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I, Emily M. Freay, hereby submit this original work as part of the requirements for the degree of Master of Arts in Art History.

It is entitled:
Seeds of Consciousness: Bioethical Activism in Critical Art Ensemble’s "Molecular Invasion"

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Seeds of Consciousness: Bioethical Activism in Critical Art Ensemble’s *Molecular Invasion*

A thesis submitted to
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Abstract

The work of Critical Art Ensemble (CAE) intersects between multiple disciplines and practices, from graphic design and installation, to biological experiments and political activism. Michel Foucault’s identification of issues regarding population control as concern for biopolitical debate fosters an obligation for eco artists and activists in the age of biological engineering. As primary media outlets only scratch the surface of contemporary biopolitical problems, CAE assumes the role of orator within the dialogical forums that the group’s work initiates, *Molecular Invasion* [Fig. 1] (2002), shown at the Corcoran Gallery of Art, Washington D.C., presented a science-theater experiment to inform viewers of bioethical issues regarding Monsanto’s Roundup Ready® seeds. This study highlights CAE’s methods of information representation, collective research, archival study, and interdisciplinary collaboration.

Chapter one of this study introduces the role of *Molecular Invasion* as a component of the burgeoning artistic epoch of bio art and eco art in the twenty-first century. Living media, such as the Roundup Ready® seedlings within CAE’s installation, is becoming more prevalent as new technologies develop. *Molecular Invasion* is especially relevant today because it accentuates scientific processes seeming purely associated with the multinational corporation’s own work.

The second chapter of this study explores how the institution of science operates within a capitalist system. The work proposes that individuals question the status quo and actively acquire knowledge. An exploration of *Molecular Invasion*’s relationship to the institution of the Corcoran Gallery of Art and its conjoined College of Art and Design is also included here since the exhibition was brought to D.C. with the intention of educating MFA students.
Acknowledgments

The work of Critical Art Ensemble was introduced to me by Dr. Kimberly Paice, whose recognition of my interest in horticulture led me to the study of biological art. The incredible sources, advice, and encouragement Dr. Paice bestowed upon me throughout my research has been appreciated in the greatest sense, especially because my subject of choice was unlike any other topic I had written about before. Despite her busy schedule, she always allotted time to meet with me to discuss my topic and to edit numerous drafts with valuable remarks. As my thesis chair and the Director of Graduate Studies in Art History, Dr. Paice avidly guided and supported me from the start. I also want to extend my gratitude to Dr. Morgan Thomas, a member of my committee and the Art History faculty. Her passionate lectures inspired me to challenge myself as a writer and to think about my topic from varying perspectives. Any time I approached her with a question, Dr. Thomas was accommodating and sincere with her response, which always helped me feel more grounded. Her consistent concern for the wellbeing of others was another tremendous source of support throughout this process. My final committee member, Dr. Maia Toteva, provided significant advice in the early stages of my research that I am also indebted to. I am notably thankful for her correspondence from Blue Ash and the candid conversations that bolstered my interest in art and science.

I especially want to thank Dr. Steve Kurtz of Critical Art Ensemble for taking the time to enlighten me on the process of Molecular Invasion. His straightforward recollection of the work allowed me to form a more detailed description of how the experiment was performed. Dr. Kurtz’s readiness to divulge to a student he had never met proves that the work CAE does is sincerely focused on the concept of free knowledge. Not only am I obliged to thank him for aiding my research, but also for everything CAE has accomplished as a collective.
Finally, I must thank my mother Catherine Freay for influencing my fascination with plants and the art world. After working with you in the landscaping industry years ago, I felt compelled to investigate the nature of the herbicide we were using; I just had no idea it would also coincide with my research in art history. Thank you for taking an interest in my topic, for debating with me and testing me. You helped me realize how significant my research could be beyond the discipline of art history, and for that I am very grateful.
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Introduction

Critical Art Ensemble (CAE) is a practicing art collective that began with Steve Kurtz (1958) in 1987, when he and five fellow students started creating tactical media art projects in Tallahassee, Florida. CAE defines “tactical media” as that which “encourages the use of any media that will engage a particular socio-political context in order to create molecular interventions and semiotic shocks that collectively could diminish the rising intensity of authoritarian culture.”¹ For this reason, CAE strategically uses various formats to present its art, ranging from public performances to campaign initiatives and newspaper inserts. The group currently consists of four members (although some have been replaced over the years) who make a point not to emphasize their individual names in an effort to maintain the group’s collective identity. CAE also collaborates with others from various disciplines outside of the collective. Not limited by working in any one medium, CAE’s work includes: web design, graphic design, performance, and installation. The group has brought the attention of its viewers to various biopolitical and ethical issues regarding ecology, biotechnology, and sustainability.²

As the world becomes more populated, issues involving world hunger continue to surface. The Monsanto corporation claims to combat the hunger crisis with genetically-modified crops that produce larger, stronger yields, but ethical problems have emerged in the context of new technologies invented to facilitate a growing population, especially the global expansion of industrial agriculture. This study considers CAE’s activist exploration of discourse and ethical

² Joseph Dumit, “Foreward: Biological Feedback,” Tactical Biopolitics: Art, Activism, and Technoscience, (Cambridge: MIT Press, 2008), xii. Michel Foucault (1926-1984) defined the biopolitical as “the shift to population and territory as key problems for society: how to control and secure the multiplicity of men as living bodies, as populations, as global mass; modulating rates of life through birth control strategies or death through epidemic preventions.”
problems that biotechnology has brought about, particularly in regards to genetically-modified (GM) cash crops. This discourse is often invisible, since the knowledge required to understand the breadth of corporate influence on biotechnology and the possible health concerns it generates is not made readily available through popular media outlets in the United States, such as *Time Magazine* or *The New York Times*. While such venues have published articles about controversial topics, very little in depth coverage of institutional corruption in the field of biotechnology is available to the American public.³ For this reason, CAE initiates a forum with its works to inform viewers of Biopolitical ethics in a manner that is not typically available to them, shedding light on problems that garner greater recognition and transparency. Through a stark presentation of scientific evidence in the installation *Molecular Invasion* (2002), CAE suggests an activist approach to potentially counter the corporate agenda of Monsanto corporation.

Beyond making art, CAE theorizes, writes and situates issues that the collective’s art engages. Multiple books written by the collective are readily accessible via the CAE website, such as *Electronic Civil Disobedience*, *Flesh Machine*, and *Marching Plague*.⁴ Moreover, the website offers explanations of all past and current projects, documents, and written statements by CAE in addition to publications by and about the group. Each written piece on the CAE website


is related to a specific project or variety of projects by the group. *Marching Plague* (2006), for example, is described as an installation, video and performance that explored the “historical failure of germ warfare programs around the world from the point of view of both military and scientific logic, and questioned why the U.S. continues to expand its program in spite of its demonstrated failure.” The extensive amount of literature is made even more accessible by the manner in which it was written, as clear, concise, and broken down into clearly demorated chapters. Upon choosing which title to read online, a list of the chapters in PDF form appear above the “Anti-Copyright” date and the notice that, “this book may be freely pirated and quoted. The authors and publisher, however, would like to be so informed at the address below.” This offer of shared and free knowledge and request for transparency between the collective and the reader emphasizes the importance of freedom of information, which is a key tenet of the group. To CAE, information should be freely available. This tenet relates to the forum-based approach of the socially engaging art collective.

