistic] Vedanta, which allows no distinction between the individual self and the Brahman [the world is an appearance – Brahman and Atman are one]; Shankara taught that space is inherently passive waiting for the human capacity to divide it, while time is inherently active and can overpower the human self; space evokes care in the human heart, while time smothers the human heart in boredom; since the feminine element has been traditionally considered passive and the masculine active, by the principle of achieving unity by means of opposites, it is no wonder, thought Shankara, that the Western concept of the Fates are represented by women because this would be the means to control time into the unity of Brahman; space holds no such terror for the human heart except if its logic leads to occasions of infinities; contemporary physics deplores infinities in nature; they are defined as: “the typical nonsensical answer emerging from calculations that involve general relativity and quantum mechanics in zero-dimensional point-particles;”

B) The real issue concerning dimensionality, and what makes it culturally part of modernism, is what it means as a human to be subject to the limits of a dimension; while we all have an almost intuitive sense of what it is like to be immersed with Euclidean space, but there was a time prior to the third century B.C.E. when Euclid's geometry would have seemed impossible to comprehend, in much the same way that usual perspective introduced by Masaccio [1401-1428] during the Italian Renaissance was not fully appreciated to be a creative extension of Euclidean space;

C) When the fourth dimension was proposed around 1875, it was not understood how there could be a fourth ninety degree angle vector coextensive with the familiar three; even the great American Engineer Richard Buckminster Fuller [1895-1983] could not accept such a construct; his solution to more spatial dimensions was simple to reduce one constant; instead of insisting on ninety degrees, he suggested using an angle that would be less; he chose sixty degrees and produced a fourth dimension that could be directly observable; to him the idea of a fourth spatial dimension as the door to something outside the range of ordinary experience is an example of the fable of "The Emperor's New Clothes;"

D) There were, of course, many who did accept such a proposition, for instance, The Theosophical Society – formed in New York City the same year as "The Fourth Dimension" was first spoken of in 1875 – welcomed the notion like the "Grace of God;" theosophy, which combined current scientific concepts with Buddhist and Brahmanic theories of pantheistic evolution and reincarnation saw "the fourth dimension" as the explanation for ghosts, astral projection, lucid dreaming, etc.; "Madame" Helena Petrovna Blavatsky [1831-1891], who vaunted the powers of a medium, formed the society on the Gnostic principles put forth by Ammonius Saccas, the teacher of the neo-Platonist Plotinus [204-270]; Blavatsky's success depended less on her charisma than the fact that she used the growing power of Charles Darwin [1809-1882] and his idea of scientific evolution to bolster her utopic persuasions in the same manner that Pierre A. LeComte du Noüy [1883-1947] [published "Human Destiny" 1947] and Pierre Teilhard de Chardin [1881-1955] [published "The Phenomenon of Man" 1955] did in the twentieth century; the notoriety that Darwin received from both the religious conservatives and the established scientific community was what Blavatsky needed to launch her concept that evolution was an indication that humans could someday reach the status of gods, and the mystical experience was a foretaste of that new ontic status; and the belief in the fourth dimension by many scientists and mathematicians of her day became her "reason my authority" to declare herself, Annie Besant [1847-1933, the most notable American leader of Theosophy], and the English woman Alice Bailey to be the modern incarnations of the ancient Greek Fates;

E) Soon others found this new form of spirituality without traditional religious trappings very much to their liking; for instance, in 1884, Edwin Abbott wrote the now classic tale of "Flatland: A Romance of Many Dimensions"; Abbott's strategy [and he was the first to use it] concerning the existence and perception of the fourth dimension, was to write about what life would be like in a less comprehensive dimension than the one that engulfs our existence; he presented by a combination of reason, analogy, and metaphor what it would be like to exist in the second dimension of spatiality and the suddenly realize there was another dimension – the third; by doing this, the hope is to convince the reader that there might be other dimensions that someday will be perceived; immediately there were techniques developed purporting to allow an individual to reach the fourth dimension by the eyes; this was the work of Howard H. Hinton; these two epistemological traditions have continued to this day; right on the heels of Abbott, Claude Fayette Bragdon [____- 1946], an American architect and theosophist, created a way to use the analogy on a lower dimensional world to convince others of the fourth dimension; in his "Primer of Higher Space", Bragdon presents the most popular geometric form – the tesseract, the fourth dimensional hyper-cube – of his day in such a manner that all the vertices of the hyper-cube were numbered so that in the nineteen sixties Bell Laboratories made a computerized moving shadow of the tesseract; although Bragdon was not lauded to the extent of Henry P. Manning [chairman of the Department of Mathematics at Brown University], Bragdon's work proved far more creative than the academic treatise on four-dimensional geometry by Manning.

