

LAFAYETTE  
COLLEGE

Lafayette College, Easton, Pennsylvania

2018



THE OCTOPUS MEDITATIONS

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Published in conjunction with the exhibition  
Ed Kerns, *The Octopus Meditations*

Brick + Mortar  
Design Studio + Art Gallery  
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Biology Department's Permanent Collection of Paintings  
by Ed Kerns examining understandings of art, science,  
and consciousness. Home of the Collection is  
the Rockwell Integrated Sciences Center at Lafayette College.

Front Cover:  
x inches 7.4 ± 0.2 [SYST] or 7.4 ± 0.3 KPC [≈ ± 1 KYL]  
48 x 30 inches

Artwork copyright © 2018 by Ed Kerns  
All works are mixed media on canvas paintings

Essays copyright © 2018 by Daniel Hill, Elaine Reynolds, Taney Rongier

## LAFAYETTE COLLEGE

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Photography by Chuck Zovko

# ED KERNS

Ed Kerns is an American painter and educator. He studied with Grace Hartigan, the highly regarded American Abstract Expressionist. Through his friendship with Hartigan, Kerns came to know and work for many artists of the New York School, including Willem de Kooning, James Brooks, Philip Guston, Clyfford Still, and Sam Francis.

Kerns' career in New York had a meteoric trajectory. In 1972, his first exhibition at the Sachs Gallery on 57th Street in Manhattan garnered high critical praise. *The New York Times*, *The Village Voice*, *Arts Magazine*, *ArtForum*, and *Artnews* were among the numerous publications to praise his work. Kerns lived and exhibited in Manhattan for 12 years before coming to Lafayette College to chair and build the modern era Art Department. In 1987, Kerns was awarded the Eugene and Mildred Clapp Professorship of Art. He became the youngest person to hold an endowed chair in the College's history.



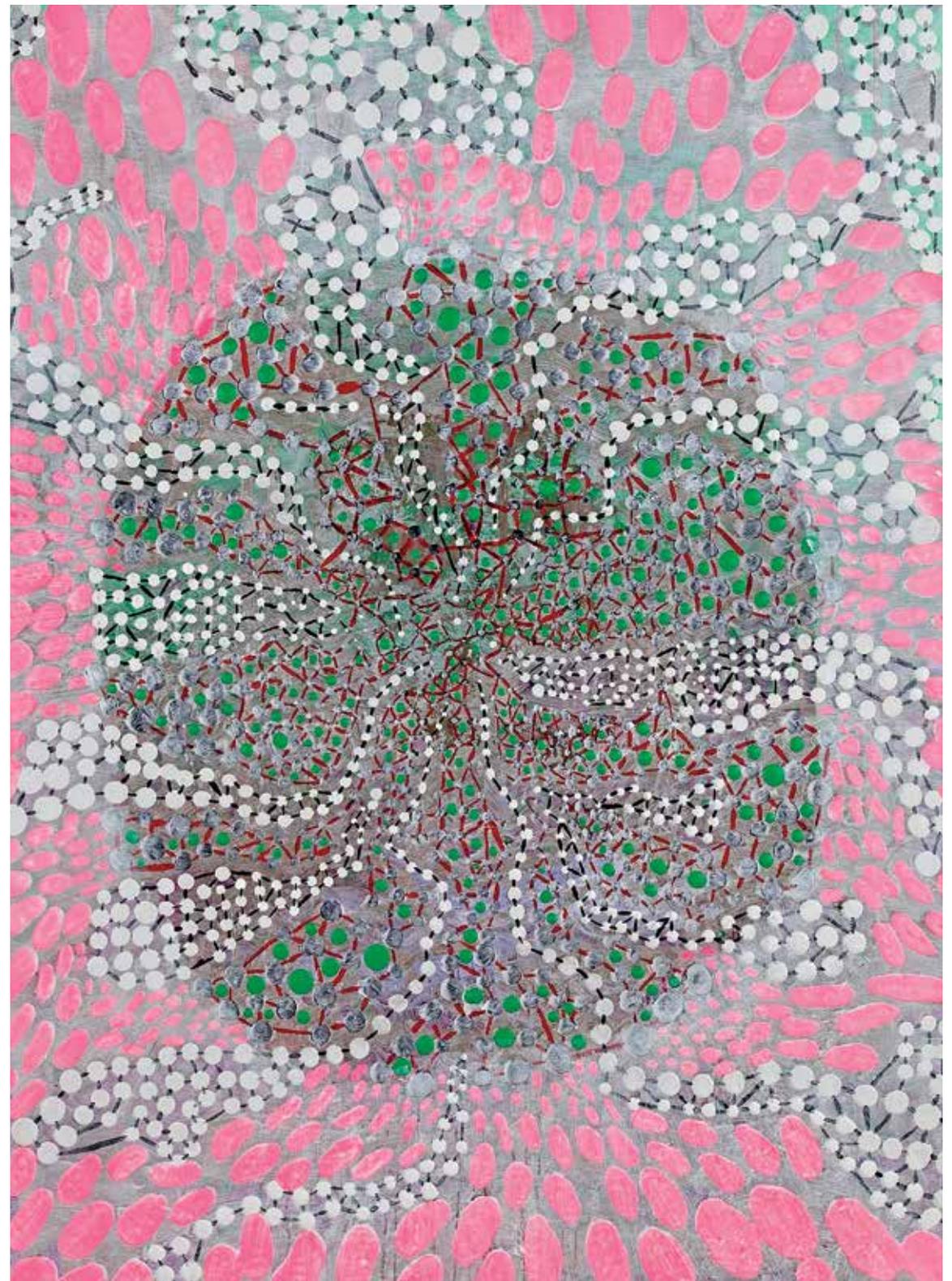
Kerns has enjoyed a long association with the New York galleries of A.M. Sachs, Rosa Esman, Florence Lynch, and Howard Scott. His career has spanned a prolific 45 years. Kerns' work has been shown in over 38 solo exhibitions and 130 group shows in New York, Paris, San Francisco, Washington D.C., Chicago, Denver, Rome, Madrid, Osaka, Munich, and Mexico City.

