



# Some Provocations from Skeptical Inquirers

Painted Prints,  
Photographs, and Videos  
by Ellen K. Levy and  
Patricia Olynyk



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On the cover: *Scenario Thinking*, 2015 (detail)  
based in part on the archives of the  
*Skeptical Inquirer* magazine

# Organismic Praxis: Art as Scientific Skepticism

The link between art, skepticism, and belief is lively with tension. Skepticism and art, simply put, are an active means to knowledge, while belief is a declaration of what one claims to know. Art is like skepticism in that one uses art to understand the world by relations. Art is relational in its catalyzing of connections within a web of matter that is both living and un-living. Skepticism is relational in its chain-like pursuit of the truth: it is a doubt-based analytical course of refuting inaccuracies to arrive at accuracy. Unlike skepticism, though, art is not always doubtful. Art extols, laments, decries, defames, and questions the world in which we live, while skepticism does only the last. Belief holds a fitful place within this nexus. Rather than a pathway, it is a destination: one arrives at and departs from belief via the throughways of art and skepticism.

In the exhibition *Some Provocations from Skeptical Inquirers*, the art of Ellen K. Levy and Patricia Olynyk is a form of, in particular, scientific skepticism. Levy and Olynyk use scientific ideas, archives, and scientifically proven outcomes as the material to make art that helps make sense of the world past and present. The two artists have fostered transdisciplinary approaches, co-directing meetings that engage the public in pertinent topics of art and science since 2008. Levy has long explored issues of how the methodologies of biology could be applied to art-making as an artist and as guest editor of *Art Journal's* special issue, "Contemporary Art and the Genetic Code," published in 1996.<sup>1</sup> In 2005, Olynyk became the first non-scientist appointed to the University of Michigan's Life Sciences Institute and is very active as an initiator in issues of transdisciplinary education. Levy has worked with living organisms, and Olynyk often focuses on medical imaging and the use of medical and natural history archives.

Theirs is an organismic praxis: they use the medium of biology to set in relief complex interspecies relations. Levy and Olynyk are part of the expanding coterie of artists working the larger field of what I call "biology in art." If bioart is the contemporary art practice in which artists use live material to make art that sometimes poses a political critique of science, then biology in art is the foregrounding of all uses of biology – conceptually and materially – within the greater history and theory of art, architecture, and design. One does not negate but contains the other: bioart is a member of the genealogical reticulation that is biology in art. As a tool within the arsenal of biology in art, scientific skepticism carves out a space for interpretation, perception, and empathy as forces within a many-vectored process. Art is thinking-in-action. The photographs, recordings, painted digital prints, and big data visualization of this exhibition are the "empirical evidence" of knowing not as a *telos*, an aim, end, or goal, but rather as

an ongoing process of interrogation. We find similarly that skepticism joins, ties, cuts, and relinquishes: it makes belief possible, while at the same time opposing it.

Skepticism is a practice and not a metaphysics: it is an active habit rather than a belief system. Looking to the Greek root of the word, *skeptikós*, meaning “inquiring,” skepticism is the ongoing act of analysis, or what the ancient skeptics called “infinite regress.”<sup>2</sup> As Pascal Massie put it, skepticism “invites us to perform something.”<sup>3</sup> The two words – skepticism and belief – are nonetheless not so far apart. In itself, skepticism is antithetical to faith. Yet, it demarcates the spaces in which faith is located. In tool-like fashion, skepticism hews the territories of creed and positions of credence. One uses skepticism to believe in something. Skepticism bodies forth understanding.

Whether a matter of adjacency, overlap, or connection, the relationship between doubt and belief is fruitful as it produces many types of skepticism. There is the scientific skepticism that is at the center of this exhibition, which is an exercise in doubting facts until evidence shows them to be valid by way of repeated empirical outcomes. By contrast, there is anti-science skepticism, which in the twenty-first century coalesces in an array of views from across the political spectrum.<sup>4</sup> Leftist environmentalists are leery of the scientific manipulation of food in the form of GMOs. Rightist evangelicals doubt the factuality of Darwinian evolution. Rightist religious fundamentalists and big business free marketeers insist that climate change is a hoax. Libertarians of all stripes do not believe in the scientifically proven evidence that vaccines prevent virulent diseases. Within the academy, advocates of cynical postmodernism built an edifice of critical thinking based on doubting science. Beloved postmodern philosophers, such as Jacques Derrida, Michel Foucault, and Jean Baudrillard, turned science into Science, reifying the broad, diverse field of professional practice into a menacing monolith of dehumanization and cold ratiocination. Postmodern artists such as Jeff Koons, Richard Prince, and Sherrie Levine used bad faith and irony to comment on the impossibility of individual agency in global capitalism. This work shaped what Peter Sloterdijk famously called “cynical reason:” a sense of “enlightened false consciousness” in which you know you are part of a system of sublimation and alienation but do nothing about it.<sup>5</sup>

Unlike postmodern skepticism, Levy’s and Olynyk’s practice bears an up-building skepticism not far from that of *Skeptical Inquirer*, which is the official journal of the Committee for Skeptical Inquiry and the basis for the exhibition.<sup>6</sup> In the show at Baruch College’s Sidney Mishkin Gallery, Levy and Olynyk riff on the magazine’s original mission to “promote scientific inquiry, critical investigation, and the use of reason in examining controversial and extraordinary claims.”<sup>7</sup> Founded in 1976 by a roster of science luminaries including Carl Sagan, Isaac Asimov, Philip Klass, and Sidney Hook, the publication’s goal is to qualify doubt: to use science to distinguish “deniers,” such as climate-change deniers, from scientific skeptics.<sup>8</sup>

For the writers of *Skeptical Inquirer*, deniers are nihilists; they tear down communities while demagogically awaiting in fear of the apocalyptic end of time. Their destructiveness comes from the bastardization of skepticism, in that they impede and deaden its active life. Deniers use skepticism as a teleology, in order *not* to catalyze but to abruptly end further analysis and questioning. The hysteria of science deniers runs counter to *ataraxia*, the Greek term for “calm” or a life “without disturbance.” According to skepticism, one arrives at such tranquility upon suspending beliefs. Bearing this in mind, true scientific skeptics are constructivists; they debate over evidence, locate the truth, and constructively build out a world based on it. Levy and Olynyk make art in the spirit of scientific skepticism and the unfolding of life out into the world.