IX

Kant's deeper message – that of temporality – did not go unheeded by thinkers passing through the cultural glories of the fin-de-siècle. Three who developed notions of time as the source of higher or

more evolved consciousness were Rudolf Steiner [1861-1925], George Gurdjieff [____-1946], and Peter D. Ouspensky [____-____]:

A) Steiner, a German philosopher who considered the poet Goethe his mentor even though there was 29 years between the death of Goethe and the birth of Steiner, initially argued for an organic view of the universe allowing for spiritual freedom. He entered the Theosophical Society but finally organized his own mystical group called Anthroposophy. He believed in higher dimensions of time, unlike Bergson who claimed the Élan Vital was God working through time and in the world. Steiner believed evolution was not inherent in the passage of time, but was an individual achievement that required spiritual training, which he called "The Cosmic Mission of Art".

B) Gurdjieff, an itinerant teller of tall tales, whose territory was for the most part Western Europe and the Near East with the occasional forays into India. Some say he was a complete charlatan, but he did end his days under the protection of Oligvanna [the third wife of Frank Lloyd Wright] in 1946 at Taliesin West, Wright's final studio in Arizona. He was able to convince Wright that he was abducted into a flying saucer earlier in 1946. His teachings about time centered about an energy organizing system called the Enneagram. It is a Pythagorean cycle of notes, which in reality is a spiral of fifths based on the classical diatonic scale with two half steps or shocks to human consciousness: do-re-mi [shock one: remember yourself] –fa-sol-la-si [shock two: do not identify with yourself] –do. What Gurdjieff presented is a method of transcending time by means of two natural singularities in time.

C) Ouspensky, a professional mathematician who began his career by writing about the fourth dimension, as soon as he met Gurdjieff became his most loyal disciple. After that, Ouspensky's writings took on a less academic style and became more alchemical and fraught with metaphor. What he was writing about was, among other things, the speculations about the nature of time and possible higher and more comprehensive dimensions of temporality. Gurdjieff had isolated three: time, eternity, and super-eternity. Ouspensky followed an almost Wittgensteinian language analysis of the three concepts, developing "family resemblances" among them – a process that combines reason with metaphor to transcend the definition of simple analogy. Recently physicists have been speculating about the possibility of additional time dimensions as well as extra space dimensions. As Brian Greene has explained: "Third, the requirement of numerous extra dimensions, [to make string theory work] is it possible that some are additional time dimensions, as opposed to additional space dimensions? If you think about this for a moment, you will see that it's a truly bizarre possibility. We all have a visceral understanding of what it means for the universe to have multiple space dimensions, since we live in a world in which we constantly deal with a plurality – three. But what would it mean to have multiple times? Would one align with time as we presently experience it psychologically while the other would somehow be 'different?' But, if a curled-up dimension is a time dimension, traversing it means returning, after a temporal lapse, to a prior instant in time. Some theorists have been exploring the possibility of incorporating extra time dimensions into string theory, but as yet the situation is inconclusive. In our discussion of string theory, we will stick to the more "conventional" approach in which all the curled-up dimensions are space dimensions, but the intriguing possibility of new time dimensions could well play a role in future developments."ⁱⁱⁱ The "curled-up dimensions" refer to this proposed Calabi-Yau space or shape into which extra spatial dimensions required by string theory can be curled-up, consistent with the equations of the theory. The size of Calabi-Yau space is defined as so small that there exists no known form of instrumentality to detect their presence. What is of interest is that Gurdjieff and Ouspensky were considering alternative temporal dimensions at the turn of the twentieth century, and what it is like to live in them in terms of possibilities and actualizations.

X

Ouspensky, besides Gurdjieff, counted many artists and intellectuals of his day as his friends, and was able therefore to directly influence the course of culture on several occasions through his great capacity at networking. One such incident involved Ouspensky's relationship to the Russian artist who would become the master of Suprematism, Kasimir Malevich [____-1935].

While in the United States negotiating a translation deal with a number of his books, Ouspensky approached Knopf publishers, then located in Manhattan. Knopf agreed, and even knew of a person who

could write excellent introduction to the books. That was the American architect and theosophist Claude Fayette Bragdon. Bragdon was extremely popular in New York's cultural life, but more than that, he was completely at one with the content of Ouspensky's works. In fact, he had read some in the original Russian. The publishers felt that the spirit of Ouspensky's writings, via Bragdon's introductions, would successfully transfer these works into masterpieces of alchemical thought for an American market. Knopf at no time during the process felt that they were taking a risk at giving Ouspensky the prestige of their firm. In fact Bragdon's name helped build the market for these books, besides his personal efforts in the New York City area.