In addition to painting and production of digital art, Kerns routinely collaborates with neuroscientists, biologists, computer scientists, and engineers. He is part of a growing group of artists and academics who embrace the emergent possibilities of *consilience* forming a broad partnership to explore the over-arching unity of knowledge.

The visual ideas found in *The Octopus Meditations* have been developed from conversations with biologists, neuroscientists, and other artists interested in the compelling revelations made possible by process-driven visual-modeling and direct observation, the root of both art and science. To ask questions about consciousness especially in the context of a magnificent creature with an integrated neural network of nine brains places imagination and creativity at the forefront of progress in scientific and artistic endeavor.



*Wilson and the Ants Changed My Mind*  
39.75 x 35.75 inches



*Kinship by Common Descent*  
40 x 30 inches



*Degree of Freedom in a Liquid Field;  
Not Overwhelmed*  
40 x 30 inches

## DISTRIBUTED PERCEPTIONS

### DANIEL HILL

It is apparent in the presence of the world's famous cave paintings that as a species we have long found it necessary to communicate visually. For millennia, even as the acuity of spoken and written lexicon increased, this necessity to communicate the ineffable through a visual language has endured. Perhaps this is not surprising as potentially half of all neural tissue in the human brain is devoted directly or indirectly to the function of vision. This inherent visual propensity is reflected in the pivotal role of observation in our quest to understand the world around us. Both art and science share this common root of careful observation. We have extended and increased our observational capacity through use of physical tools such as telescopes and microscopes, as well as cognitive tools such as mathematics and even the system of inquiry that is science itself.

These tools increase our overall capacity to understand and importantly, to provide unique perspectives. The physical capacity of the human brain has not changed in tens of thousands of years, but we have learned to employ modes of thought capable of revealing slightly more original viewpoints. Einstein famously visualized riding on a beam of light and dared change the then widely accepted metaphor of light being a wave, to that of light being a particle. This shift of perspective helped us understand light in a new and valuable way. Art and science also share this reliance on metaphor as a tool for understanding and communicating. This metaphoric vision allows the projection and interaction of the concrete and abstract, effectively rendering all of nature a potential metaphor of the human mind.

If perspective offers opportunities for knowledge, then a metaphor imbued with multiple perspectives might be worthy of consideration. Such a symbol exists in the form of the ingenious octopus, which split from our evolutionary tree millions of years ago. The octopus has independently developed a unique form of intelligence and perception with a distributed brain allowing each tentacle to function independently. The octopus employs physical tools, has a remarkable eye that appears to perceive color in a completely novel fashion, and has pigment proteins normally found in the eye within its skin, allowing each tentacle to in essence, see.

This distributed system is found in many species such as ants as well as humans. Humans have thrived in no small part

because of our ability to share cognitive tasks in efficient social structures of cooperation. Art can serve as a touchstone for distributing thought and perceptual processes, linking minds through powerful metaphors that transcend the state of objecthood into that of being an integrative experience. Consequently, art can be considered a particular quality of experience that conveys tacit knowledge through our collective visual language. It also allows for simulations that embrace the totality of human experience and become a sustained mnemonic trigger for the foundational motivations of all human inquiry: that of thought, discovery, curiosity, speculation, intuition, and imagination.

