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CURRENTS OF TIME AND UNIVERSE

By

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Bachelor of Fine Arts, University of Montana, Missoula, MT, 1997

Thesis

Presented in partial fulfillment of the requirements
for the degree of

Master of Fine Arts
in Printmaking

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Currents of Time and Universe

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Abstract

Currents of Time and Universe explores personal awareness and connection to the universe. Large woodcut and intaglio prints describe a visual vocabulary for universal themes. In this vocabulary, a current is the image for awareness, connection, and motion in space and time. Bird forms frequenting the images represent the habitation of both earth and sky. Less grounded and more of the air than the human, the bird image identifies with the inner life of a person more than with the physical body. However, as with the bird, definite and necessary aspects of each do not exist without the other. A concept of motion pervades the images. Motion of both the universe and of an individual traveling through it, refer to the experience of time. Contrast and luminosity, as well as positive/negative relationships, become part of the visual vocabulary of universe awareness. In night skies appearing black and white, luminosity and contrast define what we know as the universe. Dark is when we see it most vividly. Constellations, galaxies and stars, even our moon are most defined in contrast, lit in the absence of overall light. Contrast is also a metaphor for the related concept of traveling. The space between cities viewed from a car or plane at night is dark; the objects of departure or arrival are lit in glowing centers of light. A journey between points describes time as distance. The subject matter is almost entirely portrayed in black and white contrast. A visual interplay of positive/negative space refers to the Escher-like quality of awareness, and to the nature of human experience. Time/space is defined by both memory and distance. Distance is external space; memory is internal space. A conceptual universe exists both within the person and outside of them. Each of these universes continue to be investigated as they have since our earliest beginnings, yet each largely escapes definition. What we know about the universe is rapidly changing in unexpected ways. On a forefront of possibility, visual thinking does not necessarily preclude scientific, or vice versa.

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INTRODUCTION

Currents of Time and Universe is an exploration of awareness and sense of connection to the universe. Contemplations of time evoke thoughts of the universe. Visual images, rather than words, describe thoughts, feelings, intuitions, experiences, and related questions that arise. The content of my thesis is this awareness and those images. The connection to the universe is experienced as a current: part of a larger body, moving in a direction, charged with energy, known, and simultaneously unknown and unknowable.

In this thesis, the image representing universal awareness is a current. “Current” belongs to the time actually passing, its flow, as a portion of a large body of air moving in a certain direction. The word current also describes ideology generally accepted or prevalent, widely circulating, when considering what we know about the universe.

Since early life, I have considered my position and connection to the larger universe. While such a comment indicates the obvious, daily life naturally and efficiently precludes much consideration of the universal context. The interior moments my images describe relate to ever-present energy, mystery, and matter; as well as to the complexity and intrigue of the time-space we refer to as the universe.

Awareness can be an end in itself; awareness can also create an avenue for possibility. The unknown nature of universe dynamics and ongoing investigations create an environment of possibility. Seventy years of quantum physics have led to a situation largely yet unknown; a situation in which the largest certainty is that nothing is as expected. The expected principle “of

an absolute reality of fundamental entities with enduring properties”¹ simply isn't there. In its place is something that can be poetically described as interactive intelligent motion. Evidence does not actually support widely established and prevalent concepts of empirical science concerning the natural world and the human position in it, or as it could be stated, separate from it. What research has proved instead is that we must change what we know, and even the language with which we describe and define it, as the supporting data simply isn't there. Such a situation is not new to human history. And while there may be reluctance to abandon known “truth” or understanding of life, as we know it, an agreement of investigation and potential creates a forefront of possibility that can only be imagined. One of those imaginations could prove to be a true lead. On such a forefront, visual thinking does not necessarily preclude scientific or vice versa. As David Bohm, theorist of quantum potential,² states: “Physics is a form of insight and as such it's a form of art.”³ And as Leonard Shlain argues:

Revolutionary art and visionary physics attempt to speak about matters that do not yet have words. That is why their languages are so poorly understood by people outside their fields.⁴ When the time comes to change a paradigm... the artist and physicist are most likely to be in the forefront.⁵

¹Arthur Zajonc, Ed., and Zara Houshmand, David Finkelstein, George Greenstein, Piet Hut, Dalai Lama, Tu Weiming, Arthur Zajonc, Anton Zeilinger, Contributors. *The New Physics And Cosmology: Dialogues With The Dalai Lama*, (New York: Oxford University Press. 2004) 49.

²Arthur Zajonc, *Catching The Light: The Entwined History Of Light And Mind*, (New York: Bantam Books, 1993) 305.

³Leonard Shlain, *Art & Physics: Parallel Visions In Space, Time & Light*, (New York: Morrow. 1991)15.

⁴Ibid., 20.

⁵Ibid., 22.

BACKGROUND

yugen/yoo-gehn/n. “an awareness of the universe that triggers emotional response too deep and mysterious for words”⁷.

Interest in this topic started for me early, at a young age, even before starting school. I clearly remember unnerving images of the great expanse of space and endless time. The unknown quality of what was before me was overwhelming. Why a child with no television and a limited vocabulary would imagine such things, I can't tell you. The vast imagery of the planet and universe troubled me. It was fearsome in its scope; it frightened me and caused me to ask, “What does it mean?”, “What will it become?”, and “How will it end?” When I approached my parents on the topic, I didn't have the vocabulary to describe the imagery in my mind. My question consisted of something like, “What will happen?” Their answer consisted of something like, “Go back to bed”.