Unlike eco artists, such as Andy Goldsworthy (b. 1956), who use photography and elements of representation in order to convey ecological concepts, CAE creates work that consists of biological material as part of an experiment conducted by the collective to demystify scientific processes. This focus on the inner-workings of a discipline, otherwise considered far-removed from the art world, rejects the symbolic nature of much work that is associated with the Land Art movement in the 1960s and early 1970s. By moving their earthworks out of the gallery space to remote locations, as with Robert Smithson’s (1938-1973) *Spiral Jetty* (1970) in the Great Salt Lake, Utah. Land artists emphasized the propinquity of and distance between artwork

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created from nature within nature. While this epoch in art’s history led to the creation of many works that speak to ecological concerns, CAE’s work tends to be more directly political and offers information while proposing action. The focus of this study is on one work in particular, *Molecular Invasion*, which first exhibited at the Corcoran Gallery of Art, Washington D.C. in 2002 [Fig. 1]. It consisted of living Monsanto Roundup Ready® seedlings, grow-lights, and supplemental text via CDROM on computer screens. Reception and engagement with a detailed explanation are key goals of this work, not to create an art object that is formally significant.

Critical Art Ensemble’s first works consisted of video shorts that were “concerned with finding a visual language for theoretical abstractions,” such as *Foucault’s Paradox* (1987), which the collective felt had limited exposure outside of an academic setting. By attributing a visual element to theoretical concepts through video, CAE hoped to clarify the meaning of specific theories. After creating twenty-five video shorts, CAE then delved into the performance-based tactical media work and activism they have since become known for with *Frontier Production* (1988). Thomas Lawson (b. 1951) was head of the magazine *Real Life* and gave a lecture at the live, multimedia production, which resulted in an interview with CAE and Lawson. Critical reception of CAE is strongly related to the group’s dialogical approach to its work, in that direct reviews of CAE often discuss the multi-dimensionality and activism it displays. Perhaps this is due to the amount of theory the collective has written about itself, having published several books in multiple languages that describe CAE’s motive to challenge the status quo and generate

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dialogue in regards to the de-authorization of institutionalized thought. Disturbances (2012) is the only publication comparable to a catalogue of the group’s work, and it was compiled by the collective. CAE’s option to publish several books on their website through Autonomedia speaks to the group’s involvement in a post-structuralist forum of free information, as the publishing company considers itself to be “an autonomous zone for arts radicals in both old and new media.”

Since 2000, more publications such as Art Journal and Art Forum have included CAE as biological art while the intersection between art and science became more popular. With works such as Gen Terra (2001-03) and Molecular Invasion, CAE acquired more attention for its novel approach to critique of transgenics through public lab demonstration. In an article in Art Review, Janet Owen Driggs discusses CAE in relation to Eduardo Kac (b. 1962) and the Yes Men, as they too emerge in the discussion of biological art and challenging the status quo through performance. Since Steve Kurtz’s arrest in 2004, the group has gained more recognition in scholarly publications exposing government censorship of artistic license in a post-9/11 period, as in Gregory Sholette’s (b. 1956) "Disciplining the Avant-Garde: The United States Versus the Critical Art Ensemble."

Beatriz Da Costa (1974-2012) and Kavita Philip (b. 1964) edited a book that discusses various bio art projects, including the work of CAE. Tactical Biopolitics: Art, Activism, and Technoscience is fundamental in shaping the challenges associated with bio art’s unpacking of the politics infiltrating the institution of science and problematic nature of art that crosses

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disciplines in this environment.\textsuperscript{13} Linda Weintraub also writes about the dialogical aspect of the work of CAE in her book, \textit{To Life! Eco Art in Pursuit of a Sustainable Planet}.\textsuperscript{14} Weintraub places the collective within the current epoch of eco art, providing another fundamental source to understanding the interdisciplinary category of the CAE collective.

In addition to this scholarship, I have applied CAE’s research within \textit{Molecular Invasion} to more recent developments in the criticism of the multinational Monsanto corporation’s threat to biodiversity, as in seen in Marie-Monique Robin’s (b. 1960) \textit{The World According to Monsanto: Pollution, Corruption, and the Control of Our Food Supply}.\textsuperscript{15} Robin provides a comprehensive history and critique of the suspicious lack of ethics that the company has become known for, which CAE aims to expose. While \textit{Molecular Invasion} has not obtained as much recognition as other works by CAE that involve GM contaminated foods, e.g., \textit{Free Range Grain} (2003), its focused attention on Roundup Ready\textsuperscript{®} seeds makes it a relevant work to discuss. It is extremely likely that anyone reading about \textit{Molecular Invasion} in the United States has consumed a product of Roundup Ready\textsuperscript{®} seeds from Monsanto, as such information was not indicated on food labels until very recently.\textsuperscript{16} This is an issue that concerns anyone who is currently living and eating in the United States, whether one opposes or supports the manufacture of GM foods. What is crucial about \textit{Molecular Invasion} is that it presents the viewer with information about the source of GM food. It is this work in particular that spurred a

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forum-based environment to discuss Roundup Ready® seeds specifically and a way to combat Monsanto’s dominance through the practice of archival and scientific research.

To situate Critical Art Ensemble, my methodology in this study borrows elements of the approaches to contemporary art and theory that stems from the works of da Costa, Weintraub, and Emily Eliza Scott (b. 1971) and Kirsten Swenson (b. 1972) in their deciphering ecological and biotechnological art in the twenty-first century. I plan to discuss how CAE uses a combination of science, technology and activism to create not only art that points to ecology and biotech, but is directly composed of that which is being critiqued.

An overview of bio and eco art establishes the implications of the collective’s choice of medium and how it aids the group’s dialogical goals. Through an analysis of science as social criticism, the institution of the museum, and biological materials within the work, I plan to highlight the distinguished nature of CAE as a bio art collective that provides the opportunity for a forum among its viewers. As a group that has often exhibited outside of the gallery space, an examination of the relationship between the work and its chosen location for Molecular Invasion, The Corcoran Gallery of Art, is also necessary. Although CAE has dispersed, installed, and performed in unexpected locations, the decision for the work to be displayed in a conventional setting is of interest due to Molecular Invasion’s unconventional appearance and message.