Levy’s and Olynyk’s work in the same instance goes beyond this enterprise, giving shape to an art of “organismic praxis.” While being an instance of skepticism in that their work triggers the infinite regress of questioning, Levy’s and Olynyk’s work is based on a belief that biology and art together progressively brings to bear positive change through the knowledge of science. This makes their shared project, indeed unlike postmodern artists of an earlier generation, fortifying and holistic. It builds, connects, and rounds out while continuously analyzing in the tradition of philosophical skepticism and reusing the material evidence of science in the tradition of scientific skepticism.

In calling their approach “organismic,” I call on the mathematician and philosopher Alfred North Whitehead’s process philosophy, which he called a “philosophy of organism.”<sup>9</sup> Just as organisms feel, the organismic praxis of Levy and Olynyk produces art of interconnected feeling. For Whitehead, objects emanate feelings: they “prehend,” or extend out, as though bearing invisible sensors. Describing life in terms of experience and sentience across a physics-based field of vectors, Whitehead explained, “It is an essential doctrine in the philosophy of organism that the primary function of a proposition is to be relevant as a lure of feeling.”<sup>10</sup> The linchpin uniting process philosophy to progressive skepticism is action: both realms describe life in constant motion. Skepticism and the philosophy of organism share a world that is becoming, morphogenetic, living, and in action: it is a “nexus” of organismic objects “prehending” and “concreasing.”<sup>11</sup> Objects prehend, or bear feelings, which extend into other objects, while “concrease is the *growing together* of a many into the unity of a one.”<sup>12</sup> In keeping with the holistic organismic turn in biology almost a century ago, Whitehead’s take on the thing is wet, fluid, and interconnected. Things are never static containers of substance but always in action. An organism *is* by what it *does*. Objects, like organisms, are in action, eliding into others through time. Rupert Sheldrake explains that organisms are not “material objects, but...*structures of activity*.”<sup>13</sup> An organismic praxis within art is in like terms an ongoing “weblike development that presupposes the whole system.”<sup>14</sup>

## EPIGENETICS, ENANTIOMORPHS, AND CHIRALITY IN THE WORK OF ELLEN K. LEVY

Ellen K. Levy's work in *Some Provocations from Skeptical Inquirers* focuses on organismic life within the process of epigenetic change in an urban landscape. The prefix of "epigenetic" comes from the Greek "epi" meaning upon, near to, or in addition, so in the most literal sense

epigenetics describes all of the forces, from within the cellular membrane to the atmosphere of the planet, which act on the genome giving shape to phenotypic expression. The epigenetic realm within genetics focuses on the broad-ranging role played by environmental forces on the genome and gene manifestation. Epigenetic studies expand the reductive genetic paradigm of one-gene-one-expression to complex systems and emergent bio-functionalism. Epigenetics reveals how the term "gene" refers to an array of activity. For example, genes may be pleiotropic, or expressive of more than one trait. The gene itself may be a nucleotide encoding protein or an unexpressed set of nucleotide sequences that are part of the cellular economy.<sup>15</sup> The term "gene," as Evelyn Fox Keller has shown, is a many splendored thing.

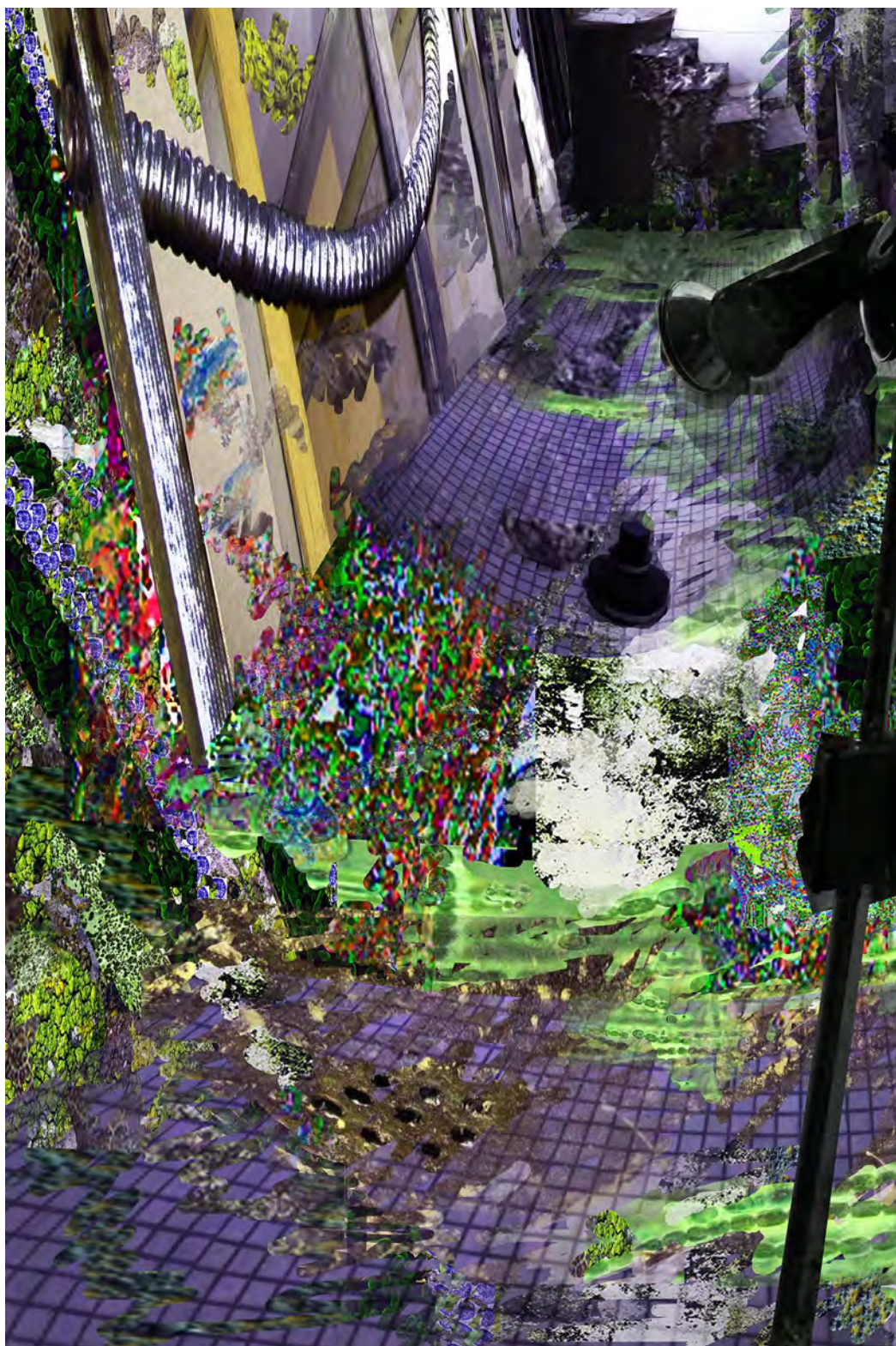
Levy's painted digital prints describe life within a world of vibrant epigenetic activity. She combines the manmade and natural to make a point about how we are "evolving ourselves," to use a phrase of Juan Enriquez and Steve Gullans.<sup>16</sup> In short, our manipulations of nature – the urbanization of the landscape, factory farming, and the systematic effects of the ever-increasing use of pharmaceuticals by all mammals – are redefining nature itself. Levy's *Plato's Cave (Change Blindness)* and *Migrations 20/20* show enantiomorphic images within the urban landscape. The former shows two versions of a narrow passage in Brooklyn with drain holes like reversed molecular configurations and the latter shows a mirroring of traffic routes as they cross over a parched landscape. In chemistry, enantiomorphs are chiral molecules that are non-superimposable mirror images of one another. Synonymous with "enantiomorphic," the word "chirality" comes from the Greek word *kheir*, meaning, "hand." Human hands and feet are chiral: regardless of how you orient them, they resist superimposition. Reminiscent of the tubular megastructure in Arthur C. Clarke's *Rama* (1973), the ground planes of both the diptych and the mirroring image are curved as though designed to move, looking as if it might rotate in slow motion from within while hurtling through outer space at high speed. Based on the sky-lit underground exhibition space called Plato's Cave at EIDIA House in New York, the topology of *Plato's Cave (Change Blindness)* is strewn with the colorful stuff of microbiological life unfolding anew.<sup>17</sup> This colorful stuff consists of some of the organisms that "blossomed" after Hurricane Sandy and are shown greatly enlarged. She has rethought Plato's mythic grotto in terms of a microscopic materialism informed by past work in