Those early visuals faded as reality and routine took over. I don't remember thinking about it again until I was in the mountain wilderness of the North Cascades at about 14 years of age. Because I had a wilderness-oriented and avid outdoorsman for a father, I again became aware of a different perspective. In the wilderness, I stepped outside the enveloping reality of home, school, and all the preoccupations of childhood. As I sat on a stump in the predawn, near a fire, an unpolluted star field swept above me. Against a silhouetted ridge in the east, the sun began to rise. The moon hung simultaneously full and bright in the west, with a nighttime of glittering stars in between. I felt myself in the panoramic bowl of a reality more intense than any

⁷Graham Parkes,, "Japanese Aesthetics", The Stanford Encyclopedia of Philosophy (Winter 2011 Edition), Edward N. Zalta (ed.), available online at:
URL=<<http://plato.stanford.edu/archives/win2011/entries/japanese-aesthetics> />.,
accessed on May 16, 2014.

city street or television program. In fact, when looking into the brilliant sky, town life paled and seemed to exist in a small bubble or cell, transparent, yet closed and self-conscious. What I saw before me without interface was the real environment, the real situation, and it was vast and unknowable. As a young adult I was no longer troubled by the vastness, but instead found myself greatly impressed by its beauty and by a sense of dynamic motion.

I could not have put these formative experiences into words at the time. However, they are the building blocks of my visual vocabulary. That early vocabulary has stayed with me and is a foundation for many of my images. For me, the images contain warmth and familiarity. The images contain great questions concerning the context of human life. They also beckon the consideration of a larger context, the nature of the universe.

PRINTMAKING

Printmaking, woodcuts, wood engraving, and intaglio engage me for two reasons: history and technique. A history engaged with books and the printed information of humankind has long fascinated me, as have techniques engaged with the use of light. In addition, I find the tactile quality of a cut plate or pressed print beautiful and symbolic of the impressions life and time leaves upon an individual.

In preparation to print, the cutting of a block or etching of a plate involves the use of light and contrast as a tool. As stated beautifully by physicist Arthur Zajonc, “seeing light is a metaphor for seeing the invisible in the visible, for detecting the fragile imaginable garment that holds our planet and all existence together.”⁸ The contrast of an inked print seems a fitting way

⁸Ibid., 343.

to describe the universe. Black and white are reminiscent of the night sky. It is under dark nights with contrasting starlight that my attention turns most naturally to the universe beyond. Black represents space or the unknown. It sets the stage for light and the known. Its perceived depth is the stage for both time and distance.

The artworks in *Currents of Time and Universe* are a series of floating woodcuts and etchings that describe moments of awareness. A timeline, in which stitches represents years, encircles the gallery below the images. The gallery floor is blacked out to lend a feeling of space and to highlight the floating prints. The largest image, on the far wall, is a triptych of a floating galaxy. The color of the gallery and the artwork is black and white. Color appears in only one place, on the small stitches of the timeline.

These visuals, the prints, timeline, and installation call attention to moments of awareness. While the images are intended to work as impressions, not literal descriptions, for this discussion I've decided to name and describe the content of some of these moments. The major themes are motion/awareness, travel/distance, time as distance and inner and outer space.

DISCUSSION

Motion/Awareness

My thesis work describes moments of awareness as currents. The motions of these currents take place in both inner and outer space. Motion indicates a tangible event. Imagery, or reality, is perceived as if in motion and connected to a larger perspective. A sweeping current interrupts the focus of daily life and indicates connection to, or contemplation of, a larger arena.

A wind sweeping to ground level is perceived as coming from an upper atmosphere. In a way, it can be disruptive, but it can also bring freshness and change to the perceived reality for even a moment. Exhilaration or enlivening are sometimes experienced in a rushing wind, as though something greater than what a person's attention had been focused on sweeps through. Awareness of a greater force of nature and its associated freshness, force, or powerful potential can awaken a person. Each of us at some point in life has entered a doorway, and said to someone there, "Wow, it's blowing!", or "It's really snowing!" (especially in Montana). This isn't a boring moment. Awareness at that moment isn't filled with rehearsal, old images, work, or internal dialogue. There is a disruption, a break. In this subtle disruption, there is awareness of both the forces of nature and of our humanity. I think of it as an open moment. The image *Dichotomy* refers to such a break. This break, or subtle interruption, can be a threshold to



Figure 1. *The Dichotomy*, Stone Lithograph, 22 1/2" x 15", 1998.

moments of awareness associated with the current image in my work. In the image above, a person looks out in innocence. Currents, with birds in mirror image, sweep in opposite

directions. The person himself, divided by shadow and light, is perceived as both an unknowing child as a whole, and as a Picasso-like or cubist adult in the lit area of his face. His world, also divided, consists of dark nature on the left and a civilization which appears to be in flames on the right.