Critical Art Ensemble goes beyond the skepticism in much postmodern art regarding its own activism and takes explicit positions. CAE is unconcerned with its personal status in the art world or how its members are viewed. Referencing CAE’s own words in the accompanied text Molecular Invasion, the group’s theories and motives are further clarified in their critique of

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18 Critical Art Ensemble, *Disturbances*.
19 Ibid.
capitalism and corporate greed, specifically targeting the multinational agrochemical company, Monsanto. Additional research on the global plight caused by the company will also be included, particularly through the work of documentary filmmaker Marie-Monique Robin and environmental philosopher Vandana Shiva (b. 1952).

Chapter one of this study describes Critical Art Ensemble’s stance on current ecological issues and how its political arguments have driven the group’s cause since its inception in the late 1980s. It includes a description of Molecular Invasion and discussion of Monsanto corporation’s history. Molecular Invasion is an overt critique of the multinational corporation Monsanto and its domination and creation of GM seeds, therefore an in-depth discussion of the company’s industrial practices and history is necessary. Chapter two is comprised of an analysis of this project in relation to biotechnology and sustainability, with an emphasis on the cultural construction of science as an institution. To understand the importance of CAE’s work, one must unpack why and how the average individual is discursively excluded from access to information regarding scientific and technological advancements. Chapter three connects this aspect of CAE’s pedagogical enterprise to the institution of the museum and how exhibiting at the Corcoran Gallery served as a prime forum. As a collecting institution and the oldest gallery in the United States, a discussion of temporality through exhibiting the work of CAE is also crucial. Each chapter includes critique of the Monsanto corporation, as the primary focus of Molecular Invasion is to inform the public of this corporation’s suspicious activity and the need for further investigation of how GM crops affect the environment and its inhabitants.
Chapter 1

Art and Biopolitics: Critical Art Ensemble within an Emerging Epoch

Critical Art Ensemble’s science-theater installation, *Molecular Invasion* (2002) transformed the space within the Corcoran Gallery of Art with a combination of untraditional media and strong political discourse. *Molecular Invasion* consisted of six long tables covered with floor-length black cloth, upon which custom flats of soy, corn, and cotton Roundup Ready® seedlings rested beneath grow lights and long extension cords hung suspended from the ceiling [Fig. 2]. After viewing a Monsanto company patent document made available to the public, CAE had found a small clause stating that the Roundup® resistance may be reversed by the application of a simple solution. This work was an experimentation of that solution’s influence on the Roundup Ready® seedlings, which proved to be detrimental. By suggesting a possible manner of sabotage of Monsanto crops, CAE presented the power of intellectual freedom and the potential outcomes of discovering hidden knowledge.

*Molecular Invasion’s* situation within contemporary art has resulted in a provocative dialogue about what is arguably this generation of artists’ Land Art period, ecological art.

According to Linda Weintraub (b. 1943):

Eco artists augment humanity’s prospects for attaining a sustainable future. By bolstering ecological art’s status as the current era’s definitive artistic movement, they are establishing an entirely new set of standards for measuring an artistic masterwork.

The political debates regarding ecological standards fueling the motives of Land Artists in the 1960s and 70s have not come to rest. Ecology and the earth’s environment have been present in

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20 “Contained in one of the documents was the possibility that the application of a vitamin B enzyme, pyridoxal 5 phosphate (p5p), could disrupt the protective effects of the modification of Roundup Ready.” Critical Art Ensemble, *Disturbances*, 124.

artwork across various mediums and artistic genres over the past fifty years. Recently eco art has been characterized by still more unconventional practices and standards. Such work addresses issues that non-art professionals claim and tends to blur the line between artwork and activism, among other disciplines and areas of study. Critical Art Ensemble, for example, collaborated with students at the Corcoran School in the creation of Molecular Invasion, in addition to consulting with interdisciplinary artists Claire Pentecost (b. 1956) and Beatriz da Costa. Eco art can also function as an object “with no artistic pretentions,” for example, it may simply entail seedlings under grow lights which, without the Ensemble’s artistic background and political discourse on the subject would otherwise be simply that. Thus of eco art does not require traditional studio practices or media, such as painting, sculpture, drawing, etc. Overall, ecological art is “defined as a mission, not a style,” insofar such work attempts to provide solutions to aid in present and future sustainability. Eco artists not only address contemporary issues regarding the planet as Land artists did before them, but also propose plans for the future.

The work of Critical Art Ensemble is also characterized as biological art by Linda Weintraub. This rising art form involves the employment of biological matter within the work, including plants, animals, bacteria, DNA, and/or organic tissue. Themes present in such work can range from the ecological to human genetics, implying a variety of discourses and ideas, but all with the common awareness that it is now scientifically possible to apply the “cut and paste method” to biological practice. Contemporary artist and horticulturalist George Gessert (b. 1944), who has dedicated years to breeding multiple varieties of irises as an art form, is

22 Ibid.
23 Ibid.
25 Ibid.
considered one of the pioneers of bio art with his commentary on genetics.\(^\text{26}\) The University of Western Australia offers a Master of Science in Biological Arts, which pairs students with degrees in science and visual arts with the School of Anatomy and Human Biology in order to explore how art and science intersect.\(^\text{27}\) This is an indicator that biological art like the work of CAE is at the forefront of new art practices, making it a relevant topic to what is happening in the art world today.

It is CAE’s goal to use biological art to clarify the science behind genetically modified cash crops through *Molecular Invasion*. The work was a legitimate experiment that the collective did not know the conclusion of; the main premise of which was to reverse the seeds’ immunity to Roundup® weed killer. Monsanto developed Roundup® to eradicate all non-Monsanto cash crop plants within farm plots so all nutrients and space may be dedicated only to the growth of the crop. Since the crops themselves are resistant to the herbicide, Roundup® can be sprayed over the entire plot of land, which is faster and more economical than hiring laborers to pull weeds manually. The concern generated through this practice involves how the herbicide may impact the food that is produced by the resistant plants: is the herbicide still absorbed into the crop and if so, what are the long term effects of consuming such crops over a lifetime? Another concern is how Roundup® spray may contaminate surrounding plant ecosystems. As cross-pollination and genetic mutation also occurs naturally and without human interference, a long-term effect of the herbicide’s use could be the engineering of the immunity of unwanted, invasive species of plants. By applying a liquid solution to Monsanto seeds to become vulnerable


to the herbicide, Critical Art Ensemble proposes a possible solution to the corporate giant’s monopoly and potentially dangerous practice of spraying Roundup® on crops meant for human consumption. If Monsanto were legally compelled to tell their growers to stop using Roundup®, a natural herbicide or holistic method would take its place, thus lessening their profit intake.