a microbiology lab. At a less intimate scale, the ground-plane architecture of *Brooklyn SlimeMold #2* is the crystallization of modernism rethought in terms of digital bits. This picture brings to mind the imagined world of forms given shape in J. G. Ballard's *The Crystal World* (1966).

In *Transporting Salmon (Whoosh!)*, Levy uses a similar vocabulary of digitally generated form and bright saturated colors to comment on how technological invention transforms evolution, in this particular instance through the creation of a chute that allows salmon to bypass dams. *JellyfishRods* and *LichenVentilation* are colorful but sober ruminations on adaptation to extreme conditions, involving various scales of life: the macrosocopy of manmade nature in the city and microscopy of synthetic biology in the agar of a Petri dish. In *JellyfishRods*, the organic emerges from the inorganic, as yellow, pink, and blue blobby sea creatures arise from a metal grating abutting a power plant and attracted by its warming waters. In this painted digital print, viewers see the clogging of nuclear plants by jellyfish, represented with globs of gel that catch the light. Luminescent swirls of green lichen tumble through space amid ventilation shafts in *LichenVentilation*, striking a similar play of synthetic craft and natural emergence.

Levy's *Migrations 20/20*, a series of three large mixed-media digital prints with acrylic paint, center on the movement of life broadly conceived – the mobility of cars along gargantuan highway infrastructure and the morphogenetic flux of life bodying forth from the cracks of macadam. Like the other images, it is a visual poetry on the creative destruction of modernization. A labyrinthine matrix of shapes rises from beneath the rotation of cars and roads as if to suggest that patterns of life continually coalesce out of the ruins of humankind. Life goes on – after our self-crafted evolution, followed by our similarly self-crafted extinction.

*Anomalies and Artifacts*, Levy's animation, parallels modes of functionality by pairing and pitting the tools of scientific visualization with the tools of digital crafting used to design imagery for the Internet. She simulates organisms, aberrations, and the phenomena that can be seen while initially adjusting a microscope with the software presets in After Effects, such as lens flare, spill suppressor, scatter, and particle playground. Many of the effects are not just from presets, but were modeled with a 3D program called Cinema 4D. Doubt is cast on the ability to differentiate the real from an artifact. The art work aligns the two realms of code and organism, thereby in-a-sense becoming an instance of video art as biocomputation.