Ouspensky, however, when he arrived in the United States, was unaware of Bragdon. But soon after devouring Bragdon's book he recognized a kindred soul. Back in Russia, he showed to Malevich Bragdon's books, which are illustrated by Bragdon. It was a moment of revelation for Malevich. He began to copy the dimensional illustrations until he found a painting format that could equal the impact of work by such notables as Piet Mondrian [1872-1944], Wassily Kandinsky [1866-1944], Pablo Picasso [1881-1973], or Marcel Duchamp [1887-1968]. All these artists had at one time in their careers found a way to refer to the contents of higher dimensions as types of "shadows" projected onto a two-dimensional surface, i.e. the picture plane. This process is what Bragdon advocated, but the important element these artists added was the attempt to express what it is like to actually experience being immersed in a dimension other than one is used to, all in terms of greater richness of experience and the encounter with the authentically new. Even into the nineteen thirties and forties, the surrealists utilizing strange dreamlike atmospheres and unnatural juxtapositions assumed they were following higher dimensional thinking, as did the American abstract expressionists and action painters of the mid-twentieth century. These artists felt that any two-dimensional formats of a nonrepresentational intent that managed to avoid being considered decoration by expressing the processes of nature, automatically referred to a higher dimensional experience.^{iv}

XI

My own interest in dimensionality as the ultimate context for human experience began by my reading of George Gamow's "One-Two-Three-Infinity", first published in 1947. This was when I was in the eighth grade. At that time my reading besides assigned work consisted mainly of comic books, science fiction, and an occasional work like "Eureka: A Prose Poem" by Edgar Allan Poe, "The Lives and Times of Archie and Menitabel" by Don Marquis, or Gamow's book. I found it almost a scientific version of cartoon oddities one would find in newspaper fixed blocks like "Ripley's Believe It or Not". I am sure that Gamow thought of his now classic work as merely an entertainment for the imagination, which is exactly why I was reading it. At that time, if I thought it had any "educational value" I would have dropped it like a plutonium rod. But as it often turns out, what entertains bypasses the conscious critical powers of the mind and, in the end, educates almost without effort or realization. In that book, I first discovered the fourth dimension. There had been talk among my classmates, of course, but it meant nothing until I read and saw Gamow's lively prose and simple but effective drawings.

At once I learned of the tesseract, the Möbius surface, the Klein bottle, infinities of infinity, an excellent cartoon description of the space-time continuum, the enormous yield that results from doubling any number 64 times, what objects look like turned inside out, etc. All this was as separate from my kid life, as my father's disbelief in gravity and his belief in mind-physics and mediumship. Even my first encounters with classics in prep school [five years of Latin] it did not at first register that I was headed toward a lifetime study of dimensionality. It was only at Brown University, when I entered the Classics department and began to read Plato in the original Greek that a real connection between the Fates and dimensions began to occur to me. While reading "The Republic", I discovered through the text that there are a series of myths-metaphors-similes that only appear to relate to the text that immediately surrounds them; these similes are so powerful and graphic they connect directly to one's center of being. I refer to the myth of the cave, the line, and the Sun, which seem more related than the fourth myth of "Er" – the brave soldier who dies on the battlefield.

Plato's doctrine of the forms finds its pictorial expression in the image of the cave where humanity is awash in images projected on a wall like people watching a film. Plato represents the world as a prison and everyone is manacled by ignorance, able to see only the shadows of objects cast on the wall of the cave. The shadows are projections of individual objects being moved before a fire higher up toward the entrance of the cave. The real world outside the cave contains the forms or patterns from which the objects were copied, and also is the Sun or the goal of humanity's search for truth, beauty and goodness as the One. It is humanity's task to free itself from its shackles and move into this upper world of the Sun.

The means to obtain such freedom lies in the power of human understanding. The development of this saving understanding has been made clear by Plato by means of the myth of the twice-divided line – divided in the divine proportion.

The vertical line is a diagram separating opinion [doxa] and knowledge [episteme]. The second division of the line is the dividing of the two main segments again resulting in four proportioned dimensions of knowing. In fact, the dimensions of existence into which humanity has been thrust.

The content of this epistemic ladder contains both states of consciousness and the inhabitants or ontological object's appropriate to these dimensions: the shift in consciousness upward is from unsupported imagination to perceptual belief [and also partially warranted beliefs] to a condition that can be described as mathematical logic [which is similar to lucid dreaming and the effects of hallucinogenics], and finally the dialectical process of reasoning about first principles. The dimensional shift of objects moves from images of appearance to individual objects [which are copies of the universal forms], then onto mathematical and semi-abstract entities [often seen during lucid-dreaming, in which you are aware of being in the dream state while dreaming], and finally arriving at the universal forms.