Marie-Monique Robin created a documentary film in 2006, *The World According to Monsanto*, that provides a sweeping history of Monsanto’s eco disasters, its sneaky tendency to withhold scientific data, and multiple interviews with politicians, scientists, and farmers who have experienced the controversial behavior of the multinational corporation. The film was adapted into a book in 2010, which contains further developments on these ongoing ethical concerns. Robin begins the first chapter, “PCBs: White Collar Crime,” in the town of Anniston, Alabama. This location was once a prosperous industrial town that “made Monsanto a fortune” when PCBs were still legally “used as coolants in electric transformers and industrial hydraulic machines …also as lubricants in applications as varied as plastics, paint, ink, and paper.”

As Monsanto dominated the PCB market, Anniston became incredibly polluted. In a “declassified report” prepared by the Environmental Protection Agency in 2005, “68 million pounds of contaminated wastes were deposited in an open pit located on site, in other words, in the heart of the city’s black community.” This negligence led to decades of hundreds of individuals in the community dying of cancer due to the lack of cleanup from the company, which abandoned the town after burying its waste. Monsanto paid a settlement to Anniston in 2003, but a thorough cleanup of the area is still in progress according to the EPA.

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The town of Anniston and the drastic effects of Monsanto’s involvement there exemplifies a pattern of such practices by the company with similar negative effects since the 1930s, such as withholding data pertaining to potential health risks. Apparently Monsanto was aware of the health threats associated with PCBs as early as 1937, when Monsanto’s medical director, Dr. Emmett Kelly, attended a meeting at the Harvard School of Public Health. At this meeting research on PCBs was presented that rats had obtained liver lesions during testing, and three workers at the company Halowax had died from PCB fumes while several others were afflicted with chloracne, “a terribly disfiguring skin disease.” Monsanto continued however, even when their customers indicated concern, only amending the label to inform users to take extra safety precautions while dealing with PCBs.

Knowing that Monsanto ignored the warnings of scientific evidence for so many decades in regards to PCBs, one cannot help but wonder what else the corporation as chosen to ignore. For this reason, Critical Art Ensemble is creating transparency of the biotechnology behind Monsanto’s GM Roundup Ready® seeds through Molecular Invasion. Roundup® weed killer is a major profit-maker for Monsanto (just as PCBs were decades ago) marketed towards large-scale landscaping companies, farmers, horticulturalists, and the average gardener. The main ingredient in Roundup® is glyphosate, a chemical discovered in the 1960s that is not harmful to plants until developed in combination with the other various ingredients in Roundup®. Created in 1974, the herbicide:

…destroys all forms of vegetation…it is absorbed by the plant through the leaves and quickly carried by the sap to the roots and rhizomes. There it inhibits an enzyme essential for the synthesizing of aromatic amino acids, which leads to a decrease in the activity of chlorophyll as well as of certain enzymes. This causes the necrosis of tissue, leading to the death of the plant.

Through this process that can take up to two weeks, dead weeds result, proving Roundup® is an effective product one can purchase at an affordable price. What will the greater price be, however, if Roundup® is continuously used on a global scale? In the 1990s Roundup® advertisements boasted that the substance was respectful of the environment and “100% biodegradable” in order to discourage any doubts customers may have had about using a chemical near their pets their food. This was later determined to be a lie.

As the result of various complaints filed against Monsanto, the company was compelled “to negotiate a settlement with the State Attorney General, who had opened an investigation of false advertising by Monsanto regarding the safety of Roundup® herbicide.”28 Complaints were filed about the herbicide in 1996, five years after a private lab, Craven Laboratories, had falsified research meant to measure Roundup® residue “on plums, potatoes, grapes, and sugar beets, as well as in soil and water.”28 This also became problematic for the credibility of the EPA since they had previously approved the studies as indicative that there was no health or environmental threat. Monsanto was given a fine as penalty and were since banned from advertising Roundup® as “safe, nontoxic, harmless or free from risk,” or for its “environmental characteristics.”28 Monsanto did not learn a lesson from this ruling, as they were accused of false advertising that Roundup® was safe to spray in or near water only two years later. This resulted in another fine of 75,000 dollars, which was pocket change in comparison to the profits Monsanto had already acquired from the false advertising. The only lesson learned by the multinational corporation was that a company can get away with false data and false advertising if the company is profitable enough to cover the fine. Roundup® is still the number one herbicide in the world regardless of these discoveries and Monsanto is steadily grasping more control within the agrochemical market.
If Roundup® had been subjected to severe scrutiny and penalty, Roundup ready® seeds may never have been created. Monsanto’s tendency to slip through the cracks only gives it more momentum to build off of products that are not definitively safe, allowing them to make more profits and achieve other monopolies in the process. Craven Laboratories’ false data was created for Monsanto’s benefit, which generates concern for how much power the company has over scientific institutions. It is Monsanto’s inherent capitalist motives that have generated monumental concern about GM products, which *Molecular Invasion* addresses.

Critical Art Ensemble’s *Molecular Invasion* publication serves as a guide and practice to *Molecular Invasion* the work. 31 The group argues that capitalism’s imperialistic tendencies have spread to the biotechnological domain, specifically by large corporations such as Monsanto. Monsanto scientists use biotechnology to engineer cash crops such as soy, canola, and corn, in order to increase company profits, which has resulted in the company’s near monopoly over all cash crops in Western civilization. 32 Genetically-modified foods began entering grocery stores as long as three decades ago, but growing concerns about their possible side-effects have become increasingly raucous over the past decade. Although Monsanto claims GMOs are scientifically proven safe for consumption, tests were not performed by an unbiased source, as Monsanto has their own team of transgenic scientists who perform and produce public reports about the very procedures they are paid to complete. Critical Art Ensemble does not necessarily condemn the science behind GMOs, but strives to facilitate discussion to induce a public forum about the system in which they operate. The overarching question the art collective wants the public to ask

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themselves is: “Why did we not have a say as to whether our food should be genetically modified in the first place?” The short answer to the question would be “capitalism,” wherein profitability conquers all. Corporate influence is another aspect of current political discourse that *Molecular Invasion* exposes, so viewers can begin to consider interest groups and decision makers that do not hold the best interest of the public in high regard.

