



# Artists and the mind in the 21st century

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In 2008, Lesley University Professors Geoffrey Koetsch and Ellen Schön conducted an informal survey of New England artists to ascertain the degree to which recent work in neuroscience had impacted the visual arts. The two curators mounted an exhibition (*MINDmatters* May-June, 2008) at the Laconia Gallery in Boston in which they showcased the work of artists who had chosen mental processes as their primary subject. These artists were reacting to the new vision of the mind revealed by science; their inquiry was subjective, sensory, and existential, not empirical. They approached consciousness from several vantage points. Some of the artists had had personal experience with pathologies of the brain such as dementia or cancer and were puzzling out the phenomenon consuming the mind of a loved one. They looked to neuroscience for clarity and understanding. Some artists were personally involved with new techniques of cognitive psychotherapy. Others were inspired by the sheer physical beauty of the brain as revealed by new imaging technologies. Two of the artists explored the links between meditation, mindfulness practice and neuroscience. Issues such as the “boundary” and “binding” problems were approached, as well as the challenge of creating visual metaphors for neural processes. One artist visualized the increasing transparency of the body as researchers introduce more and more invasive technologies.

**Keywords:** art, brain, mind, neuroscience, interdisciplinary

This study draws on the work of eight New England artists to show significant change in the way contemporary artists visualize the mind and to demonstrate that the change is due to the intellectual atmosphere created by the cognitive science revolution of recent decades. The artists are not working from a scientific agenda. Artists work intuitively with metaphor and react on an intuitive level to internal and external existential phenomena. But the influence of science is pervasive in contemporary life. What the study shows is that a new vision of the mind is replacing the ones that dominated the art of the 20th century.

In the first half of the century, classical psychoanalysis dominated the artist’s view of the mind. The links between the founder of Surrealism, Andre Breton, and the theories of Freud are well documented (Nadeau, 1967). In the latter half of the 20th century artists focused attention to such things as transpersonal experience, chemically induced visions, and the mind/body/spirit connection (Grey, 1998). These tendencies persist today, but now they are blended with imagery inspired by recent neuroscience.

In this article I use the term “cognitive science” to signify the interdisciplinary field that attempts to integrate a broad range of mind-centered research that includes neuroscience, evolutionary biology, cognitive psychology, computation theory, and medical technology. The artists in our study approached the mind from a variety of perspectives. Constance Jacobson<sup>1</sup> finds interest in brain structure; Audrey Goldstein’s<sup>2</sup> focus is on patterns of activity. Heidi Whitman<sup>3</sup> creates “alternative” brain maps that visualize

the *contents* of mental activity, simultaneously with its *location* in space. Both Ellen Schön<sup>4</sup> and Constance Jacobson address issues of brain pathologies. Geoffrey Koetsch<sup>5</sup> illustrates the new “porosity” of the body as the brain’s protective shell is penetrated by increasingly sophisticated research instruments. Denise Dumas<sup>6</sup> confronts the mystery of how the brain maintains the concept of a self isolated in space, the so-called “binding” and “boundary” problems.

## STRUCTURE

Several of the artists in our survey focus on neural structure, the brain as an organic electrochemical system. In their writing and public statements they frequently use terms such as “neural networks,” “nodes,” and “brain slices.”

Constance Jacobson has a long-term interest in microbiology as a source of imagery. She translates structures revealed by micro photography into poetic, personal statements. In her *Tome Series* (Figure 1) axial slices of the brain inspire watercolors that evoke the brain’s network of neurons that connect at trillions of points to form what scientists refer to as the “neuron forest.” According to Jacobson, the drawings are not concerned with strict biological verisimilitude, but do reference cellular morphologies and communities.

The branching structure is one of the fundamental structural forms in nature, common to trees, neurons, and lightning. Sculptor Geoffrey Koetsch studied the branching structure of mangrove

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<sup>2</sup>www.audreygoldstein.com

<sup>3</sup>www.heidiwhitman.com

<sup>4</sup>www.ellenschon.com

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<sup>6</sup>www.dumasstudio.com



FIGURE 1 | Tome Series.