These paintings by Ed Kerns are thus a tool themselves; a visual model for a simulated intersubjective reality via metaphor; painting as vectors of inquiry; and a reconnaissance mission for the retrieval of unique data. In this way, his work becomes a biomimetic, heuristic system, going forth with science, and yet where science currently cannot fully venture. With someone of Kerns' ability, it looks effortless; but a most complex algorithm is playing out in these paintings, one that can only be acquired through many decades of visual and intellectual exploration.

In both art and science, the need for speculation and risk taking is essential in moving forward. And yet unbridled speculation is a waste of time. If art can be used as a tempered system of perception and if this subjective realm can be pioneered and communicated, a division once perceived as only black and white becomes graduated value differences. When the artist has undertaken a disciplined approach of thought, embodied in process, and the attitude of science informing decisions, we might begin to accept the notion of artist as data set. This data can then be processed and give rise to different qualities and types of knowledge. But the difference between data and knowledge; knowledge and intelligence; and intelligence and wisdom are relevant here, as Kerns' visual inquiry possesses each. Whereas we cannot begin to imagine what it is actually like to have the subjective experience of an octopus, the very act of trying can help reveal a correspondence between the patterns that connect patterns. The distributed perceptions of the octopus echo our own innate tendency to connect our minds and move toward the greater collective goal of understanding. The nets of perception are cast; modalities of inquiry engaged; the processing is now at hand.



*Why Do You Stay in Prison When the Door Is Wide Open*  
40 x 30 inches



*Standing Up, Sitting Down*  
*Unknown Parameters of Touch*  
40 x 30 inches



*Borders, Centers,  
Binaries and Breaks; Meta-clues*  
40 x 30 inches

## GRAPHS OF OUR EXISTENCE

ELAINE R. REYNOLDS

Consciousness arises from complex connections or networks. As you might expect, neuroscientific theories of consciousness emphasize the brain. Networks are formed by neurons (nodes in network speak) and axons that connect one neuron to the next (edges), with the whole system represented by a graph. Some evidence suggests that networks in the visual half of the cortex or networks from these areas reaching forward to the front of the brain hold our conscious perceptions. Other studies suggest that consciousness is a global brain phenomenon, where conscious perception changes the activity and connectivity of the whole network. In either case, consciousness is generated by functionally connected groups of neurons across the brain, linking sensation to perception, emotion, and memory. Neuroscientists aim to create graphs of our existence, nodes and edges that give meaning to the reds, greens, and blues of life.

Others feel that consciousness involves a network composed of the brain, body, and environment, with the nature of consciousness determined by the physicality of all three. In this case, consciousness is a web, a network of neurons embedded in the sensory sheath of the body embedded in a larger network of the world, engaged in a never-ending circle of call and response. While biological consciousness is a primary inspiration for this view, other conscious webs are possible including machines with sensory arrays, the internet, and networks of ants or microbes. Consciousness could exist in anything that has a complex network of communication, whether nodes in the graph are neurons or individual minds.