In appearance, the formal presentation of *Molecular Invasion* in the Corcoran Gallery of Art had many visual links to the kind of corporate display engrained in science fair booths or trade shows, which the Monsanto company regularly participates in. The space was developed to behave in the form of science, presenting the collective’s scientific and archival research in an organized and direct manner. This is similar to the method of Russian Agitprop revolutionaries of the early twentieth century, who used established propaganda techniques to disperse anti-establishment rhetoric. *Molecular Invasion* assumed the visual language of the corporate tradeshow in order to state its validity as an opponent, engaging in competition rather than an outright expression of disapproval. On a CD-ROM, the collective complied in-depth information regarding the production and deployment of transgenic crops and the experiment, which was made available to view on two computers that resided near the gallery’s entrance. Visitors were encouraged to sit at one of the computers and to walk around while examining the living Roundup Ready® crops. While this exhibition facilitated a discourse about transgenic crops, it was done so in a way that is more closely linked to its scientific components rather than the artistic. Unlike the Austrian dialogical art collective WochenKlauser, which engages in

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35 Critical Art Ensemble, *Molecular Invasion.*
dialogical workshops that involve a chosen group of individuals engaging with one another, CAE’s *Molecular Invasion* is a testament to dialogue for the sake of obtaining and dispersing information. 36 One would not describe the space as a comfortable area for individuals to gather and lackadaisically discuss the exhibition; it was a professionally displayed scientific experiment that provided knowledge about a topic that is not meant to be considered a malleable matter to calmly discuss, but an urgent message that requires the diligence and careful presentation one might see at a conference or convention. The large, blue and white banner that hung behind the tables of seedlings was also linear and stark in appearance, with perpendicular lines and the chemical formula for pyridoxal 5-phosphate prominently displayed [Fig. 3]. This banner, and the exhibition overall, were a clear statement to viewers and the Monsanto corporation that Critical Art Ensemble’s research was valid and worth equal competition with the claims produced by the company. By deconstructing the convention that artists must use expression in order to convey meaning through art, *Molecular Invasion* shows how artists may use corporate methods of display to their advantage.

Another exhibition by CAE is *Free Range Grain* (2003) [Fig. 4], which is perhaps the group’s most well-known work due to its more hands-on, participatory role for its audience. Visitors were welcome to come into the space with household food items that could be tested for genetically modified (GM) ingredients. This demonstration, which focused on corn-based products, began in Europe where it is illegal not to label a package that contains GM ingredients. As a continuation of the group’s “public lab initiative” the aim was to “lower public alienation regarding science,” which partly meant “showing how slow and mundane the everyday processes

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of biological science are.”

Although the collective saw repetitive food-testing as mundane, it successfully generated interest so that a discussion of the political economy of food could result. Biological material utilized in this exhibition was also the cause of Steve Kurtz’s arrest by the Federal government, making the exhibition a discussion platform regarding the case and the deeper issue of neo-conservative control over cultural resistance through art. As the case was ongoing for several years and spurred heated debate within the art community, the actual content of *Free Range Grain* and its significance in GM critique is often overshadowed. *Molecular Invasion*, however, was created before the allegations against Dr. Kurtz, therefore it is hardly mentioned as often as *Free Range Grain*. Both exhibitions are significant works of the collective as forums initiating discussion about GMs, however, the demonstration in *Free Range Grain* focused primarily on the finished food product rather than the root of the issue with GM ingredients: the seeds used to grow the GM corn. *Molecular Invasion* exposes the agrochemical company responsible for the expansion of GM ingredients, while recognizing the harmful affects GM seeds have on biodiversity. *Free Range Grain* may emphasize a personal experience with unwanted GM ingredients in the home, but *Molecular Invasion* speaks to how the issue is affecting consumers, farmers, and the environment on a global scale.

A current ongoing art project called *Share Seeds* also emphasizes this continuing threat to biodiversity incurred by the patenting and trading of GM seeds created by Monsanto. Based in O’ahu, Hawaii, artist Gaye Chan (b. 1957) and sociologist Nandita Sharma (b. 1964) set up “seed stations” in various locations where anyone can take a seed packet of non-GM seeds and

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37 Critical Art Ensemble, *Disturbances*.
leave their own non-hybrid seeds in return.\textsuperscript{39} In a presentation method similar to that of *Molecular Invasion*, the seed stations exude a likeness to government signage, which encourages its legitimacy to the public. This has created a reciprocal community effort to promote the old customs of seed-sharing and harvesting, which in turn has become “crucial to our freedom, autonomy from capitalism, and for our survival.”\textsuperscript{40} Since Monsanto has legally patented their GM seeds that are now cross-breeding with natural, long-established seeds, biodiversity is diminishing while the company’s monopoly only inflates with the intention to eventually control all of the world’s food supply. Considering the rapid growth of Monsanto over the past century, the following chapter explores how the public has learned to avert its attention from scientific advancements and technology, due to the belief that it is outside of the average individual’s intellect or concern. Critical Art Ensemble writes in *Molecular Invasion* the group’s theories on the intersection between institutions of scientific disciplines and capitalism.


\textsuperscript{40} Ibid.
Chapter 2

“Institutional Borders:” *Molecular Invasion* within Science and the Museum

*Molecular Invasion* introduces “Fear and Profit in the Fourth Domain,” wherein CAE describes the deeply-rooted ideologies of fear associated with the advancement of technology and science.\(^{41}\) Using popular metaphors to establish a narrative of this history, the writing in this book exemplifies how this rhetoric has been a part of Western culture since the beginning of the nineteenth century, when science began to replace God as an omniscient force.\(^{42}\) With science came the opportunity for humans to manipulate nature more for their own benefit, from harnessing electricity for power to modifying genes in tomatoes to make them larger or juicier. With science also came more possibility for error, as with new technology arrives new potential for risk. Referring to Mary Shelley’s (1797-1851) 1818 novel *Frankenstein*, CAE indicates the tone that still resonates with contemporary science:

> The natural order is not part of the intention of God; the delightful and the monstrous are just an emergent part of nature itself. Science as the daedalean intervention can help improve the human relationship with the natural order; however, it must stay within the fairly traditional sphere of human intervention. This means that encroachment upon the fourth domain, the domain of hybridity through recombination, should be off limits. When this boundary is crossed, the monstrous appears, and it is usually to the mortal detriment of the one who conjured it.\(^{43}\)

This recombination is Frankenstein’s monster, a man made from the combination of various body parts, which serves as a metaphor for GM produce. While Shelley’s is indeed a fictional story, it applies in that the spread of fear in regards to GMOs would do more harm than good. CAE is comparing the body parts of the monster to the genes within an organism: a

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\(^{42}\) Ibid.

\(^{43}\) Ibid.
recombination of genes is just as much an encroachment of the fourth domain as the recombination of anatomy, and should be regarded with extreme caution over fear. *Molecular Invasion* presented a contemporary critique of the issues surrounding genetically modified foods, which are still commonly named “frankenfoods” in anti-GMO arguments. It is the duty of activists such as CAE to neutralize this fear because fear is what creates a spectacle, a “blanket” that entirely dismisses that which is not necessarily detrimental to the population affected.\(^{44}\) A corporation such as Monsanto is also concerned about this deeply internalized fear, so it must market its product as an element of progress to mask any discussion that could be detrimental to that product. CAE’s second chapter, “The Promissory Rhetoric of Biotechnology in the Public Sphere,” discusses how capital uses science to its advantage on such matters:

> Science is the institution of authority regarding the production of knowledge, and tends to replace this particular social function of conventional Christianity in the west. In keeping with this position, science has slowly but surely become a key myth maker within society, thus defining for the general population the structure and dynamics of the cosmos and the origins and makings of life, or, in other words, defining nature itself. \(^{45}\)

Those who continue to be afraid of scientific issues such as genetically modified organisms due to internalized Frankenstein-esque ideologies are only more gullible, more susceptible to the utopian claims made by capital in an attempt to engulf predicated notions regarding their scientific endeavors.