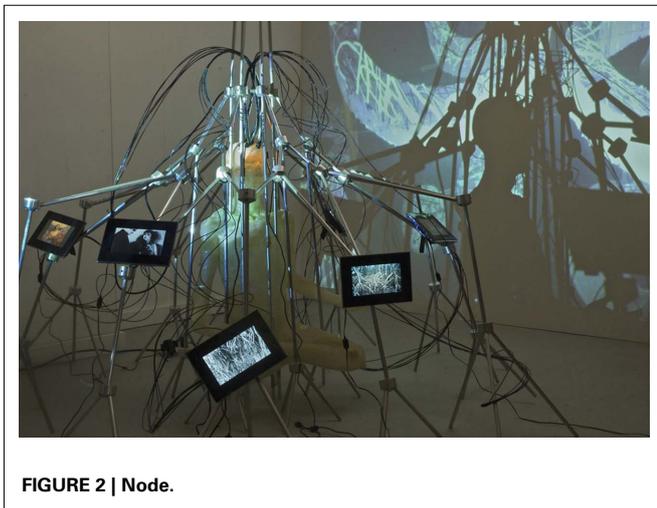


FIGURE 2 | Node.

trees during canoe trips through the swamps of Sanibel Island. In a series of analytical drawings, he systematized the mangrove root system, then built an aluminum model and integrated it with a human figure to create *Node* (Figures 2 and 3), a work that symbolically links the macro- and micro-biological worlds, root systems, lightning, and brain cells.



FIGURE 3 | Node, detail.

Interdisciplinary artist Audrey Goldstein directs attention to *patterns of brain activity* rather than to the physical structure of the brain. To use the familiar computer analogy, the physical structure of the brain is comparable to hardware and mental patterns of activity (such as language) to software. The physical brain is *architecture* but computation, the manipulation of data, is *brain work* as specialized networks of neurons are dedicated to specific tasks.

Goldstein's piece entitled *Point to Point* (Figure 4) uses sculpture and video to visualize mental patterns derived from social activity. As people move through the world meeting friends and engaging in events, they create unique patterns of activity. These patterns are written in the neural network. Starting with a series of drawings Goldstein charted her social network: people were points and the relationships between them were connecting lines. Goldstein then derived a three-dimensional model from these drawings that served as a spatial metaphor for the encoded neuronal activity patterns etched in the brain. Next she attached this "brain activity model" to a backpack and carried it through her daily rounds, the portable brain guiding her movements. If the metaphor were to be extended, any new activities she undertook would have to be added to the model. Her "walks" were videotaped to add the time element to the project and provide the link between thought and action.

Mary Kaye's sculpture *The Spirit Builds the Body for Itself (to Goethe)* (Figure 5) is an abstract model of another kind of mental pattern: the process of logical thinking. It is a visual "thought" about the creation of the universe, a dualistic vision in which a transparent cone penetrates a wire web. Kaye borrows from the language of Constructivism to make a three-dimensional linear diagram of the thinking process, holding in tension both circular and dualistic thought patterns. The sphere of wires could be taken as a symbolic either of the birth of the physical universe or of circular mental conundrums such as the philosophical debate over the precedence of essence or existence (as indicated in the title of the piece, Kaye sides with Goethe and comes down on the side of spirit).

Kaye was a student of philosophy at Harvard, consequently her work reflects a foundation of deep skepticism. She doubts



FIGURE 4 | Point to Point.



FIGURE 5 | The Spirit Builds the Body for Itself.

the mind's capacity to know anything of reality, especially when sensory input has been encoded in language. Kaye refers often to the division of functions between the left brain (language, logic) and the right brain (emotion, space perception) and emphatically shows right brain bias. She believes that any verbal assertions we make about reality are suspect in that they tell us only about our own habits of mind and nothing about the nature of reality itself, which remains a mystery. "This is why I'm a visual artist," says Kaye. "It seems a much more efficient way of thinking than all these words."

Buckminster Fuller once said, "Everything you've learned as 'obvious' becomes less and less obvious as you begin to study the universe. For example, there are no solids in the universe. There's not even the suggestion of a solid. There are no absolute continuums. There are no surfaces. There are no straight lines." (Quoted in Pinker, 1997, p. 332). Mary Kaye's skepticism extends even to the reality of what she has created. According to Kaye, "Pinning down the essential physical piece is impossible-changing light changes it dramatically and essentially, unless you believe that its foundation level reality is the metal. But if you do think that, WHY do you think it? Your answer will reveal your basic assumptions about what is and what isn't real. . . is the essential sculptural material emptiness, which the metal allows us to see, or light, which is

neither physical nor not physical according to particle physicists, or is it the metal? The god Hephaestus would vote for the metal but remember he was a clunky god. . ."