The line represents the belief of Plato that the universal forms are the true reality and therefore the concrete and the world of appearances are the abstract and lifeless. It was at this point in my reading of the text that I realized that dimensionality meant more than simply seeking a new ninety-degree directional subdivision of spatiality. The final myth at the very end of "The Republic" – the story of "Er" was to me less than an epilogue and more of a new direction in Plato's thought. In terms of the reasoning of "The Republic", the passage about "Er" is superfluous. But not so for Plato himself, who was a follower of Orphism [a mystic Greek religion offering initiates purification of the soul from innate evil and release from the cycle of reincarnation]. In this myth, "Er" is taken in what is the first of a "near-death-experience," and shown the nature of the afterlife, the 1000 Earth year sojourn in either heaven or hell, the meeting with the Fates, selection of new lives and rebirths. He comes back to life on the battlefield in order to tell others about his experiences.

My first thought when I associated the four myths is that our fate is worked out within a dimensional system [which is mathematical in nature] and the total system is tantamount to the Fates themselves. But there existed one slight difference: the mathematics that Plato subscribed to was Pythagorean and, therefore, involved the quality of numbers as well as quantity. This meant the identification of numbers with the nature of reality. Pythagoras [570-500 B.C.E.] stated that the application of number to the nature of the universe consists in identifying opposites of qualities such as: the limit [peras] and the unlimited [apeiron]; odd and even; the one and the many; right and left; male and female; rest and movement; good and bad; square and oblong; etc. As an example, the number 5 means marriage because after the one, 2 and 3 form 5. 2 is the first even, female, unlimited number. 3 is the first odd, male and limited number. The list has cosmological-mathematical implications. The unlimited was identified with space, and the unlimited that was limited just once becomes the unit or the one. It also stands for the dimensional point. This allows for the possibility for identifying number and reality. One is the point; two is the line; three is the plane; and four is the solid. Hence, by the numbers we have constituted the world. The sum of these critical first small whole numbers is ten; and ten, therefore, is the perfect number because it creates the lambdohma pattern – the basic cosmic weaving diagram of the Fates:

The power of the Pythagorean metaphor of the universe has sustained itself in Western culture for the 2531 years. The current search for a unified field theory has led physicists right back to Pythagoras. As Brian Green has stated about super-string theory:

Music has long since provided the metaphors of choice for those puzzling over questions of cosmic concern. From the ancient Pythagorean "music of the spheres" to the "harmonies of nature: that have guided inquiry through the ages, we have collectively sought the song of nature in the gentle wanderings of celestial bodies and the riotous fulminations of subatomic particles. With the discovery of the super-string theory, musical metaphors take on a startling reality, for the theory suggests that the microscopic landscape is suffused with tiny strings whose vibrational patterns orchestrate the evolution of the cosmos. The winds of change, according to super-string theory, gust through an Aeolian universe.^y

From my own reading of the myth of "Er," I agree that super-string theory may be as close as scientists have gotten to interpreting Plato in his Pythagorean mode of thought. But it was not only the ancient Greeks who offered me insights about dimensionality, the ancient Romans did also. What I came away with was the application to my art of one of the Romans' basic cultural inventions – the outline: the diagram of order of anything of concern in its most concise form. While the word diagram is of Greek

origin, it was the Romans who drew them. And, of course, a dimensional system is an outline of existence – both in terms of mass and consciousness – which divides up reality in the same manner that we divide space.

Another insight of the Romans referred to was the human reaction to time and the way we endure it. With the simple phrase in medias res [into the midst of things], the message is clear: time is a journey we must all suffer and we are thrust, neither into the beginning, which would give us a chance to direct the streams of time to our liking, nor at the end of time, which would give some perspective on what life is all about. Instead we are thrown, as Brother Blue [Boston's street poet] would say: "In the middle of the middle of the middle," of time not knowing where we came from or where we are going.

XII

I did not begin to use dimensionality as the context of my paintings and drawings until 1967, and I dealt only with temporality up until 1975. In that year, I invented a new type of gyroscope, which I called "The Levogyre". It consists of a series of nested spheres of fiberglass, and a processional axis that has been fragmented and redistributed in space in the form of two interlocking three-dimensional equiangular spirals. Each shell is filled with ferro-fluidics, which is a ferric compound ground finer than pumice mixed into a very viscous oil, which then acts like copper wire electrically. Each portion of the processional axis is powered by means of on board electric motors mounted within the structure of the axial fragments. On board solenoids act as triggers for outboard radio-frequency power generators. At the torque axis of each shell are mounted fiber optic beds through which are transmitted circular laser beams at, of course, the speed of light.