> As molecular biology continues to be viewed as new territory in the West to be conquered, multinational corporations will continue to fund the science necessary to carry out experiments most profitable to them. Monsanto did not pour millions of dollars of research into

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\(^{44}\) Ibid.

GMOs to better the world or to support advancements in the scientific field; their goal was and always will be to make a greater profit. Now that this technology exists, however, one should not dismiss it out of fear nor be ignorant of its possibilities. In an interview with Richard Levins (1930-2016), ecologist, geneticist and activist, he mentions contemporary scientists’ contempt for philosophy and specificity regardless of pleas for interdisciplinarity.\textsuperscript{46} According to Levins, the “commodification of science and its institutional organization works against self-reflectivity…Scientists are evaluated mostly by their contributions within the bounds of their department’s definitions. Funds are awarded according to bounded programs,” which includes programs bound by a contract with a multinational corporation.\textsuperscript{47} Although these limits exist depending on where a scientist works and what the motive of the employer may be, Levins attests that “scientists have to defend the integrity of science against its manipulation by the regime.”\textsuperscript{48} It is doubtful, however, that this need to defend would be a concern for someone working as a specialist in a particular scientific field hired to complete a certain task for the benefit of the hiring company. Any scientific endeavor runs the risk of manipulation by capital, because without the necessary funding for these institutions (corporate or academic) no research would occur, at least not in a capitalist society like the United States. Scientists may personally harbor concern for the distinction between science and corporate for-profit work, but it is also likely that if they are being paid to complete a task, they remove their personal reservations in order to do the job they were hired to do…or they may not even be aware of what their work is being utilized for. This speaks to the fact that it is not the science that the public should be wary


\textsuperscript{47} Ibid.

\textsuperscript{48} Ibid.
of, but the neoliberal attitudes using such scientific practices in order to maintain control over profit.

While it is reasonable to question how genetically modified foods may affect oneself and the environment, CAE did not claim to support an anti-GMO attitude through their exhibition *Molecular Invasion*. It was their aim to present to the public an alternate use for transgenics, one that was not “left solely in the hands of the military and various multinational corporations.”

The Ensemble supports the practice of “public amateurism,” a term coined by *Molecular Invasion* collaborator Claire Pentecost. An artist and writer who researches the institutions and divisions of knowledge, Pentecost describes public amateurism as the notion where “artists inhabit the positions of amateurs and hobbyists in order to make visible our everyday relationships with techno-scientific processes,” which allows “outsiders” to make connections that relate to the big picture and discourse on otherwise intimidating matters. It is a way “to augment specialization with other models that have legitimate claims to producing and interpreting knowledge” whether it is through the artist or the viewer.

To be a non-specialist in the scientific field means to be free from the restraints of the science community, whether it be the restraints of a specific discipline or institution. If interdisciplinarity is too ambitious for the narrow tendencies of contemporary science, then it is now the responsibility of the less rigid disciplines of writers and artists to include discourse of various topics in their work. Philosophy may no longer be an integral component of science as it once was, but it has certainly not left the arts. As multi-media becomes more dominant in the art world along with rising concepts in eco and bio art, an ideal platform for the discursive arises.

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50 Ibid.
The notion of “public amateurism” is evident in Pentecost’s contribution to *Molecular Invasion*. The third chapter of the work, “Transgenic Production and Cultural Resistance: A Seven-Point Plan,” presents a set of guidelines for negotiating the relationship between transgenic production and cultural resistance to break down previous expectations of behavior:

1. Demystify transgenic production and products
2. Neutralize public fear
3. Promote critical thinking
4. Undermine and attack Edenic utopian rhetoric
5. Open the halls of science
6. Dissolve cultural boundaries of specialization
7. Build respect for amateurism.  

Living in a society governed by capitalism teaches individuals to be non-reactionary, accepting the societal boundaries provided. Through the practice of demystification and the promotion of critical thinking as stated in the Seven-Point Plan, a forum-based environment is encouraged on a daily basis, not only in the gallery space. According to interdisciplinary artist Beatriz da Costa, points five, six, and seven are of most interest in regards to the exhibition *Molecular Invasion*, which examined the possibilities of reverse engineering Monsanto’s highest cash crop, the Roundup Ready® plant line:

We attempted to sensitize Roundup Ready crops to Monsanto’s herbicide Round Up, the very poison they were designed to resist. Through the application of the compound pyridoxal 5 phosphate \([p5p]\) (a compound often found in vitamins, harmless to humans and the environment) onto the leaves of RR crops and exposure to sunlight, we undertook this task. Experiments to test our hypothesis were conducted publicly within the museum space and with the inclusion of interested students and other groups ready to participate in this particular instance of amateur science *in action*.  

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52 Ibid.
Critical Art Ensemble and collaborators on the *Molecular Invasion* project derived this information from a research document relating to Monsanto’s patent on the product, that which is seldom disseminated to consumers.\(^{53}\) It merely stated that there was a “possibility” that through applying a vitamin B enzyme, pyridoxal phosphate, the protective effects implemented into the crop could be compromised.\(^{54}\) The fact that this information was public further exemplifies how anyone can find ways to disrupt the status quo if they look in the right places. Vitamin B can be purchased in any health food store, but according to Steven Kurtz, one can obtain a better quality enzyme through a chemical distributor.\(^{55}\) In terms of making p5p and applying the solution, CAE and the students from the Corcoran School of Art and Design:

> mixed it [vitamin B] with water to make the spray. Although just to make sure we got an even coating of each plant in the exp[erimental] group, we used a paint brush and painted it on.\(^{56}\)

Once exposed to light, photosynthesis incurred the process of activating this solution by absorbing the enzyme into the leaves of the plants. After enough time had passed for the enzyme to have been embedded in the plants’ systems, students sprayed the experimental group with Roundup\(^\circledR\). It took a week or so for the plants to show the effects of the weed killer, but the experiment was in fact a success.

There is mention of the collective conversing with a molecular biologist who provided consultation on the identification of p5p, a PhD student in the biology department at the University of Pittsburgh at the time.\(^{57}\) This does not refute the notion of public amateurism that *Molecular Invasion* supports, as they encourage amateurs to consult with professional

\(^{53}\) Ibid.

\(^{54}\) Critical Art Ensemble, *Disturbances*.

\(^{55}\) Steven Kurtz (member of Critical Art Ensemble), in discussion with the author, March, 2016.