To put Kaye's remarks into a broader context, I offer two views from the sciences. Cognitive psychologist George Miller wrote, "The crowning intellectual achievement of the brain is the real world. . . All fundamental aspects of the real world of our experience are adaptive interpretations of the really real world of physics." (Quoted in Pinker, 1997, p. 332). And what of the spirit? For many scientists, spirit (or soul) is just a particular sort of brain activity. Steven Pinker summed it up: "The supposedly immaterial soul, we now know, can be bisected with a knife, altered by chemicals, started or stopped by electricity, and extinguished by a sharp blow or by insufficient oxygen." (Pinker, 1997).

## BRAIN MAPPING

A number of contemporary artists have taken an interest in brain mapping, the neuro-imaging technology that enables scientists to pinpoint areas of the brain that process specific functions. In Ellen Schön's *Helmet Series* (Figure 6), for example, two of the works (*Crater, Porosity*) pinpoint with color the exact location of her husband's brain tumor. For Schön, this mapping is a source of anxiety.

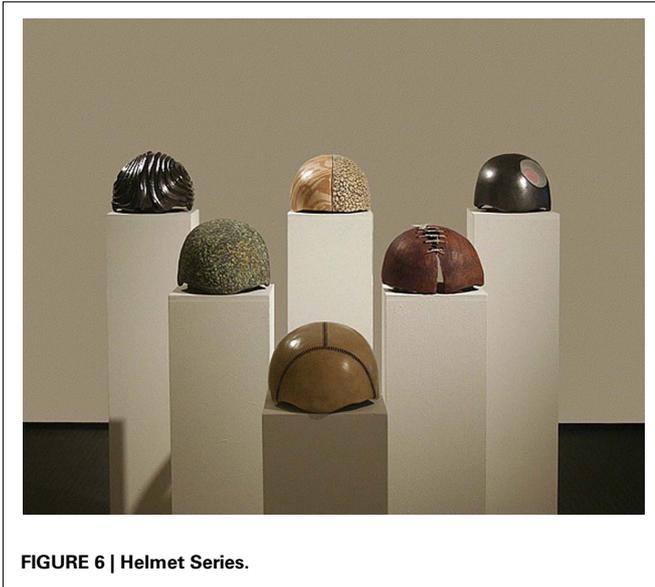


FIGURE 6 | Helmet Series.

She writes: “Brain surgeons can now pinpoint their surgery – what to cut, what to leave intact. In the physical tangle of neurons and synapses, where does the soul, the essence of individual personality, reside?” Constance Jacobson, in the *Tome Series*, puts dark patches on her brain slices to locate the protein plaques and tangles of dead cells that starve and kill the neurons in the brain of an Alzheimer’s patient.

The painter Heidi Whitman has made a signature style of brain mapping. The drawings and paintings in her *Brain Terrain* series (Figure 7) comprise, in the artist’s words, “alternative brain maps that chart mental activity in metaphoric, specific, and sometimes narrative ways.” She refers to her paintings as “wrong maps” since they are not derived from neuro-imaging technology but are an entirely invented terrain. Whitman’s work give us a more comprehensive view of the mind than is possible with brain scans because the artworks visualize the *contents* of the mind as well as their location in the brain.

In Whitman’s paintings we see the simultaneity of the mind’s work. One day when she was at work in the studio she was bombarded by radio news about the Iraq war, military tanks appeared in her painting and nestled in beside raindrops, trees, dollar bills, continents, and galaxies. She shows us how experience is translated into thought and how memories are layered. “Cartography and abstraction are two languages used in my work. World events, anatomy, architecture, and nature play parts in these metaphors.” The brain is passive in these works: there is no hierarchy, no spotlight of attention, no red flags. Mental elements float through, hovering over an abyss of mental space that is alive with arching waves of energy.

