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The Function and Dysfunction of Science: Artists Inside and Outside the Laboratory

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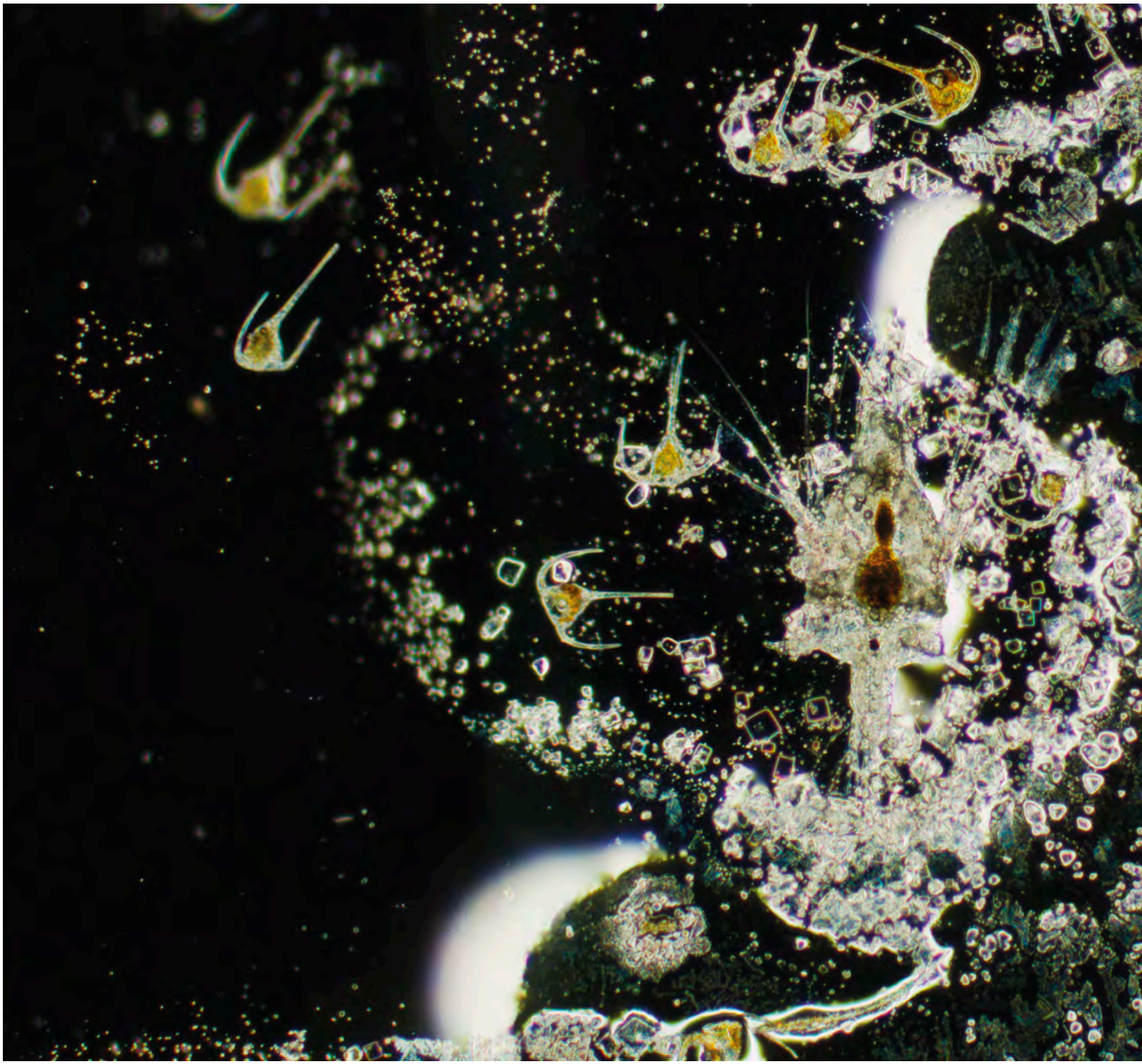
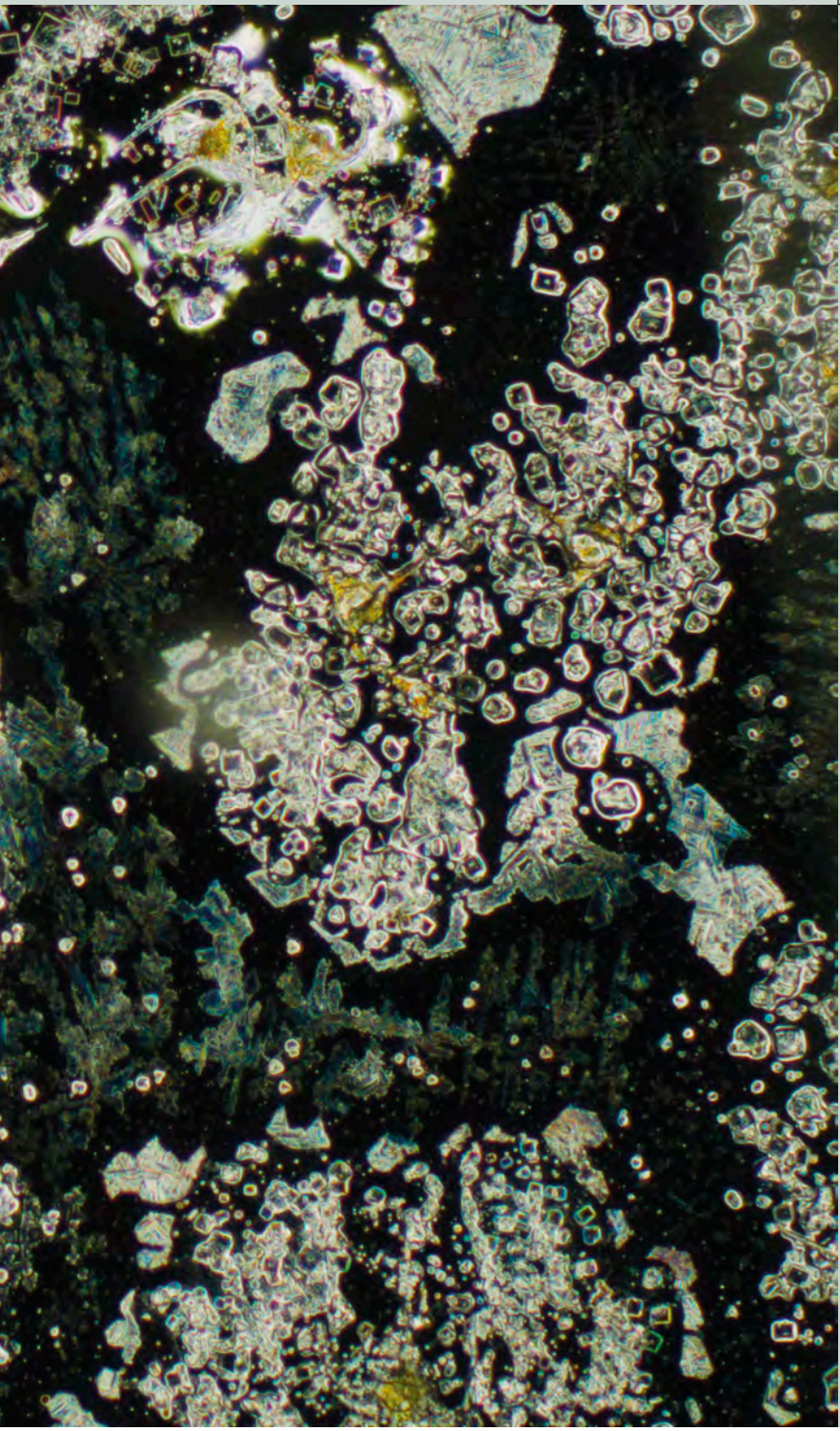
Marjolijn Dijkman and Toril Johannessen,
Reclaiming Vision, 2018. Film still.
Photo: Courtesy of the artists.