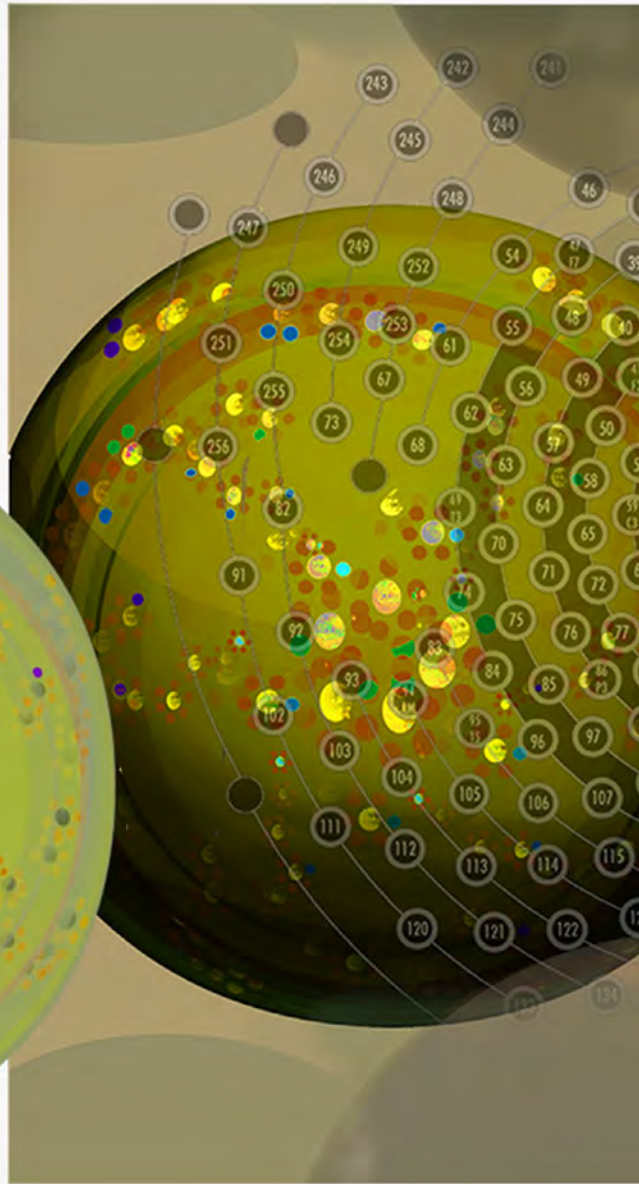
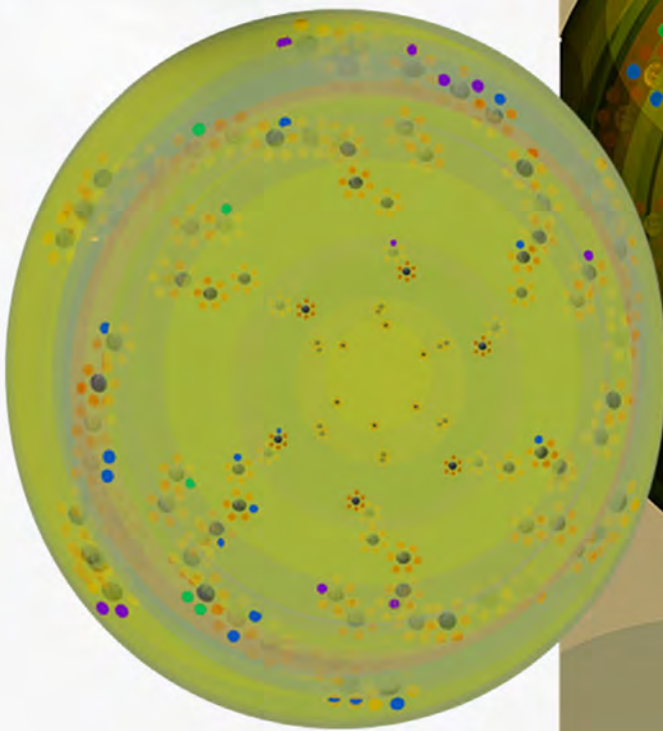
Ellen K. Levy  
*Plato's Cave (Change Blindness) #2*, 2014  
58 × 38", Mixed media, acrylic, gel, digital print