In the print *Portent of Time*, four people are unaware of a galaxy in motion over head. The people are in a group, yet each is separately occupied, in a kind of isolation of awareness. In this print, the earth and the people are printed from a woodcut, the sky and the galaxy are printed from a copper plate etching. The earth and people display in more solid, tangible lines than the less distinct galaxy above them. The remote galaxy moves in a finer luminescence and sublimity, completely unseen by the people below. In its brilliancy it casts a soft light, yet doesn't intrude upon them. It exists beyond their knowledge. Likewise, the people move in a circular or elliptical formation, each separated in their own minds, not knowing that a more powerful and graceful, yet similar, form operates easily above them. In this image, the sense of unknowing or separation represents the preoccupations that often keep humans in general unaware. Had they been able to see beyond those preoccupations, they would have instantly been affected or altered by a larger relativity, and come together, less intent on what divides them.

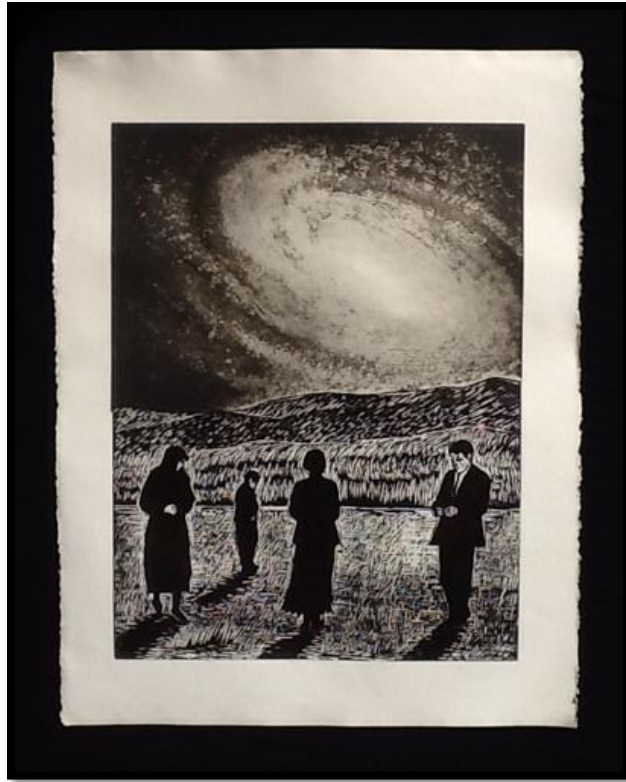


Figure 2. *The Portent of Time*, Intaglio/Woodcut, 22 ½” x 29”, 1999.

Conversely, in the print *Fourth Dimension*, a person fully embraces the universe in symbolic awareness of his relationship to the unknown. There really is no specific information or activity, other than complete openness, weightlessness, and embrace of the cosmos. In his sense of grace and openness, he seems to belong to the cosmos. The substance of the universe seems to support him in an elliptical flow of star fields, clusters, and galaxies in motion. The title, *Fourth Dimension*, is in reference to “Einstein’s theory of a finite but unbounded Universe”.¹⁰ Though I did not have an exact definition for the term “*fourth dimension*” when I

¹⁰Zajonc, et.al., 169.



Figure 3. *The Fourth Dimension*, Woodcut, 32” x 44”, 2000.

titled it, when I read Einstein’s theory with that same name, it fit perfectly. As for the flowing elliptical star field, the “current”, the Arnheim quote, “The line that describes the beautiful is elliptical”¹¹ concurs with the concise statement of Johannes Kepler (1571-1630), “I have the answer, the orbit of the planet is a perfect ellipse.”¹²

¹¹Rudolf Arnheim. BrainyQuote.com, Xplore Inc, 2014. Available online at: <http://www.brainyquote.com/quotes/quotes/r/rudolfarnh374350.html>, accessed May 19, 2014.

¹²*Ibid.*, 64.

Travel/Distance

Traveling is an activity reminiscent of the universe. Traveling takes a person out of her usual context, and in doing so, reinforces individuality. From a mountain path, one looks down on a home, town or city, and considers the life within it. In an airplane flight at night, one can see cities and towns glowing below like constellations of light in a dark void, a scene that reminds me of space and makes me cognizant of time. Traveling in a car on the interstate at night can create a similar vision. Dark distances between lit or populated areas fade to unknown space. In the dark, thoughts turn to interior space. Visualization within that space consists of serial imagery significant to that person. So vivid are these interior visuals, that it is not unusual for miles to go by on autopilot, the images of interior space more vivid than external space before one. Travel and the road or path are common metaphors for life. The road of life is conceptualized as moving in a direction.

In the stone lithograph *A Certain Direction*, two people travel on a dusky road at sunset. Leading straight to a horizon, the road cuts between knowledge and civilization, memory and distance, and then moves out of sight. In the distance ahead is civilization; town lights begin to appear below the mountains at dusk. Closer, on the left, as if emanating from the travelers, thoughts of knowledge and communication spiral. Above, the lights of the universe begin to show. White birds form a circle the person like an aura, then take flight. The night sky looms, an expansive star field in motion, as the aura birds move directly into the universe. Yet the persons on the road move intently forward in an Escher-like duality of awareness; their outstretched arms uncertain of groundedness, uncertain whether of earth or sky. Feet and sight on earth, on the road, yet the body moves in air and quickly toward a larger sky, potentialized as if to take flight.