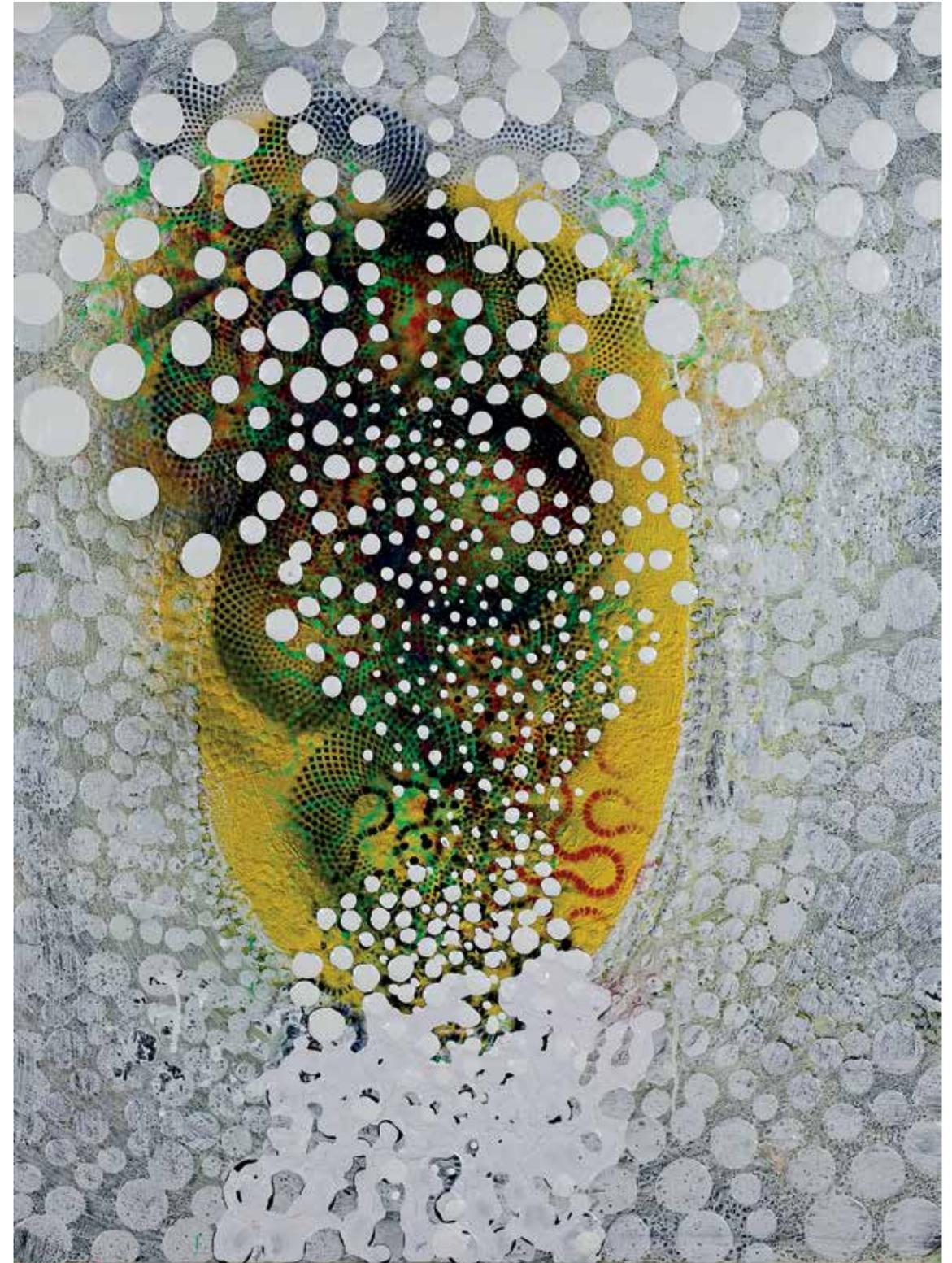
Octopuses argue for consciousness as an embodied network. Although evolved with different brains than ours, octopuses share neural structures that lead to complex intelligent behavior. The octopus has groups

of neurons, rather than a single brain, which receive input from a luxurious sensory sheet comprised of millions of neurons distributed in the octopus's body, responding to touch, taste, and perhaps even visual stimuli. The mini-brains control output locally or coordinately as a network, producing the delicate movement of limbs and the contortionist antics of the octopus body. Octopuses act as individuals, play, and adapt to new problems and challenges. Their perception of the world, however, is likely to be very different from ours given the distinctive organization of their nervous system. But the graphs may be the same, the underlying complexity of nodes and edges that give rise to conscious behavior.