When the device is fired up, it begins with the outermost shell and moves inward creating a torque transfer that increases and, therefore, presses at the speed of light, not as in a mechanical gyroscope where the angular momentum decreases as it approaches the centroid of the device.

What I have developed is a method of distorting space-time to such a degree that the Levogyre becomes a structured singularity. A singularity is a point or local region of infinite mass density at which space and time are indefinitely distorted by gravitational forces and which is held to be the final state of mass-consciousness falling into a black hole. The device weighs less, therefore, while in operation, than at rest. I felt the Levogyre to be a proto-time machine and developed the concept of The Time Machine based on a method of controlling and amplifying pre and retro cognition [pre-perception of the future and retro-perception of the past].

XIII

Soon thereafter I began to include references to both spatiality and temporality and their individual aspects in many of the paintings I was completing over the years. Finally in 1992, I was able to collect enough insights to try a definitive rendition of dimensionality:

What I did first was to set up the natural octaves of spatiality and temporality between the one [absolute life] and the fall into the many [absolute death]. The octave is that which links the human with the cosmic – the limited with the unlimited. The eight dimensions form a unit called the dimensional realm. Each dimension is a note in an indefinite scale, but eight form a closure, a sense of completion within the endlessness of infinity. The dimensional realm is divided into three vertical sections: the left side is temporality, the source of energy of life and therefore the fate Clotho; the mid-section, which places the human personality within the cosmos, and which joins temporality with spatiality, is the fate Lachesis; the right side is spatiality where rest and motion, or the cutting or non-cutting of energy resides, is the fate Atropos.

The entire dimensional realm is in reality an epistemic ladder, the rungs of which are not in some quantitative distinction such as the 90° angle postulate of spatial dimensions made famous by Euclid of Alexandria or René Descartes [1596-1650]. This is not to say that such angular dispositions cannot be applied at all, only that they are not ontically inherent to the definition of individual notes in the dimensional realm. As an example: the definition of a shadow, the only inhabitant of the second dimensional note of spatiality that we can experience directly, without imaginative transposition to a more comprehensive dimensional note, has nothing to do with angles of particular degrees. What fascinates us about a shadow is although we can see it, and know that it exists, we somehow cannot reach down from our position of a more comprehensive dimensional note and turn the shadow over so we can see its "other side." The reason we cannot do this is because the shadow has only one side. And no amount of claiming to "rotate" a shadow through a higher dimensional note will avail. Turning over a page of a book works

because the page and the book both exist in the same dimensional note – the fourth dimension of time-solvoid.

XIV

There is, however, a way to see the other side of a shadow but still not touch it. This process was invented by August F. Möbius, a German mathematician in the nineteenth century. Like everyone else who lived in the nineteenth century, the activities of Napoleon Bonaparte I [1769-1821], Emperor of France, became a source of endless wonder. Möbius, the mathematician was no exception. What fascinated him the most was Napoleon's Egyptian campaign and new information brought back of a cultural nature. Why were the ancient Egyptians convinced that the shadow a human would make in relation to the sun was an intrinsic part of the human personality? After all, is not a shadow merely the absence of the positive being of light? This and other questions haunted Möbius until he hit upon his now famous surface – the Möbius strip. It is a one-sided surface with one edge constructed from a rectangular matrix by holding one end fixed and rotating the opposite end through 180 degrees, and joining it to the first end. The first thing that Möbius did was cast an asymmetric shadow onto the strip to prove that his new surface was real and not just a re-oriented torus. Because the shadow never left the surface but became the opposite shape after traversing the entire length, Möbius realized that a shadow can enter an aspect of the third dimensional note of spatiality. What Möbius did not realize, however, was that he had created an inter-dimensional form. While the Möbius surface remained in the second dimension, a part called a “cross-cap” actually exists in the third. In the beginning of the twentieth century, another German mathematician, Felix Klein, built on Möbius' invention by developing a bottle surface that exists between the third and fourth dimensional notes of spatiality. As a one-sided surface, it is formed by passing the narrow end of a tapered tube through the side of tube and flaring this end out to join the other end. The part of the bottle that exists in the fourth dimension is the penetration aspect, in which one surface enters another without rupture of either surface.