THE FUNCTION AND DYSFUNCTION OF SCIENCE:

ARTISTS INSIDE AND OUTSIDE THE LABORATORY



Kyveli Mavrokordopoulou

Scientific laboratories immediately evoke an image of the scientist researching ways to regulate the disorderly world outside. However, the white-coated authority of the scientist might be an all-too-easy image to conjure. Since the turn of the century, several artists have sought to problematize and contextualize laboratory practices and the knowledge produced in them. In this article, I discuss a series of artworks that are either created in laboratories or use materials and images produced in them. By entering the scientific laboratory, the artists converse with contemporary scientific methods, sometimes even intervening in and complementing them.

In an interview with *The Brooklyn Rail*, Eve Andrée Laramée, an artist whose work unfolds at the intersection of art and science, talks about her long-term interest in nuclear issues. The particularity of her practice lies in the uncommon esteem she holds for scientific systems, coming closer to alchemy than to the hard facts of science. Specifically, Laramée elaborates on her preoccupation with the function and dysfunction of science:

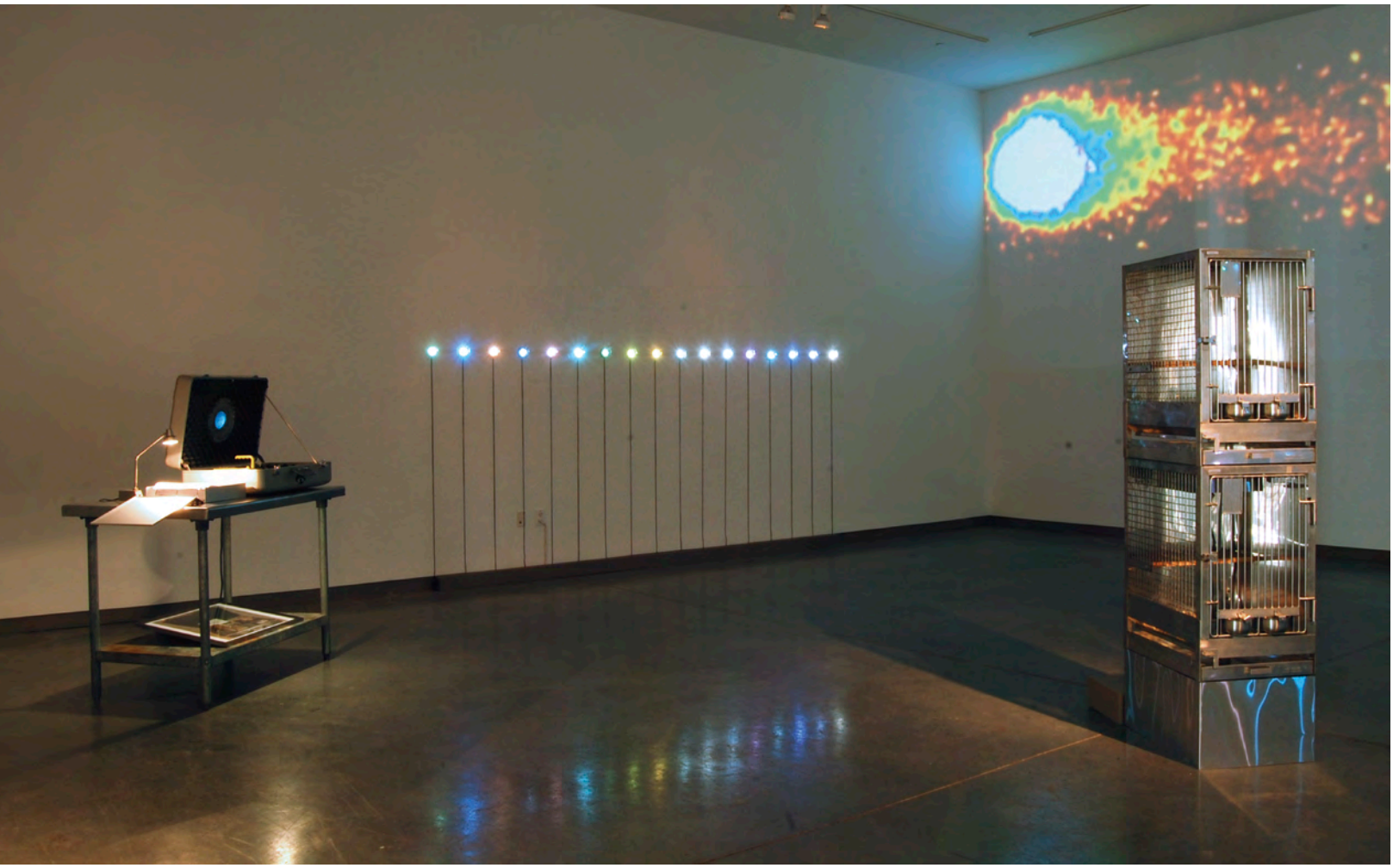
> "(...) with *Apparatus for the Distillation of Vague Intuitions*, this vast labyrinthine installation's final product was a tiny container of the salt of human sweat—the salt from the actual labor involved in making the work. What I was getting at is how scientific metaphors inform the way we contrive knowledge, how knowledge is embodied, and how it affects the world. It calls attention to both the function and dysfunction in science. *Halfway to Invisible* engages a different meaning of apparatus: political apparatus that operate invisibly."[1]