## NEURAL BUDDHISTS

In a New York Times op-ed piece titled “Neural Buddhists” David Brooks commented on how a scientific revolution can change public culture (Brooks, 2008). He said that just as the work of Darwin and Einstein transformed culture, “so the revolution in neuroscience is having an effect on how people see the world.” He noted a change in science away from hard-core materialism and

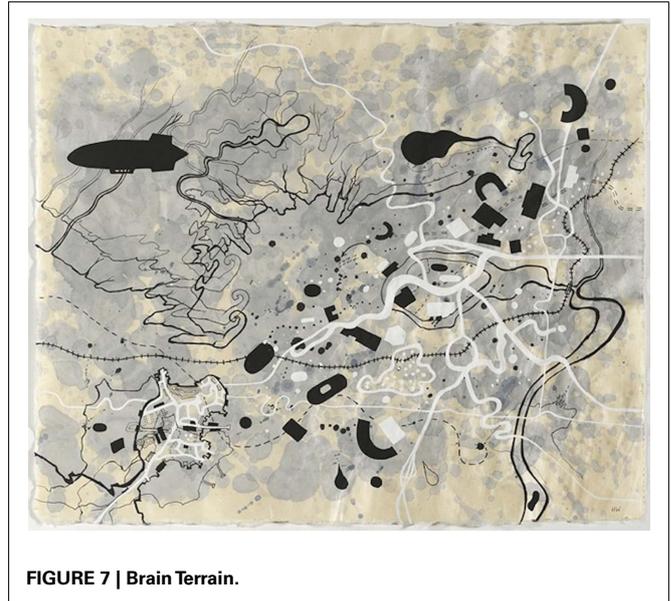


FIGURE 7 | Brain Terrain.

the view of the brain as a cold machine. “Instead, meaning, belief, and consciousness seem to emerge mysteriously from idiosyncratic networks of neural firings.”

Empirical science seems to be strengthening arguments for the existence of human universals. People all over the world have similar deep instincts for fairness, empathy, and attachment. Some evolutionary biologists see emotions as genetic imperatives and claim that emotions and beliefs are indispensable to functional utility. Brooks sees new respect from scientists for elevated spiritual states and says, “This new wave of research will. . . lead into what you might call neural Buddhism.” He foresees a new challenge to many organized religions and concludes, “the real challenge is going to come from people who feel the existence of the sacred, but who think that particular religions are just cultural artifacts built on top of universal traits. It’s going to come from scientists whose beliefs overlap a bit with Buddhism. In unexpected ways science and mysticism are joining hands and reinforcing each other.” Brooks cites studies by Andrew Newberg of the University of Pennsylvania that show that transcendent experience can be identified and measured in the brain as a decrease in activity in the parietal lobe, which orients us in space. (Brooks, 2008).

Theravada Buddhism mixes well with modern neuroscience. This branch of Buddhism is empirical and does not engage in metaphysical speculation; there is no external power, no God in judgment. The historical Buddha was anti-authoritarian in matters of belief and taught spiritual self-reliance; he said we are not sinful by nature but ignorant; we should seek knowledge, not faith; there are universal moral laws but we must see them for ourselves; being is an aggregate of sensations and perceptions rising from matter to produce “mental formations” such as the self and the ego. For Buddhists everything is energy in motion and change is the only constant; nothing remains the same for two consecutive moments. “Every moment you are born, decay, and die,” the Buddha said. Mind is not opposed to matter, it is an organ like the eye or the ear that can be controlled and developed; there is no soul, no ghost in the machine. (Rahula, 1974).

For some artists interest in the mind begins with Buddhism. Audrey Goldstein practices Tibetan Buddhism. Sculptor Geoffrey Koetsch practices Yoga and Zen. In the late '1980s Koetsch introduced the postures of Yoga into his work. They became a leitmotif, an archetype of mental and physical discipline, the union of body and mind. Meditation is a technique for the empirical observation of the mind.

In his reading of the literature of neuroscience Koetsch found concordance with Buddhist literature and his own direct experience: the mind is the activity of the brain, not a fixed entity but a dynamic process of relationships. The mind constructs and adaptive pattern called "self" or "ego" that is oriented in physical space that must be put aside or suspended in order to reach deeper insights.

Koetsch's work entitled *Node* explores consciousness without eliminating the gross physical body. He takes the holistic position that the brain must be approached in connection with the body, the body is the brain's interface with the environment that supplies its contents. Cognitive scientist Steven Pinker writes: "...of course the world does have surfaces and chairs and bodies, knots and patterns and vortices of matter and energy that obey their own laws and ripple through the sector of space-time in which we spend our days." (Pinker, 1997). Koetsch represents the body as the node at the intersection of the macro- and micro-biological worlds, space and time. The figure in *Node*, a transparent hollow shell, is a two-fold symbol pointing both to the Zen void, "emptiness" and to the increasing porosity of the body whose boundaries have been exposed by science as illusory and invaded by medical technology with prosthetic devices, scanners, fiber-optic cameras, and EEGs.