The Klein bottle can be subdivided into two Möbius surfaces, one right-handed and one left-handed, or one neutral Möbius surface that can be indefinitely subdivided. There are four more forms which could be described as topological beyond the Klein bottle, such as hyper-Klein bottles as interdimensional forms. But no one knows what these forms might be or how they can be experienced. It is only by conceptualization that these can be postulated at all. Below the shadowland [or the second dimensional note of spatiality], there exist subforms of the Möbius surface, which again are only known by concept: first, since a line is the profile of a shadow that can never be perceived, only implied within a locale similar to the situation of quantum dynamics, the form that connects a shadow with its profile is a series of infinite infinitesimals that advance together in succession; second, from the line to a point the series infinite infinitesimals converge on each other.

XV

The place of the human personality within the dimensional realm is between the second dimensional note and the fifth dimensional note – between the limit of perception and the limit of conceptualization: in medias res, in the midst of cosmic things. Below the second dimensional note there are forms, which transcend consciousness as there are above the fifth dimensional note. But due to the fact that as humans, we normally feel no loss at the lack of perception of the lower two dimensional notes our humanity is not challenged, and we feel more meaningful than “interval-lines” and “instant-points.” We are made of sterner stuff, namely: “succession-plane,” “durance-solid,” “time-solvoid,” “eternity-vosolid.” The three dimensional notes above the fifth, namely “hyparxis-void,” “zeit-raum,” “metatime-metaspacetime” guarantee that real meaning exists for the human personality. As our consciousness rises through the dimensional notes, our ascension is accompanied by an ever-increasing richness of experience. For the possibility of the ontic richness to stop because the epistemic richness ends is no reason to accept such a proposition that dimensional notes: 6, 7, 8, are to us, of the same nature as dimensional notes one and zero. The bottom two notes are obvious to us, even though they may contain unsuspected mysteries, but the top three notes, while transcending consciousness, as do the lower two, hold out the promise of an ontic richness similar to the beatific vision claimed by Christians. In Christianity, The Beatific Vision is defined as the direct knowledge of God after death by the blessed in heaven and before death by means of mystical experience. In the history of mysticism, meaning is conveyed, it is said, that is neither apparent to the senses nor obvious to the human intelligence. And what is given as content is union or direct communion with God or the ultimate reality. What also is said is the experience of the ultimate reality can never be exhausted by the human consciousness, even in an exalted form. It would seem, therefore, that the human

mind will always be placed within range of ultimate meaning because there will always be something unknowable that beckons with its existence.

As the major French existentialist Jean-Paul Sartre [1905-1980] said of the absurd that it is the condition in which human beings exist. We are all in an irrational and meaningless universe and human life had no ultimate meaning. In fact, the search for order brings the individual in conflict with the universe. As a result, the individual must assume ultimate responsibility for his acts of free will without any certain knowledge of what is good or bad. These statements since the mid-twentieth century on the value of the unknowable in the universe have ignored the fact that unknowingness is what draws the human mind forward toward hope and not away from it. Even Sartre, at the end of his life had to agree. In a letter to an old friend, with whom he had studied philosophy, Sartre wrote, "During my whole career with Existentialism, it seems the Holy Spirit was sitting on my shoulder."^{vi}

XVI

In terms of the ontic status of the entire dimensional realm, it is the existential nature of the middle pillar of the system that acts as the repository for the interaction of the various notes of temporality and spatiality. The space-time continuum of Einstein and Minkowski is the model for this interaction, but of course, now in an expanded form. Each note from note zero on up until a final continuity between temporality and spatiality is assured. Then a new dimensional realm can be discovered to exist and so on – note zero represents the completion of a previous dimensional realm, and so on from the indefinite to the indefinite.

While the horizontal interaction of each note is symmetric, the vertical interaction is not. And this is because within each dimensional note the human knowledge and the ontic structure is obvious, while vertically they both are cumulative and sequential. The models for the ontic structure of the dimensional realm are those diagrams of natural phenomena such as the table of chemical elements related by date of discovery, atomic weight, atomic structure, and symbol. Of interest, the elements form several natural spectrum [which is the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light, x-rays, microwaves, infrared, and ultra-violet radiation] is laden with octaves when you consider the interval between any two frequencies that have a ration of 2 to 1. Even those diagrams which summarize the total history of the expansion of the universe relating time units to degrees of temperature advance by natural octaves.