Apparatus for the Distillation of Vague Intuitions (1994–1995) is a large glass sculpture that simulates a chemical or alchemical laboratory. As much as the work is reminiscent of the laboratory setting, however, it seems dysfunctional and chaotic. Its undeniable craftiness—the vessels look handblown—muddles its presumed scientific reliability. How could any kind of trustworthy scientific knowledge come out of such a twisted structure? Laramée's sculpture highlights the deeply rooted subjectivity that characterises scientific practice. In line with science historians Lorraine Daston and Peter Galison's challenge to the primacy of objectivity as the main epistemic virtue of the natural sciences, the artistic work at hand appears to operate within the subjective realm. They argue that: "the emergence of scientific objectivity in the mid-nineteenth century necessarily goes hand in glove with the emergence of scientific subjectivity."[2] And as Laramée's practice hints at more broadly, artistic practices hardly offer a critique of science and its routine locale, the laboratory. Rather, artworks here seem to counteract the crowning of scientific objectivity and its subsequent erasure of the contexts—social, political, geographical—that produce scientific knowledge.

If *Apparatus for the Distillation of Vague Intuitions* questions the authority of science in general, *Halfway to Invisible* (2009) drives this to the particular. The installation addresses a historically situated kind of laboratory and a distinct mode of the production of scientific knowledge: Cold War nuclear science. The set-up

Eve Andrée Laramée, *Apparatus for the Distillation of Vague Intuitions*, 1994. Installation View, MassMoCA, 2001. Steel, hand-blown and laboratory glass etched with text, copper, salt, flowers. Photo: Courtesy of the artist.