As the person moves toward the universe, prisms of human knowledge kaleidoscope around him, and fall away. Wings appear in the human shadows as the path of earth moves quickly toward spirals of the galaxy and a universal sky.



Figure 4. *A Certain Direction*, Stone Lithograph, 14 1/8" x 11 1/4", 1997.

Time As Distance

Regarding the concept of time, the installation piece *Time as Distance* is both a failure and a success. In this piece, a long band of heavy black tar paper circles the entire gallery. In its center is an ongoing row of small stitches. In a primitive method of counting, several stitches are made then crossed diagonally to mark a countable unit of time. The stitches, sewed in a triple strand of red, silver, and gold thread mark years and count time. Shining gold and silver threads,

and the duller red, are twined in every stitch, representing valuation and life. The concept was to count a huge length of time in a visual distance upon a tactile, dark and dense surface with no illustration other than its physicality.

Upon completion and installation of the piece, I was disappointed. All the time spent sewing year after year into the dense material, and the finished timeline had only 60,000 years. It couldn't begin to visually illustrate universe time! It was surprisingly short and had missed the mark. However, the stitched timeline marked 60,000 years. I had recently used the same numbers for a different project, and knew that 800 divided into 60,000 75 times. Vaguely recalling something in the media concerning 800 years or lifetimes, I looked it up. According to Alvin Toffler's 800 consecutive lifetime theory, 62.5 years per life resulted in 50,000 years, the apparent record of human history. My timeline had more optimistically marked each life at 75 years, and counted 60,000 years, a somewhat similar approximation. While my timeline was too short to portray universe time, though it was more than 60 feet long, it had more or less portrayed human time. As awareness of human time precedes awareness of universe time, it was not a complete failure. When human time appeared shorter, universe time still loomed inconceivably large.

What is notable about the 800 lifetime concept of human history are these points: history appears much closer to us when counting through individuals; how rapidly and recently change has come about; and most notably, the rapid acceleration of change. In the recent acceleration of change, information is also changing so rapidly that current textbooks may be obsolete or irrelevant in short order.¹⁴

¹⁴Masaru Emoto, *The Hidden Messages In Water*, (Hillsboro: Beyond Words Publishing, Inc. 2004), 57.

Toffler's 800 lifetime concept as listed on the Madison K-12 website, notes the following:

- How did we spend these 800 lifetimes?
- 650 lifetimes were spent in the cave.
- Not until 55 lifetimes ago did we have syllabic writing. (1400 BC)
- Not until 9 lifetimes ago did we have printing. (1450)
- Only in the last 4 lifetimes have we had an accurate time measurement.
- During the last 2 lifetimes we have had the electric motor. (1880)
- However, in the last lifetime and one half we have experienced: Air Travel, Space Travel, Microwaves, Laser Technology, Rapid Communications, Computers, Great Medical Advancements, and Television.
- And in the last 1/2 lifetime we have experienced: Moon Landings, Genetic Engineering, Personal Computers, The Shuttle, Artificial Hearts, The Internet, and Nanotechnology.
- Essentially, most everything has happened in the last one and one half lifetimes.¹⁵

The 800-lifetime theory was initially used by Alvin Toffler to illustrate the Great Median Strip, which, in placing the dividing line of human progress within our lifetimes, describes an unparalleled acceleration of progress.

One of the most striking statements of this theme has come from Kenneth Boulding, an eminent economist and imaginative social thinker. In justifying his view that the present moment represents a crucial turning point in human history, Boulding observes that 'as far as many statistical series related to activities of mankind are concerned, **the date that divides human history into two equal parts is well within living memory.**' In effect, our century represents The Great Median Strip running down the center of human history. Thus he asserts, 'The world of today...is as different from the world in which I was born as that world was from Julius

¹⁵Vern Laufenburg, Ed., *Eight Hundred Lifetime Theory*, Available online at: ([old web.madison.k12.wi.us](http://old.web.madison.k12.wi.us), accessed on March 4, 2009).

Caesar's. I was born in the middle of human history, to date, roughly. Almost as much has happened since I was born as happened before.'

This startling statement can be illustrated in a number of ways. It has been observed, for example, that if the last 50,000 years of man's existence were divided into lifetimes of approximately sixty-two years each, there have been about 800 such lifetimes. Of these 800, fully 650 were spent in caves.

Only during the last seventy lifetimes has it been possible to communicate effectively from one lifetime to another—as writing made it possible to do. Only during the last six lifetimes did masses of men ever see a printed word. Only during the last four has it been possible to measure time with any precision. Only in the last two has anyone anywhere used an electric motor. And the overwhelming majority of all the material goods we use in daily life today have been developed within the present, the 800th, lifetime.¹⁶

The calendar layout first popularized by Carl Sagan in the original "Cosmos"¹⁷ allows a view on a distance of time so formidable that its scope amounts to something like a grander scale of culture shock. It dramatically represents the recent record of human history. Starting the calendar year with the Big Bang, the first stars of the universe form on January 13, and galaxies form on January 16. Rudimentary life appears on earth September 28th, 12 days after rocks form. Theories differ as to when the human appeared, at 8 pm on the final day,¹⁸ or in the last 15 seconds¹⁹ that day, the day after the dinosaurs died. Either arrival time offers an objective consideration of the human position in the universe. Though the acceleration of change seen in the 800-year model doesn't even show up on the calendar, between the two models both human and universe time are portrayed as visible distance. The model below by Erik Fisk, shows the

¹⁶Alvin Toffler, *Future Shock*, (New York: Bantam Books.1971), 18.