\(^{56}\) Ibid.

individuals within the scientific field. As amateurs, it would be practical to consult a professional while still conducting the experiment and facilitating discussion on one’s own terms, which is exactly what occurred while the exhibition was installed in the Corcoran Art Gallery. Since the *Molecular Invasion* project was also part of The Corcoran College of Art and Design’s Visiting Artists Program, several Bachelor of Fine Arts students were involved in the installation and execution of the project as well. By incorporating students who did not have backgrounds in science, CAE informed those students of interdisciplinarity in the art world and how public amateurism can be applied to facilitate multiple disciplines within art.

Although the exhibition was a success in terms of the experiment and engaging the public with a complex scientific process, Monsanto reacted with legal threats. With all of the coverage in local media on *Molecular Invasion* and its thought-provoking political message, the multinational corporation was informed of the exhibition and representatives made an appearance. In an interview with Steven Kurtz about Monsanto’s reaction, he said:

> They [Monsanto] did try to intimidate us. They sent half a dozen lawyers or so to the exhibition demanding we cease and desist. They photographed everything and said they would sue for patent infringement. They never did. [It] would have been an interesting case.\(^{58}\)

This implies that the long-established and education-oriented Corcoran Gallery of Art was indeed a safe location to host the provocative exhibition. Perhaps Monsanto could have won the legal debate on how the collective obtained their seeds, but it would have caused a myriad of issues for their public relations department, which in turn may have affected profits. Monsanto’s need to make their presence known to Critical Art Ensemble indicates further that the

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\(^{58}\) Steven Kurtz (member of Critical Art Ensemble), in discussion with the author, March, 2016.
A multinational will do what it can in order to maintain its power, no matter how small the indication of resistance may be.

**Invading the Gallery Space**

*Molecular Invasion* was a drastic contrast in comparison to the existing collection, exhibitions, and architecture of the Corcoran Gallery of Art. The work resided in one of the gallery’s spaces that had a particularly high, domed ceiling with rectilinear coffers, which furthered the disruptive juxtaposition between the scientific nature of the piece and its classical cocoon. Entering the space was transformative for viewers as they journeyed from a traditional setting of white light into an immersive, dim purple glow. It would have been immediately known that *Molecular Invasion* was not a typical exhibition for the Corcoran Gallery of Art to show, imposing an unexpected duty upon museum-goers. To sit at one of the computers within the installation containing information about farming and Roundup Ready® seeds in the United States was to assume the role of active learner as opposed to a mere observer. While didactic labels on conceptual art provide a meaning to the viewer written by museum staff, CAE’s blunt offering of facts about GM products allowed people to decipher their own conclusions about what they were reading and the experiment before them. Visitors could walk around the tables containing the Roundup Ready® seedlings to witness the scientific process. As an ongoing experiment, the seedlings appeared small in the beginning stages, then grew to several inches high further into the exhibition’s duration, and were eventually browned with decay days after Roundup® was applied. Part of the seedlings remained green, however, as a control group. Although *Molecular Invasion* was a proponent of activist criticism about the Monsanto corporation, the manner of the installation let the group’s research speak for itself rather than provide an overt interpretation.
Critical Art Ensemble does not tell the public how to react to the ethical issues in biopolitics it presents, nor does it ever have a specific outcome in mind while carrying out its work. CAE does present the public with information and a primary component of their mission as artist-activists of the eco and biological art persuasion is this transparency and accessibility to the public, which is exemplified in their choice to show *Molecular Invasion* at the Corcoran Gallery of Art. The Corcoran Gallery of Art had contacted Critical Art Ensemble to participate in their Visiting Artists Program in the fall of 2002, which presented the collective with a high-profile venue and opportunity to display its recent findings on the genetic disruption of Roundup Ready® crops and create a public forum trademark. As a long-established institution, the Corcoran was not only very public, but it also “had a sturdy umbrella of legitimacy” that CAE needed to accredit their findings in the eyes of visitors. Under the Corcoran umbrella, CAE’s unusual exhibition was able to reach more visitors, thus spreading the knowledge of this technology that was otherwise hidden from the public.

As a biological art installation with heavily science-oriented themes, *Molecular Invasion* was an atypical work to a certain museum setting such as the one afforded by the Corcoran Gallery of Art. Art containing biological material requires even more care and consideration than an eighteenth century painting, for example, due to its ephemeral and organic qualities. Unlike more conventional non-living mediums, biological art containing plants, animals, and tissue raise more questions in terms of maintenance of the work and the safety of its viewers. Ellen K. Levy (b. 1955) studies the relationships between the social, technological and biological within the visual arts. She outlines the recent developments certain galleries and museums have made in

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59 Critical Art Ensemble, *Disturbances*.
an attempt to clarify the terms of hosting a biological art exhibition, while also describing the possible drawbacks such institutions may be susceptible to. Rather than form an explicit policy pertaining to all biological art potentially being acquired, institutions such as MOMA and the Henry Art Gallery in Seattle, Washington examine the potential hazards of each specific work they may consider. For example, a work containing elements of time-sensitive wet biology such as petri dishes will require more attention and training of gallery staff. A potential hazard of what that pertains to is the practice and display of such work involving corporate sponsorship and patronage, which undergirds the fiscal position of museums and galleries. Many biological art works, including the work of Critical Art Ensemble, critique capitalism’s effects on the environment, technology, and scientific endeavors. If a museum or gallery receives funding from a corporation that the artwork alludes to or criticizes directly, it would be in the best interest of the institution to choose a different piece or to obtain a separate endowment fund for that specific exhibition.

Critical Art Ensemble’s installation piece *Gen Terra* (2002) [Fig. 5] composed part of the exhibition *Gene(sis)* at the Henry Art Gallery. *Gen Terra* consisted of a participatory lab placed within the gallery space; there “participants manipulated transgenic bacteria in an effort to develop a more nuanced understanding of risk assessment regarding the uses of recombinant DNA.”\(^{61}\) The exhibition of this work in particular aided in establishing more precedents in regard to further exhibition of biological art in the United States, which was under scrutiny due to the government’s heightened sensitivity. The early 2000s was a sensitive time for the United States due to the threat of anthrax outbreaks and the resonating terror imposed by 9/11, causing the Department of Homeland Security to be ruthlessly meticulous while investigating any potential

\(^{61}\) Ibid.
biological threat, even in the art world. Steve Kurtz was actually arrested after calling for help upon the discovery of his deceased wife, who suffered from a heart attack. Under the Patriot Act, the labs in his home on scientific art projects appeared suspicious, resulting in the confiscation of his lab, household items, and his wife’s corpse. Although the charges were dropped after years of trials, it is an infamous case of the constraints imposed upon the art community post-9/11. In order to host their significant biological art exhibition, the Henry Art Gallery was subjected to lengthy negotiations with legal counseling to become a model for other museums showing bio art.  