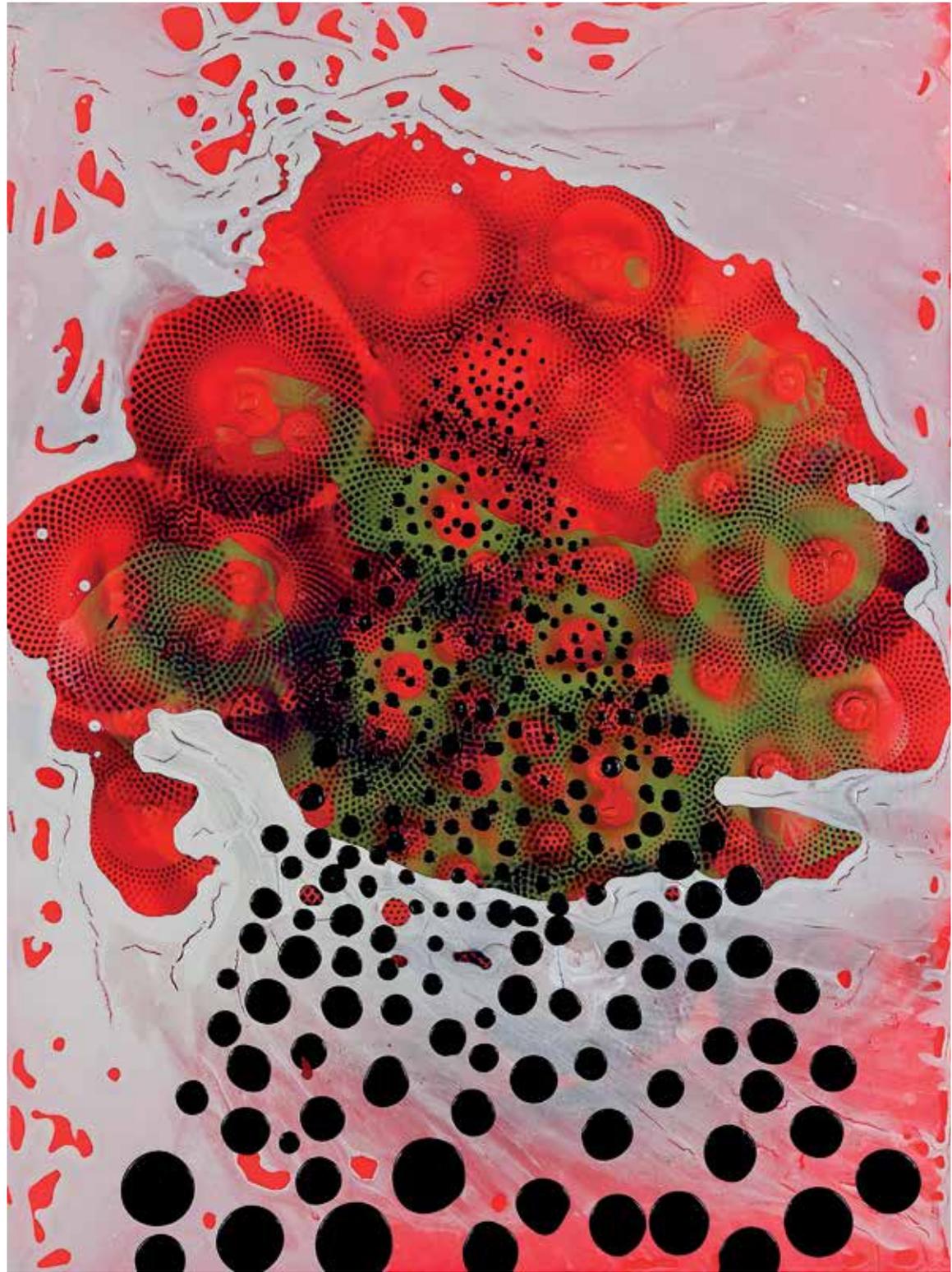
When individual minds share complex experiences are we generating another graph, a participatory network of consciousness among individual minds? In my mind, Kerns is consciously engaging the octopus mind. He perceives a rich tactile topography of movement and superposition, along with familiar visual patterns of symmetry, bubbles, and cells, representing the physical basis of all matter. The graphs defining this animal existence are present, as well as the DNA that underlies the design of biological form. In bringing these octopedal perceptions to life, Kerns too is working in embodied mode. Painting brings the flow of conscious and unconscious thought together through the medium, capturing the texture and motion of the octopus's world. The brain, the hand, the eye, the brush, the paint, and the canvas are the network engaged in this process. The viewer brings their networks as well: the unconscious visual processing that results in the perception of form, color, depth, and motion linked with emotion. The development of this collaboration happens slowly, with the viewer unfolding spatial and metaphoric aspects of the artist's view of an alien world in a visual space.



*Octopusland: Genes to Culture and Coconut Houses*  
40 x 30 inches



*Neutral Substrates: The Scientist's Art Form*  
40 x 30 inches



*Three Hearts, Blueblood Hectocotylus is a Death Sentence*  
40 x 30 inches

## WHY DO YOU STAY IN PRISON WHEN THE DOOR IS WIDE OPEN? ON ART AND THE COGNITIVE UNCONSCIOUS

TANEY RONIGER

Looking out over the horizon of our still-young century, we find ourselves awash in paradox. Armed with an unprecedented wealth of knowledge and a kind of technological power unimaginable to our forebears, we are nonetheless a species adrift—unmoored from any sense of collective meaning or purpose, alienated from each other and, more significantly, from ourselves, and maddeningly helpless in the face of our most pressing problems. Inundated with information yet bereft of meaning, we are like kings bedecked with jewels wandering homeless in the universe. Homo sapiens, the knower: How can a species so expert in knowing have brought itself to this state of affairs?

With increasing clarity, the answer seems to lie in the peculiar way of knowing with which and through which we have been engaging the world. Having severed itself from the intelligence of the body and vast reservoir of knowledge that is the unconscious, discursive reason—pride of humanity, progenitor of modern science—has reduced us to what Lewis Mumford memorably called partial suicides. Riven from our own nature and from the larger systems of which we are a part, we've become captives in a prison of our own making. How to reclaim our native wholeness—and hence our freedom—is thus the great epistemological challenge of our century, and one we ignore at our own and the planet's peril.

