

Lea

LEONARDO ELECTRONIC ALMANAC

**VOL 17 NO 1** A collection of articles, reviews and opinion pieces that discuss and analyze the complexity of mixing things together as a process that is not necessarily undertaken in an orderly and organized manner. Wide open opportunity to discuss issues in interdisciplinary education; art, science and technology interactions; personal artistic practices; history of re-combinatory practices; hybridizations between old and new media; cultural creolization; curatorial studies and more.

Contributions from

**Frieder Nake, Stelarc, Paul Catanese**

and other important cultural operators.

M I S H  
W V 2 H

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A B S T R A C T

**Cost of Opportunity is a project that creates a series of diamonds as artworks. The Gunpowder Diamond will be produced entirely from carbon found in .223 Caliber assault rifle ammunition.** The gunpowder is safely neutralized in a laboratory and the carbon it contains is isolated. Future proposed art-diamonds include the Road-kill Diamond from Nine-Banded Armadillos killed on Texas thoroughfares and the Superman Diamond from a 1983 cellulose acetate film print of Superman III (wherein Superman crushes a lump of coal into a diamond). A monetary value for each diamond is to be determined at a live auction, generating funds for

future diamonds in an ongoing series of stones made from various culturally charged materials. The project explores personal and cultural valuation, materiality, and the way market pressures have altered the definition and function of art. Multiple attempts to secure research funding reveal the limits of interdisciplinarity and institutional aesthetics, inspiring the artist, Shane Mecklenburger, to steal the diamond once exhibited, a plan he has yet to reveal to his collaborator.

# Collaborating with the Enemy

by

Shane Mecklenburger

Assistant Professor of Art & Technology  
The Ohio State University  
[www.shmeck.com](http://www.shmeck.com)

Carbon pellet after gunpowder de-nitration.

Courtesy of the artist

*As the man who acts must, according to Goethe, be without a conscience, he must also be without knowledge; he forgets everything in order to be able to do something; he is unfair toward what lies behind and knows only one right, the right of what is now coming into being as the result of his own action.*

— Friedrich Nietzsche in  
Joseph Kosuth's *Double Reading*

## THE PROCESS

**The cafe looks nearly empty. I'm taking notes as my colleague, organic chemist Dr. Justin Youngblood, explains the process.** Suspend the gunpowder in acetone, which dissolves everything but the explosive activator nitroguanidine. Filter out large, insoluble nitroguanidine, then evaporate off the acetone, leaving nitrocellulose and detergents. At this point the nitrocellulose is very similar to early celluloid cinema and photographic film.

Suspend the nitrocellulose in a buffer of phosphate salts to balance pH, add tetrasodium EDTA and reagents dithiothreitol and methylviologen. Boil for several hours. Dithiothreitol removes nitrite salts while methylviologen maintains dithiothreitol in an active state, ensuring the reaction will continue. Evaporate the water and nitrite salts.

With nitrates removed, what's left is mostly cellulose and detergents. Boil this in concentrated sulfuric acid, removing hydrogen and oxygen as water. Centrifuge out the water and leftover sulfuric acid, along with any leftover soluble detergents. What remains is principally carbon. We need eight ounces of dried, safe carbon from the gunpowder so that a manufacturer can apply the extreme pressure and temperatures necessary to produce a .2 to .29 carat colorless diamond, entirely



**Dr. Justin Youngblood's Chemistry Lab.**

Courtesy of the artist

from the carbon in .223 Caliber assault rifle ammunition. The word "GUNPOWDER" is microscopically laser-etched into the cut diamond as an identifier. The diamond is then sent to the International Gemological Institute to be rated for carat, color, clarity and finish.

Our gunpowder de-nitration process was based on a patented process originally developed as a safety precaution for military testing and training sites with large quantities of "scrap nitrocellulose" leftover from gunfire. As Dr. Youngblood explains the process to me, I wonder what he might say if I were to mention that I'm thinking of stealing the diamond once it's on display. I understand what the theft represents for me in the context of the project, but I can't be certain how my collaborator would react. He and I aren't dividing profits or sharing ownership. Perhaps he'd think it was funny. I can't risk telling him.