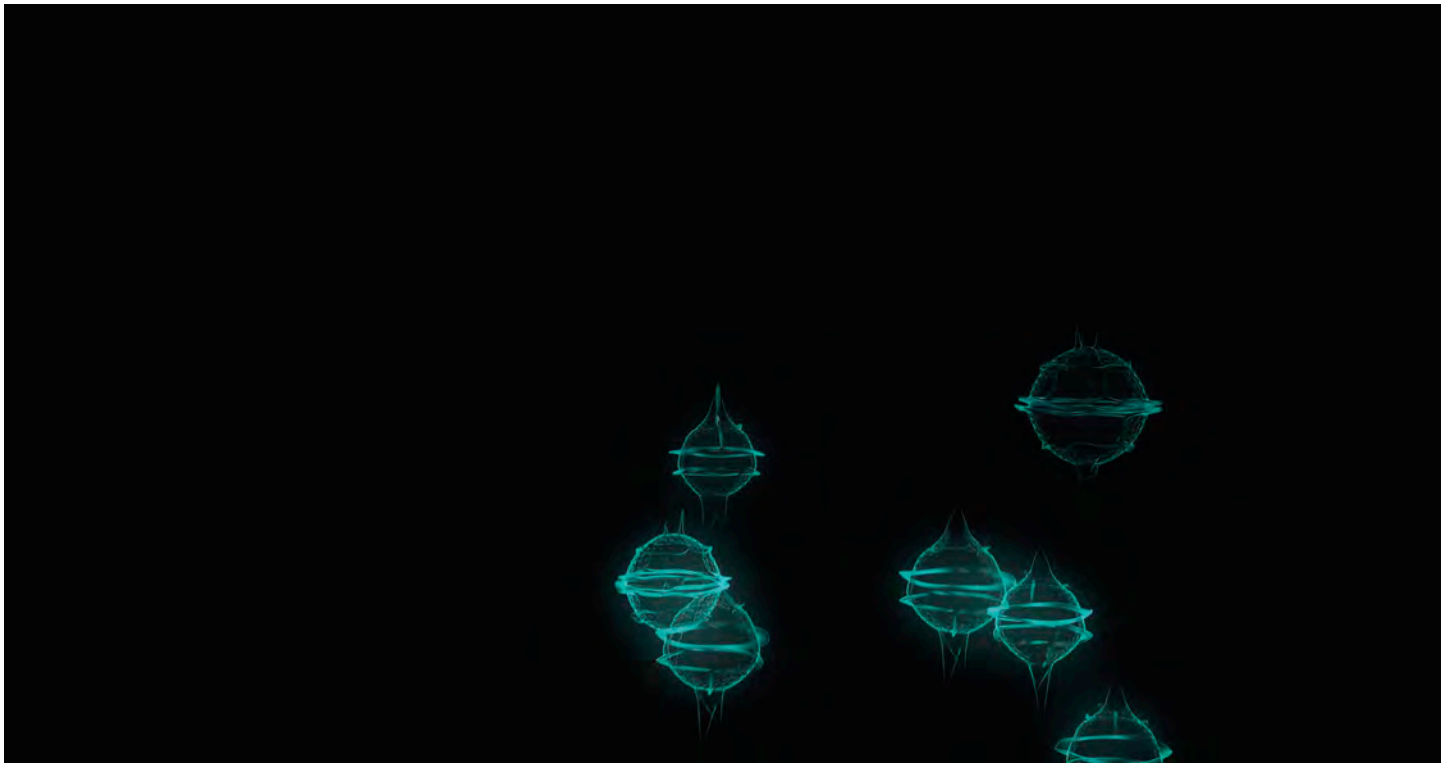
could not be more scientific, nor the laboratory ambiance more explicit. A scientific institution, the Center for Disease Control of Emory University commissioned *Halfway to Invisible* for the bicentenary of Darwin's anniversary. The work is a constellation of archives, medical visualisations, and scientific instruments posed on a laboratory bench in the gallery space. Filled with light boxes displaying photographic transparencies of extremophile bacteria and microscopic cancerous cells, the exhibition assembles biological visualisations. Extremophile bacteria is characterised by its love of extreme environments, as its name suggests (*-phile* coming from the Greek *philia*). Its superpower is to survive in radioactive environments, like nuclear waste that abounds in the vicinity of the city of Grants, New Mexico. This is the geographical and political context that the laboratory setting of *Halfway to Invisible* opens up to. The cancerous cells refer to the biological impact of uranium mining on Indigenous peoples in the Southwest part of the United States, highlighting the unequal exposure to environmental harm on native populations. The region was an important producer of uranium throughout the Cold War and the environmental impact of the mining industry remains ever-present: from the legacy of abandoned uranium mines that are still not properly indicated with signs forbidding access to the slow violence of disease unfolding in miner's lungs to the dispersed *mill tailings* (the term used for piles of waste materials from the mines).[3] In the midst of the scientific evidence of radiation's insidious workings, a viewer-activated kinetic



Eve Andrée Laramée, *Halfway to Invisible*, 2009. Installation View, Emory University Gallery, 2009. Motion-activated stainless steel laboratory cages, light boxes with images and text, video projection, video sculpture, photographs, archive of documents. Photo: Courtesy of the artist.

sculpture shudders whenever visitors approach. This metallic cage directs our attention further back in time, to the human radiation experiments of the Cold War, a series of experiments practiced on terminally ill patients to test the human body's absorption levels of radioactive materials,[4] which in turn, take us to the primal laboratory for the Atomic Age, the Los Alamos National Laboratory, where such experiments were widely performed. Finally, in contrast to these reminders of the racialized and embodied violence of radiation, a seemingly celestial video plays footage in vivid hues of blue and green in the background of the gallery space.