A "mental environment" envelops the static sculptural components of *Node*. Digital displays on the floor and projections on the walls provide an element of time, suggest electrical energy, and simulate a barrage of neural impulses coming from multiple sources. Continuously changing images on the monitors show various categories of neural input: sensory stimuli, unconscious impulses, and memories. For example erotic desire is represented by clips from the film *Un Chien Andalou* by the Surrealists Luis Bunuel and Salvador Dali, and sensory stimuli by images of 17th century allegorical paintings of the five senses. Projected on the wall are films of lightning and a stroboscopically illuminated abstract model created by collaborator Rob Saulnier which suggests neural pathways, junctions, and foci of attention.

## IDENTITY

The central mystery of the mind is how consciousness arises from matter. The philosopher Colin McGinn, in his book *The Mysterious Flame* imagines a conversation between two extra-terrestrials, one of whom has just returned from a mission to earth and is trying to explain humans to a colleague:

"They're meat all the way through." "No brain?" "Oh, there is a brain all right. It's just that the brain is made out of meat." "So... what does the thinking?" "You're not understanding, are you. The brain does the thinking." "Thinking meat? You're asking me to believe in thinking meat?" "Yes. Thinking meat! Conscious meat! Loving meat, dreaming meat. The meat is the whole deal! Are you getting the picture? (McGinn, 1999).

In her sculpture *Three is Company* (Figures 8 and 9), Denise Dumas gives us both meat and thought. In a profound exploration of consciousness, Dumas puts three bio-morphic sculptural elements (labeled "Me" "You" and "It") in a "house" resembling a laboratory apparatus. Two-way mirrors superimpose and double expose the elements to suggest a mental activity: the meat constructs an ego (me) and an "other" (you, it), which, by means of the two-way mirrors simultaneously see each other and see themselves reflected in the other. *Three is Company* shows how mind, arising from matter, constructs self, a fragile product that, in Dumas' words, "changes depending on where or with who we are."

According to Dumas, the work shows how identity is not fixed but supple, capable of redefinition and reinvention, especially in the face of radical displacement of environment, language, and culture. In neuroscience this is called the "boundary problem," the daily challenge we face to maintain a stable and coherent sense of identity. Referring to the malleability of self, Stephen Pinker states "Minds are probably easier to revamp than bodies because software is easier to modify than hardware." (Pinker, 1997).

Dumas' work is not a *celebration* of identity, neither cultural, national, nor gender. The three pieces of meat labeled "me," "you,"



FIGURE 8 | *Three is Company*.



FIGURE 9 | Three is Company.

and “it” are nearly identical specimens of biological standard equipment. The identity that arises from this equipment is comprised of a unique collection of memories and desires conditioned by embryological and biographical history. The self is not a fixed entity but a dynamic process of relationships.

## PATHOLOGIES

For two of the artists in this survey interest in the brain was stimulated by contact with disease. In 2006, Ellen Schön’s husband was diagnosed as having brain cancer, a mixed glioma, in his frontal lobe. Her contact with neuroscience was through the various diagnostic techniques and surgical procedures employed by her husband’s team of neurosurgeon, neurologist, and oncologist. Schön’s frank, complex, and deeply personal ceramic series titled *Skullcap/Helmet* spans autobiography, brain science, spirituality, and esthetics. As autobiography it is the personal history of her experience with her husband’s cancer: the painful symptoms, the anxiety of diagnosis, surgery, and post-operative stress, all accompanied by a deep spiritual search and emotional upheaval. The work “helmet” in the title refers to her husband’s business a bicycle manufacturer’s representative. Schön’s experience with brain imaging technology is reflected in her knowledge of brain anatomy and her concern with the precise location of the tumor.

The skull is the brain’s helmet, protecting it from outside impact. But it is useless against inside attack and becomes a barrier



FIGURE 10 | The Storm Within Us.

to healers. The two helmets subtitled *Crossing the Corpus Callosum* and *Zipped Up* represent the violence of opening the skull (the vessel of the soul) and its restoration to wholeness. The spiritual dimension of the piece is underscored by the helmet called *Labyrinth*, and by numerous references made by the artist to the use of the skullcap as a liturgical object in Vajrayana Buddhism. The most benign ritual use of the skullcap is as a begging bowl or food bowl, a monk’s constant reminder of death and impermanence.