## PRECEDENT

The diamond manufacturer LifeGem has been in the business of manufacturing diamonds from the cremated remains of your loved ones and pets since 2001. Having already manufactured a certified "Beethoven Diamond," their latest high-profile venture uses a lock of hair gathered during Michael Jackson's infamous Pepsi commercial accident: The Jacko Diamond. The few artists who have exploited this new medium have used it almost exclusively for self-portraiture. In 2002, Marc Quinn made a 1.2 carat yellow diamond

from his hair entitled *Last I'm Perfect*.<sup>1</sup> In 2005, Jill Magid signed a contract to transform her own remains into a round cut, one-carat diamond, to go in a gold ring setting when she dies. Her project, *Auto Portrait Pending*, is currently "awaiting a Beneficiary."<sup>2</sup> American artist David Murray made a diamond from the ashes of 24 of his art projects in 2010, calling it *85 % Of All The Art I Made Turned Into A Diamond*.<sup>3</sup> When I learned that a real diamond could be grown using any carbon source, it became clear that manufactured diamonds had an aesthetic potential beyond self-portraiture.

I began to consider making diamonds as artworks after a conversation with Chicago Artists Jonathan Liss and Kristen Andersen. We were discussing The School of the Art Institute of Chicago's location on "Jeweler's Row", a historic diamond district dating back to 1872. I walked past these jewelry stores every day on my way to graduate courses at SAIC. One course that made a powerful impression on me was taught by Justin Cooper, Noelle Mason and Benjamin Bellas of the group i.e., tracing practices that hinge on *Collaborating with the Enemy*. In another, Gregg Bordowitz of Critical Art Ensemble described a crisis in which art theory itself has transformed into a commodity by market pressures.

An art school in a diamond market seemed a pregnant synchronicity. Diamonds and art both dwell in popular imagination as symbols of emotion, desire, investment, wealth and taste. They are equally mythologized

as emerging from exertion, expense and sacrifice. Both are rare luxury commodities, whose value is determined by careful manipulation of supply and inventory within highly self-contained markets. In both cases demand is similarly constructed through marketing mythologies of scarcity and uniqueness.

*Cost of Opportunity* is a series of diamonds produced from culturally charged materials, in which the *Gunpowder Diamond* is the first. In *Cost of Opportunity*, diamonds symbolize both markets and the art object in general. In what ways do we assign value? What are the limits of the market and the art object? What is gained and what is lost when art becomes a commodity? What are the effects of market pressure on society and art? How are the many forms of value we ascribe now conflated: monetary, emotional, moral and aesthetic?

#### PREEMPTIVE COMMODIFICATION

I called the diamond manufacturer six times and sent two proposals before getting through to their president to approve the project. After the fifth unsuccessful call, I decided to look for other manufacturers. There were several, but these companies could only produce colored or semi-opaque diamonds. LifeGem was the only manufacturer that could produce a clear, colorless diamond. Since the objects must read immediately as what they are, real diamonds, only colorless would do. The self-deprecating twist in Quinn's *At Last I'm Perfect* is that it's not perfect. It's yellow. This may represent perfection in Quinn's eyes, but I interpret the yellow as an admission that no one is perfect. In the contract for *Auto Portrait Pending*, Jill Magid has stipulated that the "impurities" of her own carbon material should determine the final color of the diamond.

Magid and Quinn's humility distinguishes them from Damien Hirst, the artist with whom diamonds are most easily associated. I've only seen the infamous diamond indulgence *For The Love of God* (2007) in pictures. I saw Hirst's work in person for the first time at Galería Hilario Galguera in Mexico City. Spending time with *Sacred XVII* (2005), a vitrine with a dagger impaling a lamb's heart, I understood it as an embodiment of the popular dagger-through-the-heart tattoo design. When I've confronted mortality, I haven't arrived at the cynicism emanating from Hirst's work. Cynicism is a symptom of depression, so Hirst comes across as unintentionally sad.