¹⁷Carl Sagan, Anne Druyan, Steve Soter, Gregory Andorfer, Rob McCain, Ed., *Cosmos:A Personal Voyage*, (Created by PBS), Aired Sept. 28, 1980-Dec. 21, 1980.

¹⁸*Ibid.*, 59.

cosmic year in the top strip, followed by the month of December, then January 31st, the final day of the year.²¹

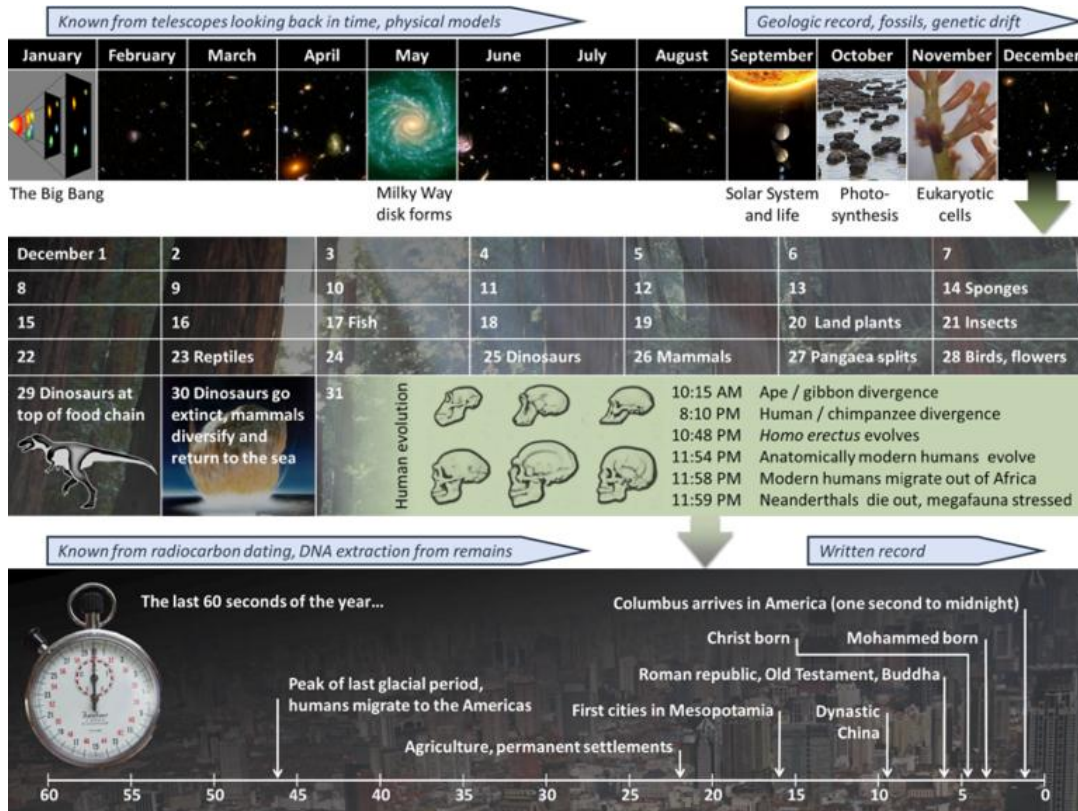


Figure 5. *The Cosmic Calendar: Year, Month and Day*, Eric Fisk.

As Danish physicist Neils Bohr has stated: “Technology has advanced more in the last thirty years than in the previous two thousand. The exponential increase in advancement will only continue.”²²

²¹Eric Fisk, *Cosmic Calendar*, Available online at: (en.wikipedia.org. EfFisk Creative Commons Attribution- Share Alike 3.0 Unported), accessed March 3, 2014.

²²Neils Bohr, As quoted by Steve Guiles, *Theorizing Modernism: Essays In Critical Theories*, (New York: Routledge, 1993) 328.

Inner and Outer Space

“The exploration of the Cosmos is a voyage of self discovery.”²³

“The laws of space are known to the mind because they are of the mind. They are a knowledge that is in us from birth...”²⁴

The imagery of the woodcut, *The Lucky Number*, references the Escher-like quality of the human experience within the universe. A mirror image view into the universe operates in negative within the material dimension of the earth. While white birds of universal energy take flight in the earthly dimension, dark birds of earthly matter fly deeply into the universal dimension, yet all move in one continuous current toward a further universe or unknown. In this image, the universal and earthly dimensions are not the same, yet they mirror each other and are inseparable. Each contains elements of the other, and the symbolic bird is transfigured easily between them, without interruption. This represents the duality of human experience, the juxtaposed inseparability of the internal universe of mind and memory with the external universe of experience and matter. It also represents possibility.

²³Ibid., 264.

²⁴Kant, As quoted by Joseph Campbell, *The Inner Reaches Of a Outer Space: Metaphor As Myth And As Religion*, (New York: Harper & Row, 1986) 27.