XVII

In order to represent the natural energy states and subjectivity of temporality, I have selected the traditional Vedic Chakra glyphs that have a natural spiritual progression. In like manner, the octave of spatiality has a pure objectivity that can be best depicted by vibrating spheres of a homogenous liquid each with identical diameters. Because the liquid is confined, the frequency change alters by octaves of octaves. The litany of the dimensional realm is as follows: 0 – instant: point; 1 – interval: line; 2 – succession: plane; 3 – durance: solid; 4 – time: solvoid; 5 – eternity: vosolid; 6 – hyparxis: void; 7 – zeit: raum; 8 – metatime: metaspace. The epistemic ladder, which creates a gradual unity of the dimensional notes, begins with: list: sign; anecdote: index; tale: icon; legend: archtype: myth: symbol; epiphany: cypher; kratophany: cipher; and finally; hierophany: sypher. But the main concern for the human personality is the transition between the fourth and fifth dimensional notes: myth: symbol. This is the location of Utopic Space, which exists as an ontic and epistemic bridge between time and eternity, solvoid vosolid. Utopic space is often defined as the environment for the mystical experience, but this is technically untrue in my dimensional system. The real environment consists epistemically of a total immersion in eternity and vosolid and actually the pressing of the entry into hyparxis and void and onto the pure revelation obtained from epiphany and cypher.

XVIII

There is a "Family of Forms" that organizes the entire dimensional realm, and it refers to the dimensional notes and their natural numerical vacillations. Many authors who have made reference to dimensional systems could be cited starting, of course, with Pythagoras, but modern writers have positioned the context of this issue in a more understandable way.

Ludwig Wittgenstein [1889-1951], engineer, philosopher of language, and mystic [while serving in the Austrian army during World War I underwent a profound mystical experience at the front as a result of reading works by Count Lev Nikolayevich Tolstoy [1828-1910]] wrote in 1933 to 1935 and continued to

his death in the Blue and Brown books [preliminary studies for the “Philosophical Investigation”] about the nature of human language. His insights included that any language instead of having just one purpose, is naturally multi-purposeful and, therefore, cosmic in extent. But rather than supposing you can control the meaning of words in each instance of usage, or expect you can find features in common to every language, all you can really hope for is to find “family resemblances” among a number of instances of usage. Wittgenstein also asked more general questions about language, such as: can there be a private language? Wittgenstein decided that it was not possible on the grounds that language implies some agreement which he called a “form of life,” concerning the use of words. If there truly was a private language, the condition of the “form of life” could never be satisfied.

Also, René Guénon [a French Roman Catholic who became converted to the Islamic faith] wrote a book of social criticism in 1947 entitled The Reign of Quantity. Although the book was dismissed at its time, it has proven itself one of the most perceptive of the twentieth century condition and therefore most germane to the subject of dimensionality, which is the language of the universe [a closed system in communication with itself].

If it is true that the nature of reality is an ecstatic outpouring of qualities, allowing history to become simply an unchecked unfolding of the progressive displacement of qualities by various “convenient” quantities, [an example of historicism, in which everything is considered history, and that later stages of history are evaluated in terms of its earlier stages] instead of history being considered a design tool to organize qualities into a system revealing the authentically new, we are going to end up as Lewis Mumford [1895-1990], the modernist architectural historian claimed, moving toward the endgame of a completely dis-qualified universe. The fall into history that began in the eighteenth century away from a total consideration for the aliveness of the universe can only be offset by some version of the so-called Anthropic Principle of Cosmology. The principle states that these are conditions observed in the universe, which must allow the observer of the universe to exist, and the universe must have properties that inevitably result in the existence of intelligent life.

This means that the dimensional realm, which I am associating with the traditional concept of fate, is the decoding of The Anthropic Principle of Cosmology, or at least are the logical implications of the formal structure of the dimensional realm.

XIX

In terms of spatiality, “the family of forms” states that the dimensional notes vacillate between “motion” and “rest.” All the odd-numbered notes involve analogues of the concept “rest”, which we discover first as an experience at note: durance-solid. And all the even-numbered notes are modalities of “motion”, which we become aware of from the vantage of note: time-solvoid. In like manner for temporality, the odd-numbered notes determine “possibility” with durance-solid as the point of entry. The even notes decide “manifestation” with time-solvoid as the autoscope. The content of temporality is energy as the significance of spatiality is position. But again, the definitions of the words “energy” and “position” change from dimensional note to note. As an example, consider the half-note of time. This is the context in which possibilities are manifested in a series of back-to-back non-reversible events. These events are related to the energy system of causality. The ontic structure of causality is: event A causes event B with set of circumstances C, which includes the fact that there exists an abyss of transition between the active cause and the passive effect. Of the total energy transaction the cause exhausts .618... of the unity of energy available for the event while the effect receives .382... of the energy quantum. Because the other half-note is solvoid, this energy is defined and experienced as efficacious with motion. The energy of time was defined in the nineteenth century by such notables as Samuel Taylor Coleridge [1772-1834], Mary Wollstonecraft Shelley [1797-1851], Walt Whitman [1819-1892], Edgar Allan Poe [1804-1849] and Nikola Tesla [1856-1943]. Each in his own way considered electricity as the energy of the motion of life, and therefore, gave us our qualitative definition of time. Anyone who has ever received a mild electric shock has experienced the energy of time, and therefore, the expression of the sublime force of romanticism.