An art-diamond references the inescapable commodity status of contemporary art. Wax poetic on the transformative power of art, but in the end markets reduce it to a dollar figure. When introducing works of contemporary art to urban youth, one of the first questions I invariably receive is "how much is it worth?" Exchange value is the common baseline for evaluation in Late Capitalism. If art is now inseparable from the market, is it possible for art to fully differentiate itself from any other product?<sup>4</sup>

Pop and Conceptual Art asked the same question from opposite directions, demonstrating the way capitalism had permanently altered the definition and function of contemporary art. Pop surrendered completely to the market culture. It made the seduction of economies an art form, and evidence of Pop's success continues to be emblazoned on every imaginable object and surface. The repeating collage of comic book panels, film stills, classic products and celebrities is arguably the identifying product pattern of the late 20<sup>th</sup> Century.

For Conceptual Artists of the 1960's and 1970's, favoring ideas over objects was a form of resistance; the work was deliberately harder to buy and sell, allowing



Jeweler's Row, Chicago.

Source: 2009 Google Maps: Madison & Wabash Street View

it to momentarily resist market pressure. That moment passed and Conceptual Art was canonized, consumed and reissued as currency: the Neo-Conceptual.

Like the early 1970's, the world is reeling from a period of failed economic and military policies. At a time when the art of resistance is more relevant than ever, work that resists market pressure receives little attention. Now that the Guggenheim has paid \$70,000 for a "limited edition" of Tino Seghal's performance *Kiss*,<sup>5</sup> it appears Pop ate itself, went to bed, then got and had Performance for breakfast.

"People nowadays know the price of everything and the value of nothing," Oscar Wilde observed.<sup>6</sup> *Cost of Opportunity* both reflects and participates in this state of affairs through what I call *preemptive commodification*. Since art so frequently ends up serving as an investment, the subject matter of all art (even art that was never intended to be bought or sold) is the market. *Cost of Opportunity* is a site-specific installation and performance, concluding with a live art auction wherein the value of each diamond is determined. The project uses a commercial gallery, auction house or 'art store' as a material, using the market for its own purposes and inverting the standard relationship in which work is manipulated by the market.

**'PREDICTED QUALITY OF DELIVERABLES'**

On the sixth call to the diamond manufacturer Life-Gem, I went for broke. I pitched the idea with everything I had and the receptionist caved in. She passed my proposal to Dean VandenBiesen, President of the company. Two e-mails later, I had him on the phone. VandenBiesen told me his manufacturer could make a diamond from any dry, safe carbon material. I sent him a proposal I'd submitted to the University of North Texas for a Research Initiation Grant, which would

los who have met their end on Texas thoroughfares. The armadillo is the state animal of Texas, but before the mid-1800's, armadillos were not found in the u.s. Since about 1850, the Nine-Banded Armadillo has rapidly expanded its habitat North of the Rio Grande. <sup>8</sup> It's believed that these "undocumented immigrants" cross the border in large numbers due to the absence of natural predators.



Measuring dithiothreitol for de-nitration.

Courtesy of the artist

fund three diamonds: one from gunpowder, one from road kill, and a third from pizza.

Road kill is a daily reminder of the increasingly conflictual relationship between human systems and ecosystems. Every day a million vertebrates are killed on u.s. roads alone, according to estimates by the u.s. Department of Transportation. <sup>7</sup> The *Road Kill Diamond* will consist entirely of Nine-Banded Armadil-

u.s. civilians account for 5% of the world population and 40% of all the handguns owned worldwide, <sup>9</sup> and the basic ingredient in the armed society is gunpowder. The historic relationship between gunpowder, ownership and wealth creation made it a natural choice for the first installment in the project. A "sword into ploughshare" gesture, the *Gunpowder Diamond* is made entirely from powder in common assault rifle



Nitrocellulose created from gunpowder de-nitration.

Courtesy of the artist

ammunition that is easily purchased in the u.s. No less irrational than war profiteering or pollution, hyper-consumption is another hallmark of contemporary u.s. culture. Americans eat over thirty million slices of pizza each day, <sup>10</sup> and the *Pizza Diamond* 'absurdifies' this high-calorie, low-nutrition comfort food, which, like other fast foods, is heavily marketed to children.