As it happens, it is a challenge to which the arts are uniquely poised to respond. For if science is the domain of discursive reason, art is the domain of the cognitive unconscious, that subterranean region of the mind to which we have no conscious access but which nonetheless constitutes the bulk of our thinking. It is also the domain of the body, and indeed its most potent language. In its emphatic materiality and defiance of the discursive, the medium of painting remains one of art's most powerful means of insight.

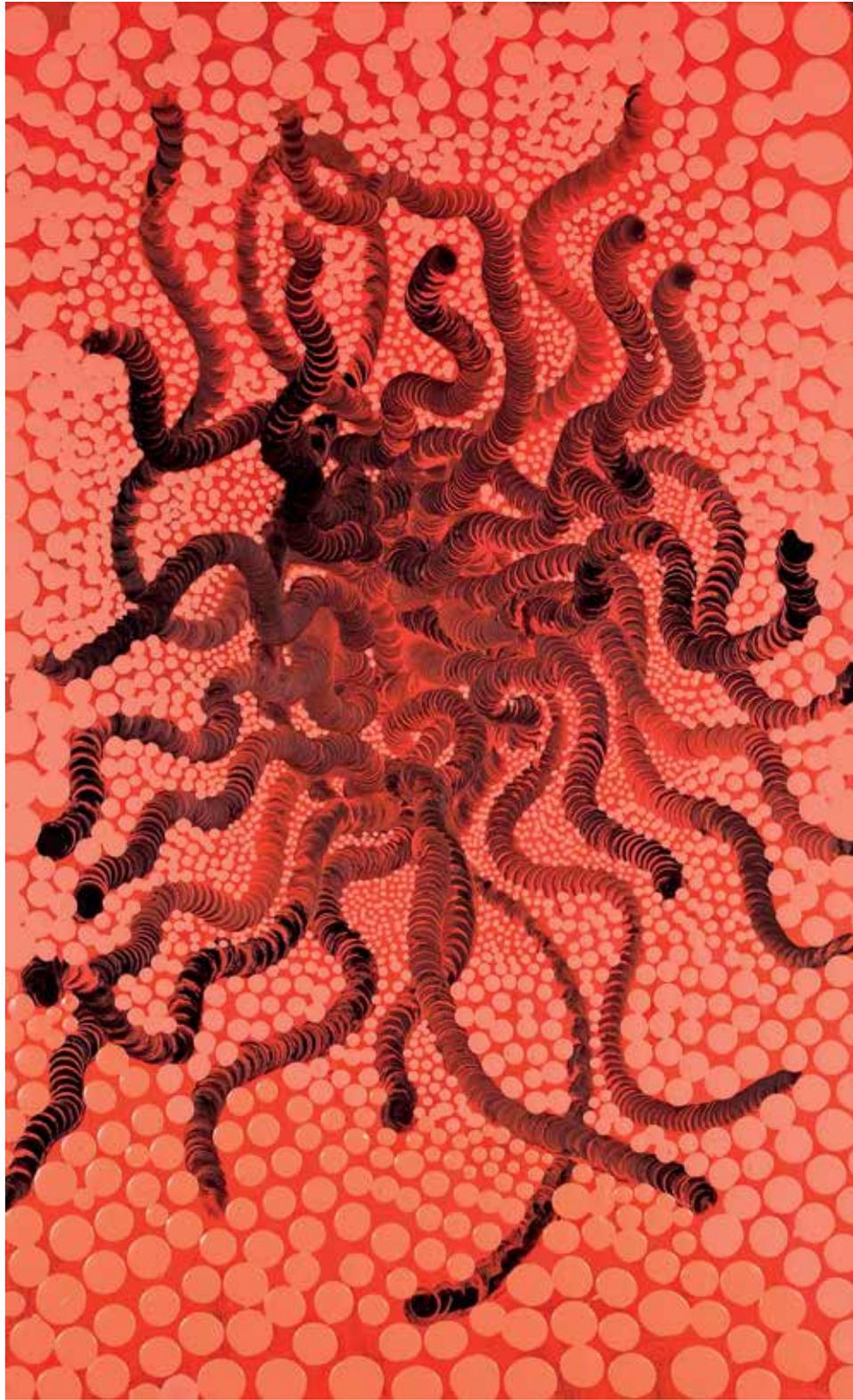
In Kerns' paintings, the contents of this cognitive underworld manifest themselves in a pattern language replete with archetypal forms. Throughout, intricate net-like structures, undulating concentric rings, swarms of centrifugally radiating particles, and dense skeins of flailing tentacles emerge and evanesce across heavily layered surfaces. While teeming with life in their biomorphic allusions, the patterns evoke a still larger whole; immersing oneself in this work, it is the natural world in its entirety that coalesces as its subject, all of it mysteriously condensed in the physicality of the paint. But

because every painting harbors an implicit appeal to its viewer, the insight these works deliver is something far more relational.