Figure 6. *The Lucky Number*, Woodcut, 32” x 44”, 2000.

The woodcut title, *The Lucky Number*, refers to the thirteen birds in flight. In discussion of the Great Seal of the United States, Joseph Campbell describes symbolism of the number thirteen.²⁵ The date at the bottom of the pyramid represents an occurrence in time, and the top, eternity. The 12 courses (levels) define the limits of the physical world. “The number 13, or eye at the top; eternity, and accordingly...represents a creative transcendence of the boundary: not death...but an achieved life beyond death”... signified by the model of the last supper where the 13th person among them in the field of time was of eternity, beyond death. In this image, the phrase “creative transcendence of the boundary” describes the concept of this image, in which

²⁵Ibid.,127.

the horizon delineates a positive-negative contrast between two realities. These realities can be described as inner and outer universes, the known and unknown, matter and energy. Further, the potential or mere possibility of creative transcendence would be greatly fortuitous, marked by both chance and luck.

My reoccurring reference to an "Escher-like quality" in my imagery is related primarily to a concept of perspective, and secondarily to a positive-negative aspect. In one area of an Escher image the perspective is correct and the image accurate. Yet the correctness of an area next, in the same image, is in direct contradiction, and creates confusion, disorientation or re-examination. This is indicative of a theory of relativity or expansionism, in which opposing truths co-exist in a larger arena. Such truthful oppositions have been relayed by the Buddhist concept "Madhyamika", which describes moments of phenomenal experience as consisting of two contributing factors; the side of the mind, and it's own side ²⁶, and from physics, in which "dependent origination sees conventional existence as arising from both sides, with no underlying absolute reality to ground the whole."²⁸ "Reality is considered to be a series of momentary phenomenal events. Moreover, these events do not originate purely from the side of the external world alone but rather are contingent on a complex causal nexus that includes the mind."²⁹

²⁶Ibid., 32, 39.

²⁸Ibid., 39.

²⁹Ibid., 32.

RESEARCH AND RECOGNITION

When researching this paper, I looked for written accounts relating to the concepts in my visual vocabulary. I had to put it into words, so ordered a stack of books that sounded right, such as *Art and Visual Perception*,³⁰ *The Mirror, the Window, and the Telescope: How Linear Perspective Changed Our View of the Universe*.³¹ and *Visual Thinking*.³² Not long after spending that money, I soon realized that my bookshelf was stocked with books such as *The Inner Reaches of Outer Space*,³³ *Concerning The Spiritual In Art*,³⁴ and *Ways Of Seeing*,³⁵ due to long interest in subjects pertaining to perspective and awareness of universe. While these books contained interesting information, some more than others, in them there was no significant recognition of either the problem or the solution. They contained no sense of a dynamic or intelligent universe, but more relayed a sense of the dynamic researcher and a truckload of data, mostly historical, at that persons dispense.

Subject matter that indicated new awareness or reconsideration of the universal, in both information and matter, was found in accounts of recent findings of quantum physics; such as *Art and Physics: Parallel Visions In Space, Time and Light*, written by surgeon Leonard Shlain.³⁶ *The New Physics and Cosmology: dialogues with the Dalai Lama*, an account of

Rudolf Arnheim, *Art And Visual Perception: A Psychology Of The Creative Eye: The New Version*, (Berkeley: The University Of California Press. 50th Anniversary Printing. Expanded Version. 1974).

³¹Samuel Y. Edgerton, *The Mirror, The Window, and the Telescope: How Renaissance Visual Perspective Changed Our View Of the Universe*, (New York: Cornell University Press. 2009)

³²Rudolf Arnheim, *Visual Thinking*, (Berkeley: The University Of California Press. 35th Anniversary Printing. 1969).

³³Ibid.

³⁴Wassily Kandinsky, *Concerning The Spiritual In Art*, (New York: Dover Publications. 1977).

³⁵John Berger, *Ways Of Seeing*, (New York: Penguin Books. 1972).

³⁶Shlain. Ibid.

dialogues between five leading physicists, a historian, and the Dalai Lama, written by Author and Professor of Physics at Amherst College, was another great resource. It solidly combined scientific data with mystery; with a new forefront of possibility. Its subject matter called for new awareness, for a reconsideration of the known. Additionally useful, was an odd array of books concerning research into such subjects as the properties of light and seeing,³⁷ the properties of sound and vibration,³⁸ the properties of water,³⁹ and the properties of plants.⁴⁰ Books that set the backdrop for reconsidering those topics included Gurdjieff's *Beelzebub's Tales to His Grandson*⁴¹ for its universe perspective, Steinem's *Revolution From Within*,⁴² for the importance of unlearning, and its unique timeline, and Dryer's book *The Power of Intention*,⁴³ for the change an individual can effect, whether aware of quantum physics or not. As for my initial research material, the sentence, "There was no corresponding reaction in me that I was on the right track" contains an important indicator of the direction the subject of universe awareness points to.

In an interrelated universe whose basic construction is composed of waves and particles of energy in motion, the human being is not an isolated entity, but, like everything else, consists of this dynamic energy. BJ Palmer, in his chiropractic principles, referred to this energy simply as the innate intelligence of the body. This energy consists of, corresponds to, and interacts with

³⁷ Zajonc. Ibid.