In like manner, the half-note of eternity has its own characteristic energy, and that energy is efficacious without motion because the other half-note is volsolid and is defined as rest. This transcendent energy has had many names over human history, such as: Chi, Tumo, Violet Flame, the Holy Spirit, the force of the ring-pass-not, Kundalini, the central stillness, Orgone, etc. This meta-energy is the essence of classicism. The concept of position in relation to dimensionality is actually more complex for spatiality than any of its implications for temporality. Ideas like synchronicity, hyperaxis, or synergy may have something to do with position, but the essence of the form is the beginning and the end of the dimensional

realm and, therefore, is absolute. Even relativity of motion is based on absolute position. The theory of special relativity by Einstein claims two postulates: 1) the speed of light in a vacuum is constant and independent of the source or observer, and 2) that the mathematical forms of the laws of physics are invariant in all inertial systems and which leads to the assertion of the equivalence of mass and energy and of change in mass, dimension, and time with increased velocity.

This means that there exists an indistinguishability of accelerated motion and immersion in a gravitational field, and all observers, regardless of their state of motion, can claim to be at rest [or in a position] as long as they acknowledge the presence of a suitable gravitational field. Being in a position is to assert one's presence at the highest spiritual level, which can only be done by connecting to the extremities of the entire dimensional realm. It is similar to politically or culturally "knowing" one's place, or physically discovering your place or "position" in the universe, on the earth, or even in a room.

This history of the dimensional point, the ultimate unit of spatiality, is richer even than the instant – the unit of temporality. The point has long been associated with the Greek concept of the atom [*a* (not *tomas* (cut))]. The concept means the primary constituent of reality. The point, therefore, is an abstraction of the atom. This was the insight of Jainism [along with Charvakan skeptical materialism], one of the heterodox systems of Indian philosophy active after 800 B.C.E. The Greek materialists, such as Leucippus and Democritus, in the world of the fifth century B.C.E. declared that atoms are spatial entities not further divisible. Later the Roman poet Titus Lucretius Carus [99-55 B.C.E.] recognized the natural motion associated with a point because he endowed the atoms with a voluntary power to swerve [the *clinamen atomorum*] setting up vortices of points and initiating worlds in the void. Lucretius defined the atoms as being homogeneous, impenetrable, and without internal relationships throughout their extension in space, which becomes as less as it needs to be to become a point.

In current physics, the definition of an atom is just at the point of inverting Lucretius' position so that it is almost completely penetrable, nowhere near being homogeneous and now contains an ever-growing number of internal relationships. In fact, modern physics – especially string theory – has provided what may be the best definition of a point. By trying to add extra quantitative dimensions to the universe in order to make their mathematics work out, the string theorists proposed dimensions that cannot be experienced because they are curled up into a space which is less than Planck's length – 10^{-33} centimeters. This is a scale below which quantum fluctuations in the fabric of space-time become enormous, apparently too enormous to discover anything by instrumentality. This "quantum foam" is said to contain billions and billions of Planck-length diameter spheres, which house six dimensions – so they are not exactly spheres, but Calabi-Yau shapes. These spaces are real three-dimensional slices through fifth degree hyper-surfaces embedded in complex projective four-spaces. Disregarding for the moment the contradiction that Calabi-Yau spaces are "inside" normal observable three-space, they are the best models for active points.

ⁱⁱ The Beehive Metaphor by Juan Antonio Ramirez. Copyright 1998 Published by Reaktion Books, Ltd. London, UK. p.163.

ⁱⁱ The Elegant Universe by Brian Greene. Copyright 1999 p.231.

ⁱⁱⁱ The Elegant Universe by Brian Greene. Copyright 1999

^{iv} Information for Section X was obtained in a private conversation with Ruth and Marvin Sackner at their home in Miami, Florida, May of 1985.

^v The Elegant Universe by Brian Greene. Copyright 1999: page 135; published by W.W Norton & Company, Inc., New York.

^{vi} This information was obtained in a private conversation with Kieran Dugan of New York City, who showed me a Xerox of Sartre's letter in the early 1980's.