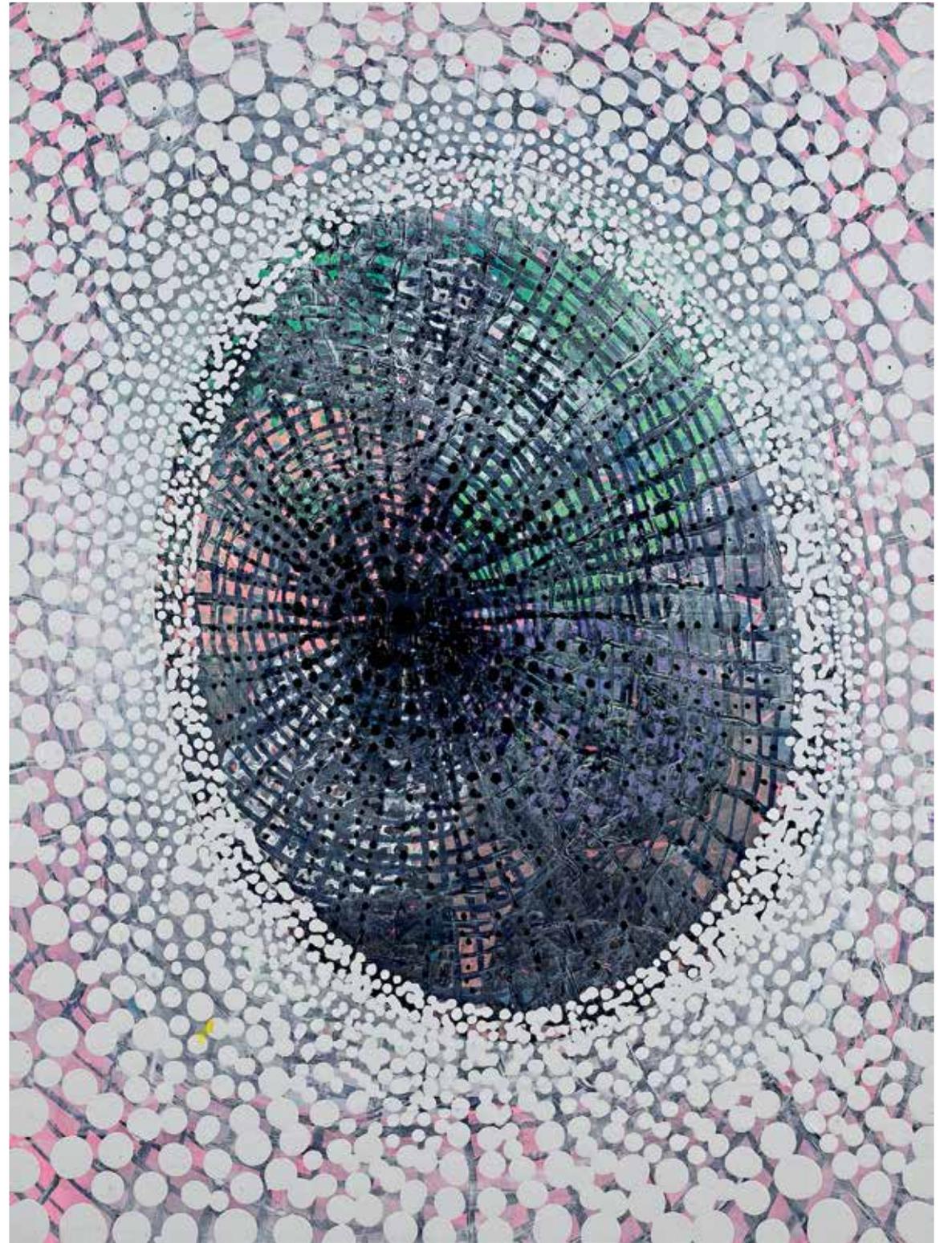
Enigmatic and complex, the paintings reveal themselves slowly. Acclimating to the visual dynamics of each piece, one begins to perceive subtle rhythms: a hushed pulsing or throbbing, like the movement of water, that erupts periodically into rushing vortices and cascades. One feels it somatically, and as the eye continues to travel in and under and around the forms, the patterns become stranger—and strangely more familiar. Though the empirical world is rife with such structures, the familiarity here is of another order. Gradually, with sustained and empathic viewing, we come to recognize that we are looking not so much at the sensible world of nature as at the ebb and flow of consciousness in all its myriad forms. It's an epiphanic moment, and one that engenders a felt sense of belonging. For if the same patterns we see in nature are also the stuff of *mind*, perhaps we are very much at home after all, all of us intimately connected to the whole of existence.