The Corcoran Gallery of Art resides in Washington D.C., just a ten-minute walk from the White House. It is unknown whether a project such as *Gen Terra* could have been implemented in this location due to its bacterial components that caused concern across the country. *Molecular Invasion* was shown without suspicion from the government, presumably due to its lack of petri dishes and bacterial modification. An installation consisting of soy, corn, and canola seedlings resting peacefully beneath grow lights amidst computer screens of didactics was apparently not as threatening, but it was certainly unexpected for the conservative Corcoran Gallery visitor. One review of *Molecular Invasion* in the student-run newspaper *The Georgetown Voice* described the visitors as “old ladies in their pantsuits and matching hats” who would “make a hasty escape to the *Fashioning Art: Handbags by Judith Leiber* exhibition down the hall” after reading the project description.  

In light of the controversial and risky nature of displaying CAE’s art, it is worth considering why the Corcoran Gallery of Art chose the collective to host for the Corcoran College of Art and Design’s visiting artists program.

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62 Ibid.
The Corcoran Gallery of Art was opened to the public in 1874, making it one of the oldest galleries in the United States. Founded by the banker and wealthy philanthropist William Wilson Corcoran (1798-1888) who knew artists of his time and purchased works directly from them, the aim of the gallery was to “encourage American genius” and to display “art of the times.”64 Collection acquisitions had since become more centered on the modern period rather than contemporary work until the Corcoran closed due to financial issues in October, 2014. It has since been acquired by the National Gallery of Art and is expected to reopen in late 2015. The latest mission statement of the gallery primarily focuses on the importance of education and its affiliation with the Corcoran College of the Arts and Design:

The Corcoran is committed to making the historic art in its collections and the emerging art of our time accessible and understandable to the broadest possible audience through innovative exhibitions and educational programming, systematic research and rigorous scholarship. Its many activities emphasize the combined resources of its museum and college, and are directed toward diverse communities with widely differing educational and socio-economic backgrounds. Though proud of its important place in the international world of art history and scholarship, the Corcoran is ever mindful of its special obligation to serve the greater Washington region, especially its artists and its young people.65

With an emphasis on education, diversity, and youths within the community, this mission statement explains why the Corcoran Gallery of Art would have been compelled to hold an exhibition such as Molecular Invasion. Even though the collection and architecture were heavily influenced by traditional art historical characteristics and practices, their mission exemplifies a certain obligation to the surrounding community. New and innovative temporary exhibitions were implemented in order to generate interest in the student population and a younger crowd in

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65 Ibid.
general, catering to the interdisciplinary-contemporary art student’s needs. Museums built in the nineteenth and early twentieth centuries often evoke a “a long-established association of memory with preservation and storage” because of their temple-like structures, but more museums are attempting to include technology and different pedagogical techniques in their exhibitions to appeal to a wider demographic.66

*Molecular Invasion*’s exhibition at the Corcoran Gallery of Art also raises the question of how the work of CAE relates to the role of the museum within contemporaneity. Claire Bishop’s (b. 1979) essay *Radical Museology: or, What’s ‘Contemporary’ in Museums of Contemporary Art?* discusses how it is now becoming a trend for the artwork within privatized museums to become overshadowed by the museum’s architecture. Referencing Rosalind Krauss’s (b. 1941) “The Cultural Logic of the Late Capitalist Museum” (1990), Bishop suggests that destination museums and cultural sites, such as the Abu Dhabi cultural district that is currently undergoing construction, succumb to a commercialized, presentist “image” to be economically successful over an obligation to inform visitors of the temporality of contemporary art.67 While non-collecting museums emphasize the here-and-now in the art world with impressive solo shows and intriguing architecture, as with Cincinnati’s Contemporary Art Center designed by international architect Zaha Hadid (1950-2016), they may not be the most beneficial to the knowledge of visitors or younger artists.68 According to Bishop, a collecting museum has a greater capacity to act as a forum due to their temporality:

…museums with a historical collection have become the most fruitful testing ground for a non-presentist, multi-temporal contemporaneity...This is because it
[a collection] requires us to think in several tenses simultaneously: the past

68 Ibid.
perfect and the future anterior. It is a time capsule of what was once considered culturally significant at previous historical periods, while more recent acquisitions anticipate the judgment of history to come…Without a permanent collection, it is hard for a museum to stake any meaningful claim to an engagement with the past—but also, I would wager, with the future.69

By including a science experiment within its neoclassical walls, the Corcoran Gallery of Art appeared as a learning institution above all. *Molecular Invasion* was not a product of administrative intention, but of the exhibition’s mission to inform its viewers reflected upon the institution as a participating member in the dialogue of the contemporary. CAE’s invitation to collaborate with students at the Corcoran School allowed the group to install its unorthodox exhibition without penalty from the museum’s administration. In doing so, the group was able to provide information to an audience that would have otherwise never been afforded the opportunity to learn about biotechnological practices. It is this astute quality of CAE that speaks to the group’s dedication to a free information and the enlightenment of society in regards to science.

Critical Art Ensemble’s investigation of science and technology through art in conjunction with an output of collectively written literature separates this group from the commodification and individualization of the artist as creator. The viewer’s access to information is important to the collective, especially with the result of a sense of inquiry and desire to obtain knowledge after an interaction with the work. Through a combination of activism and science in CAE’s installation work *Molecular Invasion*, the collective addressed bioethical concerns regarding GM products well before such issues became publicly known on a broad scale. It has been over a decade since *Molecular Invasion* was shown, but vehement debate about the labeling and use of GM food and seeds is becoming only more relevant in biopolitical

69 Ibid.
discussions of bioethics, today. In fact, relevancy of this work and the collective CAE in the history of ecological art and contemporary politics has grown with time, as Monsanto’s products continue to proliferate the global market and ecosystem.
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**By CAE**


Figure 1
Critical Art Ensemble
*Molecular Invasion*
2002
Roundup Ready® canola, corn, and soy seedlings, full-spectrum fluorescent bulbs, extension cords
Dimensions vary
Photograph from *Disturbances* (2012)
Figure 2
Critical Art Ensemble
Molecular Invasion (installation view)
2002
Roundup Ready® canola, corn, and soy seedlings,
full-spectrum fluorescent bulbs, extension cords
Dimensions vary
Photograph from Disturbances (2012)
Figure 3
Critical Art Ensemble
*Molecular Invasion* (banner)
2002
Photograph from *Disturbances* (2012)
Figure 4
Critical Art Ensemble
_Free Range Grain_
2003
Pipette tips, micro tubes, macro tubes, pipette tubes, pack of gel film, scale paper, gloves, agarose powder, DNA stain, PCR stain, TAE, CDROM, lab bench, lab stools, computers
Dimensions vary
Photograph from critical-art.net
Figure 5
Critical Art Ensemble
*Gen Terra*
2003
Bacteria release machine
Dimensions vary
Photograph from critical-art.net