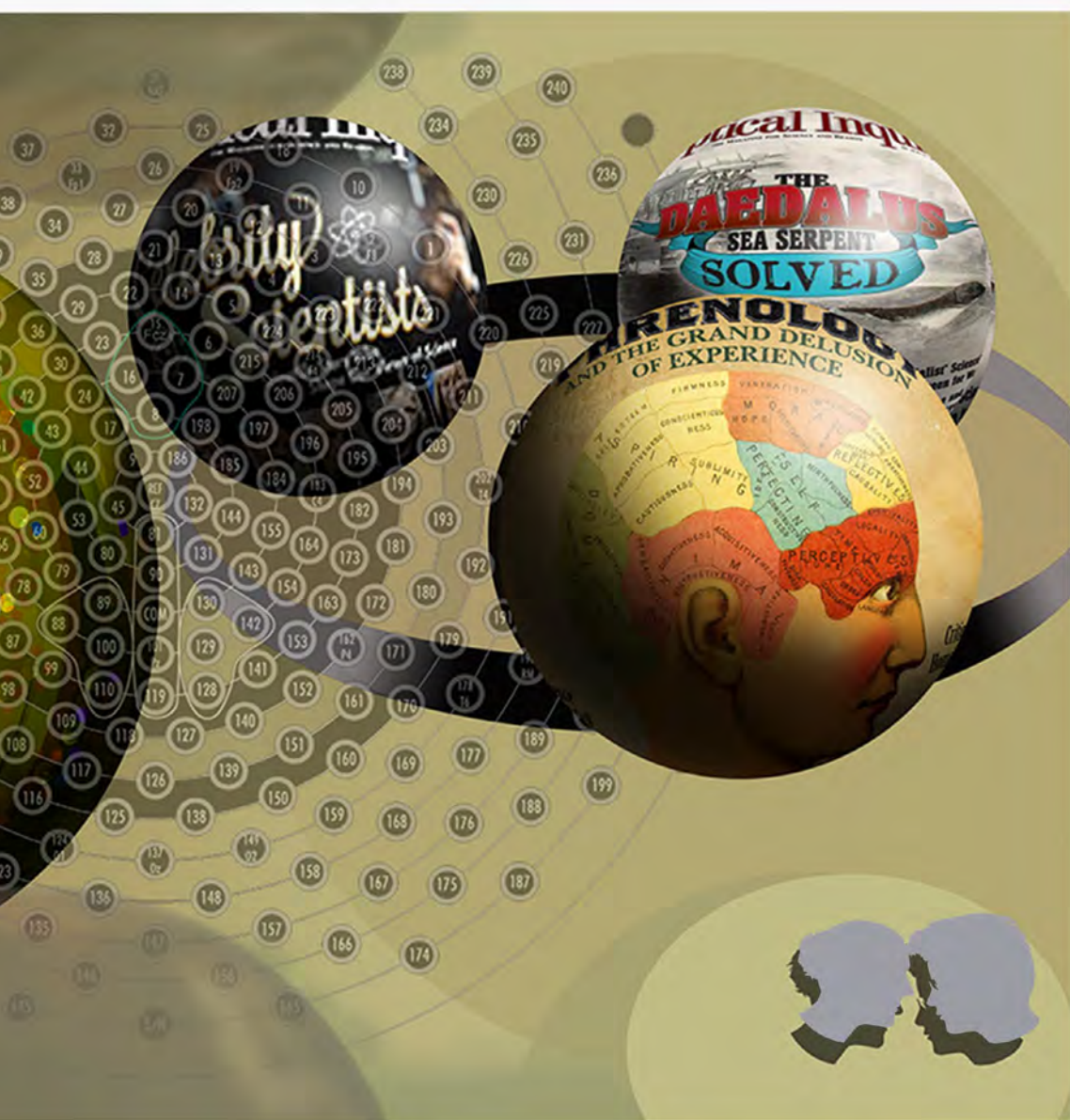


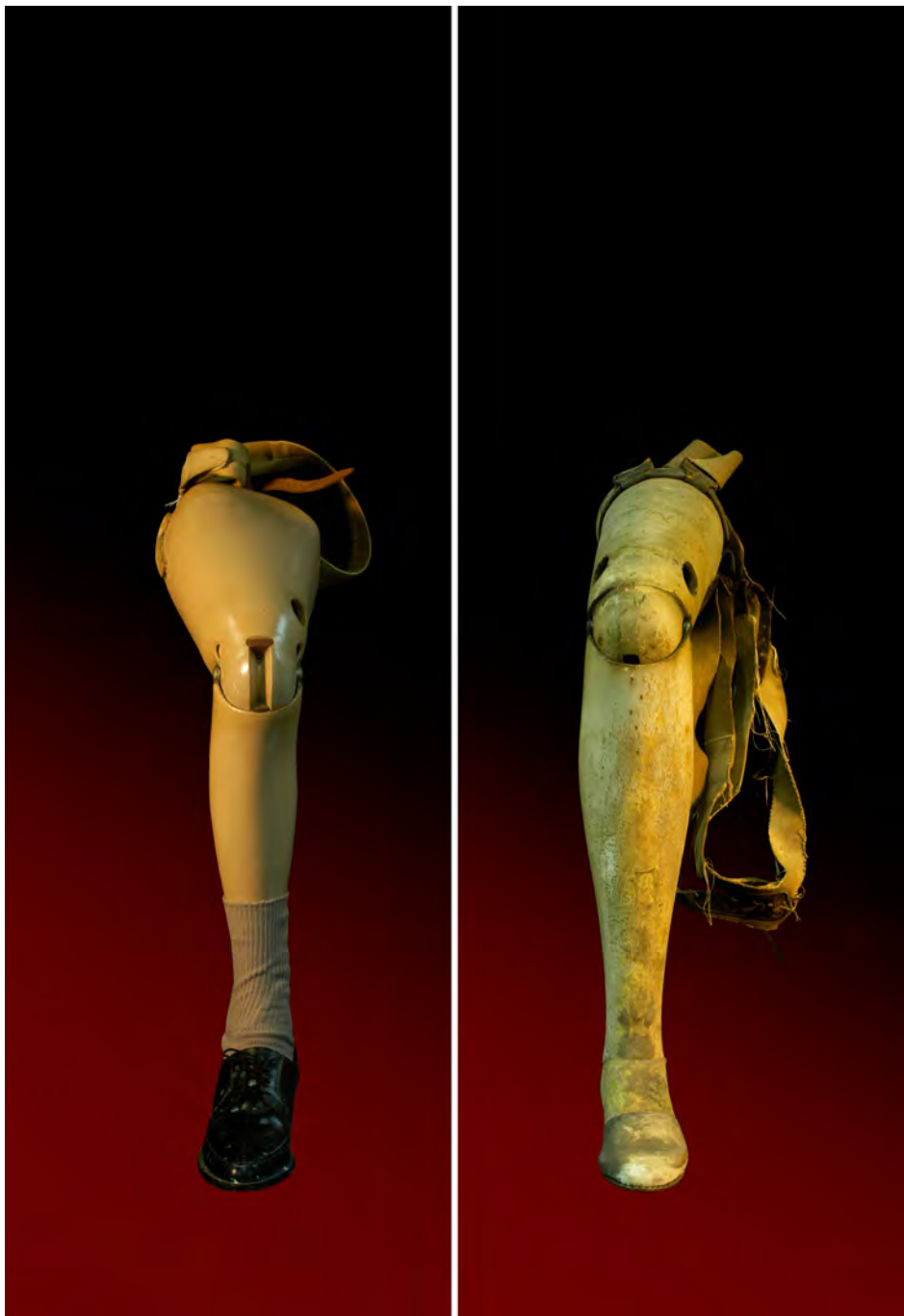
Ellen K. Levy  
*Migrations 20/20 #1 and #2*, 2015  
58 × 38", acrylic and gel medium over prints

-  Numbers & Algebra
-  Paranormal
-  Mysticism
-  Religion & Spirituality
-  Brain & Memory
-  Skepticism
-  Medicine & Science
-  Logic & Rationalism
-  Pseudoscience
-  Other



Ellen K. Levy and Patricia Olynyk  
*Scenario Thinking*, 2015  
 38 × 58", Mixed media and digital print





Patricia Olynyk  
*Isomorphic Extension I + II*, 2011  
53 ¼ × 24", C-Print

Moecha Viennensis  
 famosa.  
 Francisca Seycora, 19 J.  
 † in nosocomio generali  
 Meningitis

1006.059  
 Moecha Viennensis, famosa, Francisca Seycora, 19 J.  
 † in nosocomio generali. Meningitis.  
 A celebrated Viennese prostitute.  
 Francisca Seycora, 19 years of age.  
 Died in the General Hospital of Meningitis.  
 Moecha Viennensis  
 famosa  
 Francisca Seycora, 19 J.  
 † in nosocomio generali  
 Meningitis  
 1006.059  
 Dr. Jos Hyrtl Collection.  
 1940 Catalogue  
 Vol. I. P. 17

Holländerin  
 Amsterd.  
 v. Zucker

1006.010  
 Amsterdam (suicide)  
 defsen frau v. Dr. Zuthern  
 Persistent frontal suture.  
 Dutch woman.  
 Holländerin.  
 Amsterd.  
 v. Zucker (sic)  
 1006.010  
 Dr. Jos Hyrtl Collection.  
 1940 Catalogue  
 Vol. I. P. 6