However, the footage turns out to be not so cosmic after all, as it depicts a damaged human cell in the process of breaking apart. All these intimate visualisations, produced via a microscope in a laboratory, in the end stand as testimonies to a space beyond it: the mine. Preceding the cellular mutation that we see unfolding in the video, there must have been a moment when the toxin inadvertently entered the miner's body in the mine and whose cell we are presumably looking at. A radiation detection kit, used in the mines during labour hours, reminds us that the microscopic scale of the cell must belong to a body in real time and space. Laramée's scientific assemblage keeps a close eye on both the historical violence of uranium mining and on "what is at stake when toxins meet tissues," to quote environmental



Susanne M. Winterling,
Glistening Troubles, 2017.
Installation mixed media and
Computer Generated Imagery
(detail). Photo: Courtesy of the artist.

P. 23-25: **Susanne M. Winterling**,
Glistening Troubles, 2017. Installation
mixed media and Computer
Generated Imagery (detail).
Courtesy of the artist and ICA/HOK.
Photo: Øystein Thorvaldsen.

and feminist scholar Traci Brynne Voyles.[5] This is an act of attempted retrieval, where the intimate views of biological knowledge are decontextualized and removed from the detached medical gaze, only to become contextualized again in the social realm through the violent history of uranium mining.

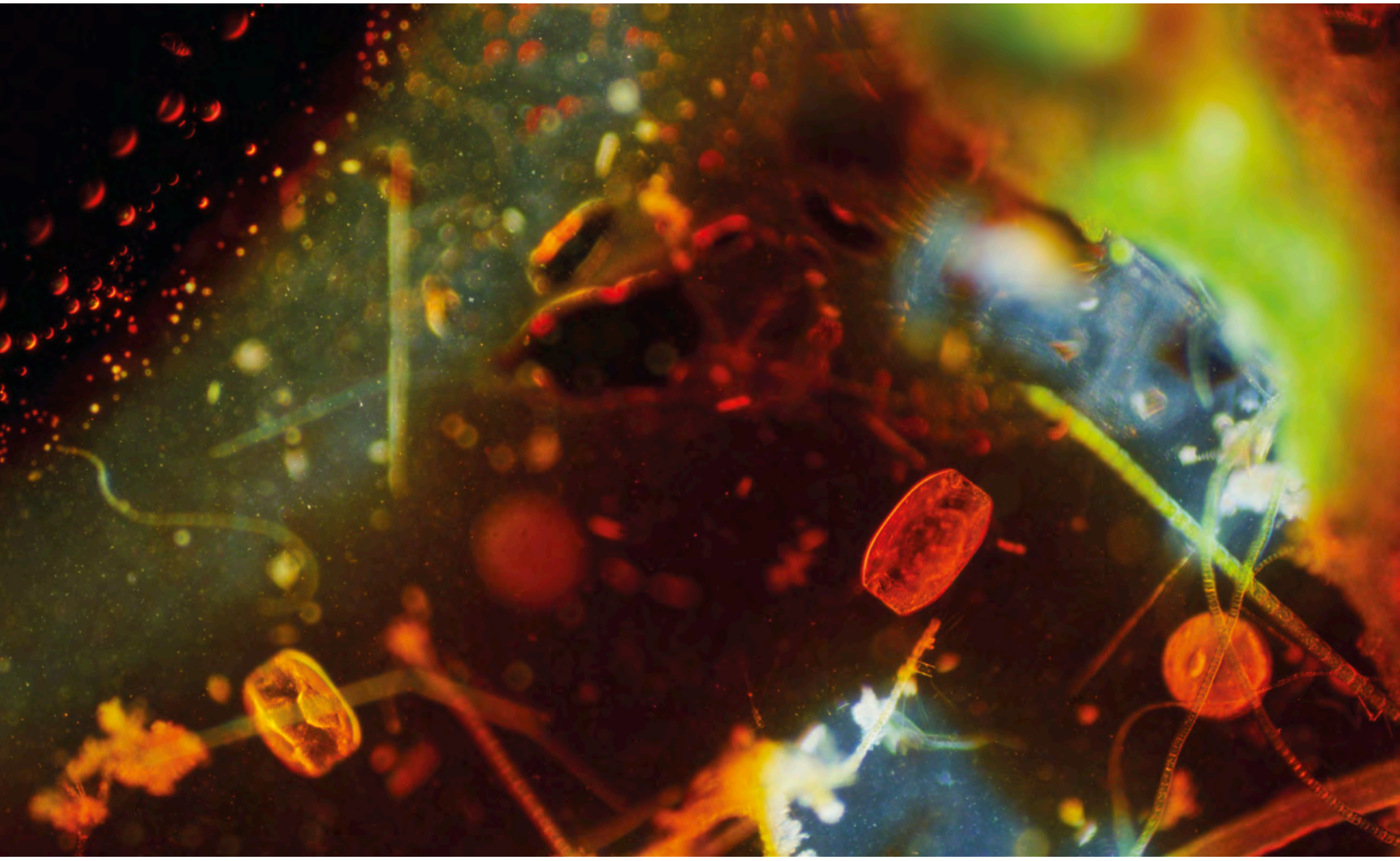
Peering into the *interior*, that which cannot be seen, and creating intimate images of the tiniest scale of bodies, are the investigative tools of contemporary artists who seek to unveil and problematize the context in which science is produced—the *function* of science in Laramée's words. The tightly controlled setting of the laboratory, which after all enables the production of such images, is necessary for the realisation of the works but never sufficient in itself.