As was mentioned in the beginning of this essay, Constance Jacobson began work on her *Tome Series* in response to a family history of Alzheimer’s disease. In Jacobson’s drawings the scattered patches of dark matter in her brain slices represent the abnormal clusters of sticky protein that build up between the nerve cells in the brain of an Alzheimer’s patient, blocking the supply of nutrients to the brain cells, which eventually die. The cortex shrivels up, resulting in progressive loss of memory and sense of identity (Alzheimer’s Association, 2008). Since there is a genetic basis for Alzheimer’s this is a cause of anxiety for Jacobson: the fear of loss of self as memories fade. In her *Grey matter Series* she explores “fading memories, thoughts reappearing and trying to connect to others.” She overlays lotus leaves on the brain imagery, imposing visual simplicity, metaphorically healing the unruly, and complicated mind.

## KALEIDOSCOPE

Filmmaker Karl Nussbaum<sup>7</sup> views the mind from an omniscient point of view. In his film titled “The Storm Within Us” a third eye hovers restlessly over the mindscape, simultaneously looking at it from within and without (Figure 10). We are shown a mind practicing non-attachment, the technique in meditation of stilling the mind, assuming a third-person perspective, and watching thoughts and perceptions pass through uncensored, observing all of them but not attaching to any. This practice is the opposite of what the mind usually does, which is to zero in on whichever off the thousands of memories, thoughts, and perceptions clamors loudest and then select an appropriate response.

<sup>7</sup>[www.karlnussbaum.com](http://www.karlnussbaum.com)

Nussbaum works out of neuro-linguistic programming (NLP), an offshoot of cognitive psychology. It is a therapy not for curing mental disorders, but for enhancing human potential. An alternative to Freudian analysis, its focus is on recognizing patterns of communication, behavior, and relationships, analyzing the pattern of one's own behavior, and then learning to remodel it in order to better attain desired outcomes (Grinder and Bandler, 1983). *Reframing*, the title of one of Nussbaum's films, is an allusion to a specific therapeutic technique used in NLP in which an element of communication (video in this case) is presented so as to transform an individual's framing (perception of the meaning) of events, statements, or images. NLP counselor Joseph O'Connor explains that by changing the way an event is perceived, responses and behaviors will also change, "reframing with language allows you to see the world in a different way and this changes the meaning." (O'Connor, 2001).

In an artist's statement, Nussbaum talks about reframing in respect to his work. Reframing, he says, "means seeing actions and people from different viewpoints, in one continuous movement without editing." This video cycle explores ideas about transformation, hypnosis, water (as related to both religion and art forms), the brain, the unconscious, the rational vs. the emotional mind, neural pathways, evolutionary biology, and lunar and water cycles (as metaphors for reincarnation and emotional evolution).

Nussbaum imbues his work with a therapeutic effect. He writes of his desire to cast a spell on an audience, "to mesmerize them, speaking directly to their unconscious. . . In the end, [my goal is] to make connections between images, feelings, and ideas and ultimately between people."

## HISTORICAL NOTES

Looking back on the 20th century, one could argue that the Expressionists were concerned with the behavioral manifestations of consciousness, the surrealists with making visible its contents, and the artists of the 1970s and 1980s with enhancing the power of mind (via psychotropic visions, paranormal experience, and spiritual disciplines). In this study I found lingering traces of this latter category layered in with the symbols of the new mind science.

## THE SURREALISTS

In the Surrealist Manifesto, Andre Breton recounts that he was deeply absorbed in the work of Freud and that he had practiced Freudian psychotherapy on soldiers during World War I. (Breton, 1972). The goal of Surrealism, he said, was to create a revolution in the minds of men in which dreams and reality would fuse in a kind of absolute reality, *surreality*. Although he was often ambivalent about the world view of science and critical of the psychiatric profession as a whole, he was a quasi-empiricist. He collected accounts of dreams and conducted experiments in automatism at his *Bureau of Surrealist Research*, which was, Maurice Nadeau tells us, open to all who had something to say, to confess, or to create. They collected the material and dutifully published it in *La Revolution Surrealiste*, the movement's organ. (Nadeau, 1967). Breton studied the behavior of a psychotic woman and published his observations in the book *Nadja*. (Breton, 1960).