Criminum atrocium  
 pirata.  
 decem sociis a Batavis  
 captus, et in castello Samarang  
 laqueo suspensus.  
 Professore  
 Lugdunensi  
 Van der Hoeven  
 Rai-Ta  
 Siam

1006.037  
 Pirate (Murderer executed). Siam  
 Rai-Ta-Si. Siamensis, criminum atrocium famosus cum decem  
 sociis a Batavis captus, et in castello Samarang laqueo suspensus.  
 v. Prof. Lugdunensi. Van der Hoeven.  
 Great Rarity.  
 A famous Siamense criminal guilty of many atrocious crimes. Capi-  
 tured with ten of his band at Batavis. Hung in the castle of Samarang  
 from a tree. Sociis <sup>decem</sup> ~~cum~~ <sup>pirata</sup> ~~pirata~~ <sup>famosus</sup> ~~famosus~~  
 cum decem sociis a Batavis <sup>pirata</sup> ~~pirata~~  
 captus, et in castello Samarang <sup>Rai-Ta-Si</sup> ~~Siamensis~~  
 laqueo suspensus.  
 (Aaris) ? Professore Lugdunensi  
 1006.037 Van der Hoeven Dr. Jos Hyrtl Collection.  
 1940 Catalogue  
 Vol. I. P. 12

Patricia Olynyk  
 The Mutable Archive, 2015  
 Three of nineteen panels, 11.25" x 28" each  
 C-Print

## ANATOMY, ARCHIVES, AND PROSTHETICS IN THE WORK OF PATRICIA OLYNYK

Patricia Olynyk's take on the organismic within art is rooted in medical history, Posthumanism, the biology of the brain, and the scientific study of crime. The work by Olynyk in the exhibition at the Mishkin Gallery concentrates on the network of human anatomy, the

historical archive of medicine, and the engineering of prosthetics. From this nexus, to use Whitehead's word again, Olynyk maps what it means to be human in history, both dead and alive, developing a cartography of the body that moves inside out, from the bony internal armature to the exteriorized self of prosthetic limbs.

One of the bodies of work in the show entitled *The Mutable Archive* consists of a series of small memorials to the skeletal remains of individuals, in particular 139 skulls collected by Dr. Josef Hyrtl, a nineteenth-century Viennese anatomist, referred to by some as "The Grinning Wall." She discovered these remains while a Francis C. Wood Fellow at the College of Physicians of Philadelphia and the Mütter Museum in 2006. In this body of work by Olynyk, life sways from the anonymity of *The Conversation*, a photographic triptych showing skeletons in plastic bags hanging in a closet, to the rich personal sensibility struck in the fictional lives Olynyk and collaborators imagined based on the skeletal remains at the museum.

For the latter, Olynyk attempts to tease out information about the individuals from inner-cranial tattoos and accompanying archive cards – both spare in terms of the information they offer – giving shape to their real and imagined personalities. She commissioned a bevy of writers – artists, poets, an opera singer, scientists, medical ethicists, philosophers, and a spiritual medium – to resuscitate the individual lives of these people. Olynyk vividly describes her skeletal subjects as, "outcasts, eccentrics, notorious characters, 'homo-delinquens' and anomalous individuals, many of who were lost to themselves and to the world."<sup>18</sup> *The Mutable Archive* bears a sound component in which commissioned writers create scripts and recordings based on archival fragments. As such it is a project of interpretation, one that emphasizes the "slippages" between fact and speculation, history and fiction.

Deftly expanding the sensorial realm in the gallery, Olynyk deploys the aural in *The Dutch Suicide*, a recording of the artist and theorist Buzz Spector reading a speculative biography of a Dutch woman. A yellowing notecard with the cool, rational archival numbering 1006.010 in the upper right-hand corner states "Amsterdam (suicide)...Persistent frontal suture...Dutch woman."<sup>19</sup> From this card we understand she was an Amsterdammer who ended her own life. Or did she? Notations made on the archive card years after its original scribe recorded details of the card's subject suggest that this "fact" may be mere speculation. These series of notations within Olynyk's cluster of nineteen subjects reminds us of the slippages in recording histories. That those subjects who occupied a higher position

in society were afforded more elaborate documentation that did not simply reduce them to a “scaphocephalus” or “Japan Yedo” reminds us that the taxonomic system that binds them together is anything but value neutral.

The presence of the Dutch Suicide’s frontal suture, the childhood joint dividing the two halves of frontal bone in the skull that is fused usually by the age of eight, remained open well into her adulthood, causing pain and difficulty in daily life. This is all Spector has to go on in the spoken elaboration of this woman. He describes her psychology at death, telling how her changeful grimaces confused friends and neighbors who, in turn, suggested that she turn to God and church to aid her malady. Shifting from the intimate to the anonymous, Spector’s personal descriptions of the Dutch woman give way in the recording to information about a Google search for gray Dutch weather, the influence of weather on pain, frontal sutures, the plate tectonics of the skull, and pain induced by a craniotomy, or partial removal of the bone flap of the skull to expose the brain. Together, Olynyk and Spector recreate the somber life of *The Dutch Suicide* based on a cranium, a notecard, and the endless data of Google and the Internet. Other contributors to the *Mutable Archive* include Mariam Ghani, Ellen K. Levy and Chelsea Knight.

Real anatomy turns to the artificial with the prosthetic forms of *Isomorphic Extension I + II* and *Extension II*. In these images, Olynyk created ghostly photographs of floating artificial body parts, giving shape to past paradigms of engineering. Viewers experience an interrupted, dismembered sense of the uncanny valley, the space of revulsion and fear one enters when confronted by a lifelike robotic or cyborg versions of the human. Hollywood has long understood the workings of the uncanny valley, using autopoetic dolls, puppets, and clowns to bring viewers fearfully to the edge of their seat. There is a powerful brain science to the trepidation connected to lifelike doppelgängers, in that our brains are confused by the simulacrum of life – looking like life but being other.<sup>20</sup> The collective realism of articulated joints, a shoe, and sock within Olynyk’s photo-series of *Extensions* elicits the living writ large. This leg might dance! This foot might tap! Yet, more than angst or full-blown terror, these prosthetics generate a sense of awe and wonderment about technological life – the mesmerizing possibilities of a bionic human – in centuries past. In a macabre reversal of the missing limb phenomena, *Isomorphic Extension I + II* portray two prostheses, which linger below the invisible, or phantom body. Its very absence demands attention. A disarticulated human form is implied through an amusingly unmatched pair of prosthetic legs from different periods, one gendered male the other female. This diptych strategically places them side-by-side and in a configuration that suggests self-organization and ambulation.