More recently, a number of artworks have addressed that tension by broaching the non-human body, probing other-than-human sensibilities. This is the case for Susanne M. Winterling and especially her work *Glistening Troubles* (2017). Initiated in the context of a residency at the TBA21 Alligator Head Foundation in Jamaica, the work is premised on an eerie kind of algae—the dinoflagellate algae—that flashes out as a defence mechanism. Winterling's mixed media installation is composed of a multiplicity of elements: close up videos of shimmering algae, visualising the microorganism to the unaided human eye, along with framed algae, encased as a museum specimen. The artist collaborates with marine scientists who measure the levels of bioluminescence of phytoplankton as an indicator for the

pollution levels of coastal waters. In fact, the harmful algal bloom of these microorganisms can have deleterious effects, from fish poisoning to toxic effects on humans. In Winterling's work, scientific views of the algae are complemented by another perspective: a video of a local fisherman disclosing the spooky overtones and medicinal virtues of the bright algae. Given the importance of the microorganism in the region, a fishermen's alliance was formed.[6] The political pressure it exerted resulted in the regular testing of the water and the regulation of a nearby dye factory that had been oozing chemicals into the bay. Although their political actions originated from different motivations than those of the scientific community, it was all the more effective. The aim of *Glistening Troubles* thus is not to offer hard facts about the toxic state of water. Rather, it coalesces different forms of knowledge on the same object, highlighting the equal value they hold for our comprehension of water pollution; this is an epistemological gesture that complements the scientific knowledge produced in a laboratory while also relativizing its primacy.

The microscopic creatures of aquatic habitats are also the protagonists of *Reclaiming Vision* (2018), a video work of Marjolijn Dijkman and Toril Johannessen filmed at the section for Aquatic Biology and Toxicology of the Department of Biosciences, University of Oslo. Like Winterling's glistening algae, the health of the microorganisms depicted is instrumental for the health of oceans. Some of them produce 50–85% of the planet's oxygen and stock levels of CO2; their disappearance or alteration has disastrous effects. Close-up shots of microorganisms from the brackish waters of a Norwegian fjord and cultivated algae enter the realm of the visible through a light microscope. *Reclaiming Vision* depicts the tiny scale of the microorganism sliding into a palpably jubilant and colourful dance, accompanied by a theatrical musical composition. The artists provide the following disclaimer at the beginning of the film, "This is a work of fiction. Any resemblance to scientific research is coincidental." For a work made up entirely of images of microorganisms seen through a microscope, this is an ambitious statement. Its ambition is