³⁸ Emoto. Ibid.

³⁹ Emoto. Ibid.

⁴⁰ Peter Tompkins, and Christopher Bird, *The Secret Life Of Plants*, (New York: Avon Books.1973).

⁴¹ G.I. Gurdjieff, *Beelzebub's Tales To His Grandson: An Objectively Impartial Criticism Of The Life Of Man*, Paperback Edition. (New York: E.P. Dutton. 1973).

⁴² Gloria Steinem, *Revolution From Within: A Book Of Self-Esteem*, (Boston: Little, Brown And Company. 1992).

⁴³ Wayne W. Dryer, *The Power Of Intention: Learning To Co-Create Your World Your Way*, (Carlsbad: Hay House, Inc. 2004).

the innate intelligence of the universe.⁴⁴ If a person is aware, this intelligent energy actually corresponds and interacts with circumstances, environments, situations, and options. In James Redfield's book, such corresponding could be learned to be recognized by an inner sense of beauty and expansion.⁴⁵ An incongruent situation or option provided the opposite inner sense, or none at all. While this type of sensibility has been long delegated to new age thinking and pseudo-scientific emotional hype, a shift has been taking place. This shift comes from the startling finds of quantum physics, not from marginal groups and gurus with para-scientific beliefs in an alternate or kinder reality.

Quantum physics is not a romantic assertion; it's very precise and yet it opens new possibilities to the imagination. It is quite possible that this... will reintroduce some modes of thought that were rejected by scientific minds beginning in the eighteenth and nineteenth centuries- modes that were rejected as unscientific because they related to religion or metaphysics. It may be time now to bring many other kinds of vision- artistic, religious, spiritual- to bear on these very important questions.⁴⁶

Each of these features of quantum mechanics is supported by experiment, and each requires a profound reconceptualization of our world and even the role we play as observers.⁴⁷

Anton Zeilinger, Director of The Institute For Experimental Physics, when asked how quantum physics has affected him, relied that "he has been prodded to challenge every one of his assumptions about the nature of reality".⁴⁸ In order to adapt, we must reconsider everything we

⁴⁴R.W. Stephenson, *Chiropractic Textbook*, (Davenport: Palmer School Of Chiropractic. 1927. Reprinted 1948). *Article 24:A List Of 33 Principles*.

⁴⁵James Redfield, *The Celestine Prophecy: An Adventure*, (New York: Warner Books. 1993) 44.

⁴⁶*Ibid.*, 36.

⁴⁷*Ibid.*, Anton Zeilinger. 33.

⁴⁸*Ibid.*, 498.

know about reality. Instead of the world of cognition and our “re-presentation”⁴⁹ of it, we move into a position of co-creation, from a mechanistic reductionist model to an inclusive expansionist model.⁵⁰ As Zajonc said about representing the world: “the beautiful and productive images we craft on the basis of experience are images only-fruits of the imagination. They are no less true for being so”.⁵¹ This comment aligns with *Gedanken*, an experiment performed purely in thought. Unlike previous physicists, “Einstein conceived many such experiments”,⁵² and believed imagination to be more important than knowledge.⁵³

The affects of quantum theory and the study of light, can be widely applied; that ‘quantum theory has taken the simplistic mechanistic conceptions provided by early science, and on the firm basis of experiment, shown them all to be impossible’.⁵⁴ ‘During the last three centuries, the artistic and religious dimensions of light have been kept severely apart from its scientific study. I feel the time has come to welcome them back, and to craft a fuller image of light than any one discipline can offer’.⁵⁵

Imagination takes on new significance as a person moves from representation to co-creation. Awareness and imagination facilitate the move into a realm of possibility.

Awareness is the beginning. Moments of this type of awareness are the subject of my thesis. The mechanistic and dynamically separate worldview that began the acceleration of progress has held strong, and has been very hard on the planet and it's occupants. Given current environmental and technological challenges, the question of how many lifetimes would be required to destroy the planet is a valid consideration. While my thesis work is not a call to save the planet, expanded awareness would be a

⁴⁹Ibid., 37.

⁵⁰Ibid., 202.

⁵¹Ibid., 37.

⁵²Ibid., 253.

⁵³Ibid., 119.

⁵⁴Ibid., 28.

⁵⁵Ibid., 8.

useful means to that end. Awareness could also lend to an acceleration of the type of energy required to change the direction of harmful practices that affect the earth and all that it consists of.

When talking about the universe, there is a sense of convolution. The universe is time, distance, motion, matter, and awareness. No field of investigation is truly separate from the others, or from the person doing the investigation. Much more can and should be said about the nature of light, the findings of quantum physics, the integral motion of the universe and all that is in it. Much should be said about the corresponding universe that exists within each of us, and the manner in which we simultaneously contain the universe while the universe contains us. All of that should be noted, referenced, and quoted until a huge volume in which the metaphorical snake reaches its own tail appears on the shelf.