The Surrealists subscribed to Freud's "pneumatic" model of the mind: psychic pressure builds up in the unconscious and bursts

forth onto the surface or is diverted to other channels such as the dream where it emerges in symbolic disguise to be unmasked by the therapist or disgorged by the artist. Salvador Dali proclaimed his paranoiac-critical method, the ability to be simultaneously (or alternatively) in the dream state, psychotic state, or state of normal consciousness. (Dali, 1942, 2004). Throughout the 20th century it was accepted wisdom that the artist has a special gift for moving between the conscious and unconscious mind.

## VISIONARIES

In the '1960s and '1970s interest in the mind focused on visions and mystical experiences often generated by drugs. Advocates such as Aldous Huxley extolled the virtues of mescaline and other mind altering substances, claiming that they would open the minds of ordinary people to transcendent powers that previously were the exclusive domain of the arhat, the mystic, and. . . the artist! "What the rest of us see only under the influence of mescaline," wrote Huxley, "the artist is congenitally equipped to see all the time. His perception is not limited to what is biologically or socially useful." Huxley prophesied in 1954 that mescaline would "transform most visualizers into visionaries." (Huxley, 1954).

The painters Alex and Allyson Grey exemplify the visionary tendency of the late 20th century, as the following passage from *The Mission of Art* bears out:

"In 1976 my wife, Allyson and I had an experience that changed our lives and our art. We sacramentally ingested a large dose of LSD and lay down. Eventually a heightened state of consciousness emerged in which I was no longer aware of the physical reality of my body in any conventional sense. I felt and saw my interconnectedness with all beings and things in a vast and brilliant Universal Mind Lattice. Every being and thing in the universe was a toroidal fountain and drain of self-illuminating love energy, a cellular node or jewel in a network that linked omni-directionally without end. All duality of self and other was overcome in this infinite dimension of spiritual light. . . this was the state beyond birth and death, beyond time, our true nature, which seemed more real than any physical body. . . This experience of the infinite net of spirit transformed our lives and gave us a subject that became the focus of our art and our mission." (Grey, 1998).

Although the work of the artists in this study shows a marked departure from the historical precedents just cited, some links to the past should be noted.

Gestural methods and chance play a role in the work of the painters Whitman and Jacobson, albeit under firm control. In her *Tome Series*, Jacobson works watercolor wet in wet and explains that the flow of the paint is analogous to the way ideas are in a fluid state before they settle into patterns and networks. In Whitman's mind maps, the highly controlled drips and dabs scattered here and there are conscious referents to the gestural drips of the action painters of the 1950s that are lodged in the artist's memory.

Dream content, the bedrock of Surrealist art, appears in the work of Whitman and Nussbaum, where it shares space with other mind stuff but is not given center stage. The main difference here is that the dreams are neither interpreted nor presented to advance the Freudian agenda of repressed desire. Whitman states

laconically, “Dreams jumble reality.” Nussbaum’s approach is similar to Whitman’s: the omniscient “I” notes the existence of the dream, the dream passes through and dissolves, it’s just one more layer of activity in the seemingly infinite mind.

In an odd reversal of historical precedent, Mary Kaye has taken the formal vocabulary of Constructivism and given it a twist. Her work with industrial materials is neither a metaphor for the building of a socialist worker’s state nor a symbol of solidarity with the proletariat, but instead stands for individualist intellectual work, the modeling of mind deliberating on existential questions.

Geoffrey Koetsch’s work is the most invested in the past. He has re-introduced the Western figurative tradition into his art. His studies of mangrove root systems go back to the mid-century art and science movement that looked for structural “type forms” underlying nature, art, engineering, and science. His psychology has ties to Jung: universal archetypes and archaic remnants. In Koetsch’s mind, Jungian psychology still has legs in the 21st century as science uncovers more evidence of innate human universals.

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## CONCLUSION

The conclusion to this essay was suggested by one of the reviewers of the manuscript (unidentified as of this writing). He wrote: “. . .the actual influence of current neuroscience (in the work of the artists covered in this article) is fairly limited. It appears to be more of a spark or trigger to art rather than a guiding principle as was the case for psychoanalysis and Andre Breton.” Breton was a student of psychoanalysis and actually used the investigative tools of the discipline to produce what he considered “data” rather than art. The other Surrealists followed suit, employing such tools as free association and dream analysis. These tools were simple and accessible: talking, writing, drawing. This suggests that in order for neuroscience to serve as a guiding principle for an artist today, he or she would have to incorporate its research methods and technology into the creative process in order to *reveal* new dimensions of the mind as opposed to *reacting* to the revelations of scientists.

**Conflict of Interest Statement:** The author declares that the research was conducted in the absence of any