## CONCLUSION: SCENARIO THINKING

Skepticisms of the past and present give way to the future in a collaborative piece made by Levy and Olynyk, titled *Scenario Thinking*. Here the artists use data visualization to flesh out some of the patterns found in 20 years of

issues located in the archives of *Skeptical Inquirer*. Each circumference within a large sphere represents one year's worth of publications. It contains six "issues" (small spheres) that, themselves, contain two to six articles per issue. Categories of content are color-coded such as rationalism (green), the paranormal (yellow), and mind/brain and memory (orange). The work resembles not just a solar system, but a hydrogel geodesic sensor net with overlapping orbits; it probes connections, themselves, like an interplanetary brain. Encapsulated in the web-work of the sensory bonnet that registers brain activity in an electroencephalogram [EEG], the planetary orbs of *Scenario Thinking* are at once macrocosmic and micro-cosmic, of the universe and cosmological while also instrumental in measuring the activity of the individual on the ground plane. As though a living being, the universe respire and pulsates in the form of flickering information.

The play here between macro and micro, the cosmos and ground, makes up a whole that, as I have suggested, is organismic in its complexity. It is another materialization of Levy's and Olynyk's organismic praxis: an instance of the scientific skepticism that characterizes the greater field of biology in art. In that the piece literally invites cognitive interaction while also iconographically referencing the device used to measure brain activity, *Scenario Thinking* is metaphorically wet. It hews the biological to the computational. In conclusion, *Scenario Thinking* is up-building and not destructive – a work of biology in art that lures in a culture-going public not by any mystification of science but rather through the wonders of scientific literacy and divertissement of digital form.

Charissa N. Terranova



- 1 Ellen K. Levy with B. Sichel, "Contemporary Art and the Genetic Code," *Art Journal*, 55: 1 (Spring, 1996). Considered the first in-depth academic publication about genomics and art, contributors included S.J. Gould, R. Hoffmann, J. Davis, D. Nelkin, and D. Kremers.
- 2 Lammenranta, Markus, "The Pyrrhonian Problematic," *The Oxford Handbook of Skepticism* (Oxford: Oxford University Press, 2008) 10.
- 3 Massie, Pascal, "Philosophy and Ataraxia in Sextus Empiricus," *Peitho Examina Antiqua*, Vol. 1, No. 4 (2015) 211.
- 4 See Joel Achenbach, "Why Do Many Reasonable People Doubt Science?" (March 2015) <http://ngm.nationalgeographic.com/2015/03/science-doubters/achenbach-text>. Accessed 10/31/2015.
- 5 See Peter Sloterdijk, *Critique of Cynical Reason*, trans. Michael Eldred (Minneapolis, MN: University of Minnesota Press, 1988).
- 6 See the journal website, <http://www.csicop.org/si>. Accessed 10/31/2015.
- 7 See [http://www.csicop.org/about/about\\_csi](http://www.csicop.org/about/about_csi). Accessed 10/31/2015.
- 8 See <http://www.csicop.org/news>. Accessed 10/31/2015.
- 9 Whitehead, Alfred North, *Process and Reality* (New York: The Free Press, 1978) 18.
- 10 Whitehead, 25.
- 11 Whitehead, 24–25.
- 12 Sherburne, Donald W., ed., *A Key to Whitehead's Process and Reality* (Chicago: University of Chicago Press, 1966) 212.
- 13 Sheldrake, Rupert, "Three Approaches to Biology: Part III. Organicism," *Theoria to Theory*, Vol. 14 (1981) 301.
- 14 Sherburne, 2.
- 15 Keller, Evelyn Fox, *Making Sense of Life: Explaining Biological Development with Models, Metaphors, and Machines* (Cambridge, MA: Harvard University Press, 2002) 5.  
See also Evelyn Fox Keller and David Harel, "Beyond the Gene," *PLOS ONE* (November 28, 2007) <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0001231>. Accessed 09/20/2015. 1.
- 16 See Juan Enriquez and Steve Gullans, *Evolving Ourselves: How Unnatural Selection and Nonrandom Mutation are Changing Life on Earth* (New York: Current, 2015).
- 17 See the link to Plato's Cave at the website of EIDIA House [www.eidia.com/plato](http://www.eidia.com/plato). Accessed 11/20/2015.
- 18 Communication between author and artist through email, 10/28/2015.
- 19 See Patricia Olynyk's website, <http://www.patriciaolynyk.com/the-mutable-archive/>. Accessed 11/02/2015.
- 20 See Margee Kerr, *Scream: Chilling Adventures in the Science of Fear* (New York: Public Affairs, 2015).