Marjolijn Dijkman and Toril Johannessen,
Reclaiming Vision, 2018. Film still.
Photo: Courtesy of the artists.



perhaps sarcastic, targeted toward the animosity of the scientific community, toward anything fictional. Since the 19th century, as Daston has argued, scientists strove to distance themselves from artists who relied on a wild and ineffable imagination, removed from objectivity.[7] Scientists had to standardise their instruments, depersonalise their discourse and foment an image of absolute control over matter, animate or inanimate. But what the instrument—the microscope—in *Reclaiming Vision* achieves is quite the opposite: the infinitesimal dimension it offers access to is the one in which movement and spatial configuration is inaccessible to the human eye, and thus, to the human imagination.

By incorporating this kind of imagery into artworks, and by contextualizing it beyond the scientific remit, we are allowed to imagine much more than an abstract understanding or a cerebral illustration of other living beings. *Glistening Troubles* and *Reclaiming Vision* construe and put into images what Bruno Latour declares, with stunning brevity, about Pasteur's discovery in his laboratory: "there are more of us than we thought."[8] To which we might add: the health of these other parts of "us" matters very much. Something which is perhaps more tangible in *Halfway to Invisible*, which underlines how the health of certain populations is dependent on that of their environment. Regardless of their obvious differences, what the artworks analysed in this article accomplish is to open up a space where the suppressed context of production of scientific knowledge emerges and goes beyond its traditional site of dissemination. This is achieved through the artist's ability to operate reflectively both *inside* and *outside* the laboratory. The visibility of toxicity and pollution begins as an invisibility visualised in the laboratory, and this is a necessary first step; but in itself it is not enough. As Donna Haraway has cautioned, when genetic and cellular images are seen through cultural and scientific texts, they might become fetishized as windows to an unmediated reality: "the fetishist sees the gene itself in all the gels, blots, and printouts in the lab and "forgets" the natural-technical processes that produced the gene and genome as consensus objects in the real world."[9] Looking at the function of science, and its occasional dysfunction, thus could disclose the myriad ways through which the lab and the real world, to take up Haraway's words, are intertwined.

1.
Eve Andrée Laramée, interview with Ann McCoy, *The Brooklyn Rail*, September 2014. [Online]: bit.ly/3fBLEAO
2.
Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007), 197.
3.
The important work of mapping such places in the US has been carried out by the Center for Land Use Interpretation (CLUI) by means of a critical cartographic research project, "Perpetual Architecture: Uranium Disposal Cells of America," which was the subject of an exhibition that opened at the CLUI Los Angeles in June 2012. Unsurprisingly, most disposal cells appear to be located in New Mexico. For more information, see: bit.ly/2DD54YO
4.
Private correspondence with the author, October 2019.
5.
Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis and London: University of Minnesota Press, 2015), 22.
6.
Susanne M. Winterling, "Toxic Environments, Sensitivities, and Planetary Times: Susanne M. Winterling," interview by Sara R. Yazdani, *Mousse*, August 2018. [Online]: bit.ly/3a1g12c
7.
Lorraine Daston, "Fear & Loathing of the Imagination in Science," *Daedalus* 134, no. 4, Winter 1998: 73–95.
8.
Bruno Latour, *The Pasteurization of France* (Cambridge, Mass.: Harvard University Press, 1988), 35.
9.
Donna Jeanne Haraway, *ModestWitness@SecondMillennium. FemaleMan©MeetsOncoMouse TM: Feminism and Technoscience* (New York: Routledge, 1997), 146.

Kyveli Mavrokordopoulou is an art historian and critic. She is a PhD candidate at the École des hautes études en sciences sociales, Paris, and her dissertation considers the subterranean imaginary in contemporary art, especially in the case of nuclear spaces. She co-edited the special issue of the academic journal *Kunstlicht* "Nuclear Aesthetics." Along with her work on radioactivity, she has published articles on vertical/horizontal landscapes and waste aesthetics in academic journals and magazines, such as *esse arts+opinions* and *Necsus*. In 2018, she was a visiting researcher at Carleton University, Ottawa, in the context of the Climate Commons Working Group.