In today's climate of cynicism and despair, recovering a sense of belonging seems a formidable task. But we do well to remember that the body never forgot. The body never forgot we are animals, rooted in the earth and born of it, the product of millions of years of evolution inseparable from the rest of life. In the depths of the cognitive unconscious, our species-knowledge remains the bedrock above which all our accumulated wisdom churns on in us unawares. To become better instruments of knowledge and thus nobler stewards of the planet, perhaps it's not more sophisticated machines that we need; perhaps we need only turn inward and remember who we are.

In his 1998 book *Consilience*, E.O. Wilson claimed that ours would be the century of synthesis, one in which the various domains of human knowledge would unite toward a common purpose. Although his focus was on the rift between the sciences and the humanities, he might equally well have meant the one within ourselves. Indeed, any culture is only as whole as the individuals who create it. In our striving for a more holistic way of being and knowing, art can play a tremendous role as an agent of integration, awakening the mind to its innate immensity. And in its felt address to each viewer, it can issue challenges we may not even be aware we are receiving. As one of its titles suggests, Kerns' work leaves us with a bold one: Why do you stay in prison when the door is wide open?



*How Far Can You See in the Ocean's Echo of Telemetry?*  
48 x 30 inches



*I Touch With My Eyes and I see You Hidden, I Will Wait*  
40 x 30 inches

## ESSAYISTS

**DANIEL HILL** is an abstract painter, sound artist, curator, and writer whose work explores the relationship between visual art, sound, and science. Recent exhibitions include: Brattleboro Museum of Art (2016/17), NURTUREart (2016/17), Holland Tunnel Gallery—Paros, Greece (2016), Pace University (2015), Margaret Thatcher Projects (2014), and McKenzie Fine Art (2012/2013). Collections that hold Hill's paintings include: United States Embassies, Microsoft Corporation, and Bank of America. He has curated *Visual Inquiries Artists Inspired by Science* at Pace University (Fall 2016) and co-curated the 2012 traveling exhibition "Emergence and Structure" at Lafayette College, Miami Dade College, and University of Florida. Hill has appeared on panel talks or contributed writing to: the CUE Art Foundation (forthcoming 2017), *The Brooklyn Rail* (forthcoming 2017), The Helix Center (forthcoming 2017), *TransBorder Art*, *Interalia Magazine*, Shirley Fiterman Art Center, *SciArt Magazine* among others. His sound work has appeared in the video/sound installations *Mythograph* and *Aurorasis* with Angie Drakopoulos exhibited in New York and Paris, and his music has received airplay on radio stations in New York, Canada, and Europe. He is currently an Adjunct Associate Professor of Art at Pace University in Manhattan.

**ELAINE REYNOLDS** received her Ph.D. from Carnegie Mellon University and is currently an Associate Professor of Neuroscience and Biology at Lafayette College. Research in her lab uses the fruit fly, *Drosophila melanogaster*, as a model system for understanding neural development and function, and neurological disease such as epilepsy. *Drosophila* is a very well-studied and widely used organism so her studies can utilize information gathered and tools developed by many other scientific investigators. In addition, Dr. Reynolds has done collaborative projects that use computer modeling to look at the role of networks in communication and decision-making. She is intensely interested in collaborating with artists as an additional means of gaining insights into the nature of consciousness and routinely participates in cross-disciplinary conferences and partnerships with visual artists.

**TANEY RONIGER** is an artist and writer based in Brooklyn and the Catskills. A graduate of Yale University, where she earned her MFA in 1997, she is on the faculty of the School of Visual Arts in New York, where she teaches in the Fine Arts Department and Honors Program. She has exhibited her work in a number of venues in the United States and abroad, including the Pera Museum in Istanbul, Turkey; Contemporary Arts Center in New Orleans; StandPipe Gallery in New York; and Slate Gallery in Brooklyn. Roniger is the recipient of a number of awards and honors, including a grant from the Pollock-Krasner Foundation, three Yaddo fellowships, and a traveling fellowship from the Stacey Sussman Cavrell Memorial Foundation. Since 2012 she has been a regular contributor to *The Brooklyn Rail* as an art critic. Her essays, reviews, and interviews also have been published in *Culture Machine*, *On-Verge*, and *Whitehot Magazine*. Roniger's work is in numerous private collections nationally and internationally, in addition to that of the Library of Congress in Washington, D.C., and the Ogden Museum in New Orleans.