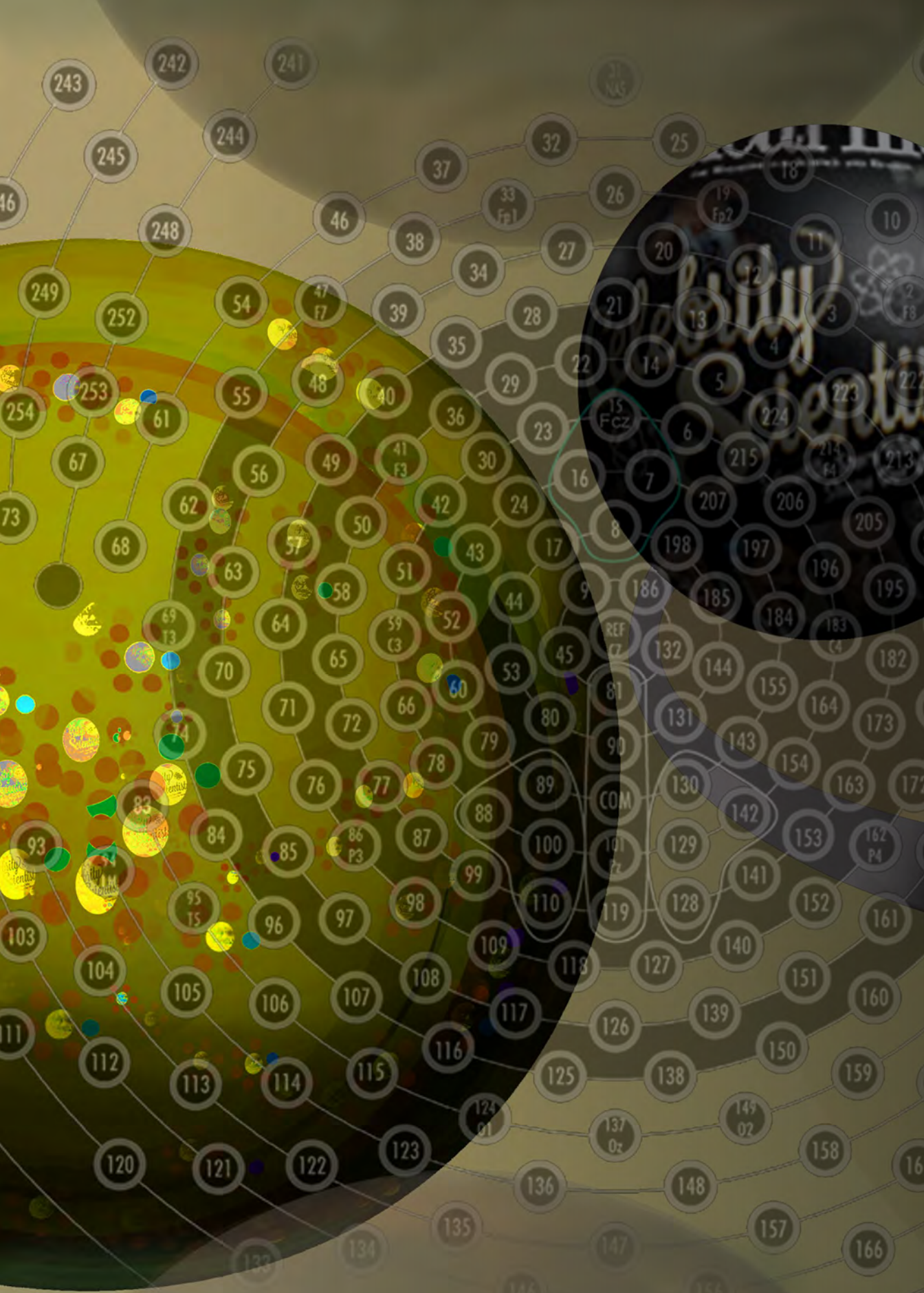
**Ellen K. Levy** has had solo exhibitions at the National and New York Academies of Sciences, the New Britain Museum of American Art, and the Narodni Museum (Prague). In New York, she has been represented by Associated American Artists and Michael Steinberg Fine Arts. Group exhibitions include *Gregor Mendel: Planting the Seeds of Genetics at the Field Museum*, Chicago (2006), *Petroliana* at the 2nd Moscow Biennale (2007), and *Weather Report: Art & Climate Change* at the Boulder Museum of Contemporary Art (2007). Her honors include an arts commission from NASA (1985), an AICA award (1995–1996), and a Distinguished Visiting Fellowship of Arts and Sciences at Skidmore College (1999). Twice an invited participant in Watermill's Art & Consciousness Workshop, Levy also co-organizes art and science LASER evenings for *Leonardo/ISAST*. She became Special Advisor on the Arts and Sciences at the Institute for Doctoral Studies in the Visual Arts (IDSVA) after earning a Ph.D. from the University of Plymouth (UK) and currently lectures at The New School. Levy was President of the College Art Association (2004–2006). She received her diploma from the School of the Museum of Fine Arts, Boston following a B.A. from Mount Holyoke College in Zoology. <http://www.complexityart.com>

**Patricia Olynyk** has exhibited her work widely and her solo shows include: *Sensing Terrains* at the National Academy of Sciences, *Transfigurations* at Galleria Grafica Tokio, and *Probe* at Bruno David Gallery. Her work has also been featured in exhibitions at the Brooklyn Museum of Art, the Museo del Corso in Rome, the Universität der Künste in Berlin, the Saitama Modern Art Museum in Japan and the *L.A. International Biennial Invitational*. She has held residencies at the College of Physicians in Philadelphia, The Banff Center for the Arts in Canada, and Villa Montalvo

in California. Olynyk is former Chair of the Leonardo Education and Art Forum and co-organizer of Leonardo's LASER events in New York. She is also director of the Graduate School of Art and Florence and Frank Bush Professor of Art at Washington University in St. Louis. Olynyk formerly held joint appointments in the University of Michigan's School of Art & Design and the Life Sciences Institute, where she was one of the first artists in the US to be appointed to a scientific unit. Olynyk received her MFA degree with Distinction from the California College of the Arts and later spent four years as a Monbusho Scholar and Tokyu Foundation Research Scholar in Japan. <http://www.patriciaolynyk.com>

**Charissa N. Terranova** is Associate Professor of Aesthetic Studies at the University of Texas at Dallas. She teaches the history and theory of modern and contemporary art and architecture, new media art, and the history of science in art. Terranova is author of *Art as Organism: Biology and the Digital Image* (2016) and *Automotive Prosthetic: Technological Mediation and the Car in Conceptual Art* (2014), and coeditor with Meredith Tromble of *The Routledge Companion to Biology in Art and Architecture* (2016). Inaugural director and curator of Centraltrak: The UT Dallas Artists Residency, Terranova regularly curates and writes art criticism. Terranova's current curatorial practice focuses on hybrid art-technology-science themes. As part of The Bridge residency program sponsored through the SciArt Center, New York, she curated in February 2016 the on-line exhibition about art and the gastrointestinal microbiome, *Gut Instinct*, with Davidson College Professor of Biology Dave Wessner. In the fall of 2015 she curated *Chirality: Defiant Mirror Images*, an exhibition about art and non-superimposable mirror images.





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