Everything can be said, and nothing can be said. Findings of quantum physics seem to mirror Buddhist perceptions of reality. Where we see everything, nothing exists, where we see nothing, everything exists. Simplicity and complexity are the simultaneous nature of the reality. To quote Danish physicist Neils Bohr, "the opposite of a simple truth is false, the opposite of a great truth is another great truth".⁵⁶

Piet Hut, Director of Astrophysics and interdisciplinary studies at the Institute For Advanced Study in Princeton, in conversation with the Dalai Lama, describes a consistent pattern in modifying principles, which moves from absolute to relative.⁵⁷ This can be viewed as an expansionist concept of investigation, in contrast to traditional scientific reductionism. He states that in learning, "Truth" is not found to be absolute when placed in a larger context; there can be another (unforeseen) side to it. "In physics, we have even called such developments relativity

⁵⁶Ibid., 328.

⁵⁷Ibid., 204.

theory, as in Einstein's relativity theory. But calling a theory a relativity theory is a negative way of saying it. A more positive way would be to call it a transformation theory".⁵⁸ As Bohr writes, "When it comes to atoms, language can only be used as poetry, the poet, too, is not nearly so concerned with describing facts as with creating images".⁵⁹ In an expansionist framework, science broadens to consider topics such as language, art, imagination, compassion, and the whole person, as integral elements to the structure and development of reality.

Such expansion would refer to not only linear expansion, as in an image of the widening acceleration of progress, but also to an encompassing circular expansion or larger relativity, one which would retroactively encompass that "a spiritual cosmos provided the protecting chambers in which the birth of natural science took place".⁶⁰ In a model of expansion, science would not fully replace cultural or spiritual cosmology as obsolete, but expand to include elements of both. Elements left in the dust of deductive mechanistic industry begin to reappear in a cosmology of interactive and interdependent reality. On similar note, five leading physicists and a historian, in conference with the Dalai Lama, actually confer about "compassion" as a means of overcoming the delusion of separation-inducing consciousness, in order to move toward a participatory world view, and in respect to the subtleties of quantum entanglement and observation .⁶¹

In Dr. Masara Emoto's fascinating book *The Hidden Messages in Water*, the first chapter is titled "Of What Is the Universe Made?"⁶² Among many intriguing and cutting edge postulations, Dr. Emoto offers to interpret the C in Einstein's theory of relativity as

⁵⁸Ibid., 204.

⁵⁹Ibid., 28.

⁶⁰Ibid., 20.

⁶¹Ibid., 195.

⁶²Ibid., 1.

“consciousness” rather than light, with great implications for the rate and possibility of human progress.⁶³

CONCLUSION

Accelerated change is the keynote of our time. Investigations into the nature of reality have found that the foundation we have built on doesn't exist at the quantum level.⁶⁴ The expected solidity and base of everything has turned out to be, instead, constant intelligent motion. Not only is the motion unexplainable in its characteristics and communication, it is altered by the viewer or data taker.⁶⁵ The eyes or energy looking at reality alter that reality.

Facilitation of green awareness, like a tender shoot in springtime, in the midst of such overwhelming complexity is a challenge. Mountainous problems face the individual, the whole of humanity, and the planet. That all of those consist of the very fabric of the universe extends implication further to the universe. For the individual, a couple of approaches come to mind.

The first is the concept of vulnerability, from *The Art of Practicing* by Madeline Hauser. She explains that while students worry that vulnerability means being open to attack and criticism, “Vulnerability is the essence of being human and being alive.”⁶⁶ and that vulnerability literally means “able to be wounded”. She goes on to explain that a person’s respect for their own vulnerability allows them to grow, avoid destructive influences, and speak up. Further, she

⁶³Professor Huang Van Duc, As relayed by Emoto, Masaru. Ibid.,145.

⁶⁴Ibid., 49.

⁶⁵Ibid., 121.

⁶⁶Madeline Bruser, *The Art Of Practicing: A Guide To Making Music From The Heart*, (New York: Bell Tower. 1997) 9.

relays an account of this sense of vulnerability being absent or present in inanimate objects, and how its presence greatly affected the impact of artwork and music.

The second concept, offered in dialogue by the Dalai Lama,⁶⁷ is the Buddhist concept of the qualified student, one who is suitable for learning, engaging, and receiving. The characteristics of having an open mind, lack of prejudice or bias, being perceptive and intelligent, and having a genuine aspiration or yearning, are the ones he points out.

Throughout all of life, whether by choice or not, humans can be considered to be students of reality and experience. A combination of the essence of being alive with characteristics of the qualified student seems a fitting glove for the hand of awareness. How that hand will affect the acceleration of human direction remains to be seen.

The subjects of my thesis artwork, currents of time and universe, and awareness, describe my moments of investigation, and further consideration of how we as humans perceive and connect to the universe. We largely and even necessarily live in a framework of disconnection to the universe, even though we ourselves could be described as particles of that very universe. Examination of those connections, and even subtle awarenesses, can lead to potential and reconsideration, which naturally relate to both the findings of physics and to the acceleration of change. This work is my journey, my experience. In a larger arena or relativity, I am a human, both a resident and a particle of the universe. Whether accurate or inaccurate in my perspective and investigation; limited or potentialized in my current viewpoint, these are universal concepts, and mine is a universal voice.

⁶⁷Ibid., 216.



Figure 7. *Untitled*, Aluminum Plate Etching, 15" x 22", 1999.

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