The University Research Office evaluates internal grant proposals from various disciplines side-by-side. Proposal reviewers often work in entirely different disciplines from the proposals they evaluate. When I learned that a colleague's cancer research grant proposal was funded, he told me that compared to the size of his research budget, the university grant was a drop in the bucket. It might cover portion of a grad student's salary for one semester. If I received the grant, it would cover more than 80 percent of my total project budget. However, given the choice between a semester of graduate work to find a cure for cancer or making a *Roadkill Diamond*, I must admit that I'd vote to cure cancer too.

It seemed odd for such far-flung disciplines to compete for funding. I learned that proposals were once evaluated separately within each discipline, but this made them vulnerable to intra-departmental politics. The cost of external peer review is prohibitive, so inter-departmental evaluation was their best compromise.

There's a refreshing degree of transparency in the granting process and evaluator responses are returned to the grant writer as constructive feedback, whether or not the proposal is approved. Reviewers use a form with checkboxes for "Hi" / "Med" / "Lo" in a range of categories, generating a score out of 100. Proposals are rated for:

"Originality (creative[sic]/uniqueness/ingenuity);  
Research Significance (merit/advancement in knowledge);  
Research Design (soundness/feasibility);  
Predicted Quality of Deliverables (research product/publication);  
Broader Impacts (contributions to society/diversity/learning)"

To an artist, these are like border-crossing signs:

"Now Leaving Apples (subjective/poetic/expression);  
Welcome To Oranges (objective/measurable/'deliverables')"

I shuddered to imagine myself evaluating the “Predicted Quality of Deliverables” in a Physics proposal. “Originality” represents 8% of the total score. I suspect this category may have been included for the sake of creative proposals. This is ironic to me, as I’m convinced originality is a myth. The fairy tale of originality is useful, like the idea of a unicorn. It helps people tell stories.

There’s also a section on the form for open response to the strengths and weaknesses of the “Research Plan”. In the strengths section, my evaluator wrote “This is original.” It’s the only category in which I received a “Hi” rating from the evaluator. Research Significance, Predicted Quality of Deliverables, and Broader Impacts were all “Lo”. Research Design was rated “Med”. In the weaknesses section was the sentence: “Who owns the diamonds that are created by University funds?”

I couldn’t help laughing out loud. I’d spent pages describing the project as a challenge to the precise assumptions about labor, intellectual property and valuation that were implied in my evaluator’s question. When I read the response in a meeting with the Research Office, we all laughed out loud. When I showed the evaluator’s response to artist colleague Jenny Vogel, she told me how, once upon a time, the unicorn named Chris Burden received a similar response.

#### WHO OWNS THE WORK?

In 1981 the materials budget for Burden’s performance *Napoleon d’Or* included \$500 worth of gold. He was to melt the gold with a welder’s torch and cast it into a mold of Napoleon in front of the audience. The purchase of gold as an art material caused a stir at the Centre Pompidou where the performance was to take place. Burden later remarked, “If I’d asked them

to buy \$500 worth of lumber, no problem.”<sup>11</sup>

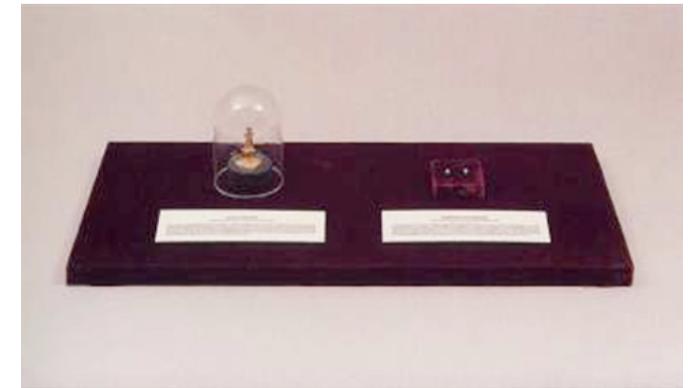
Burden’s fairy tale has a happy ending. The Centre Pompidou ultimately approved funding for his materials. My proposal, however, was declined.

Before I applied, I sought out advice to see if it would be a good idea to apply for a university grant to make a series of art-diamonds. I consulted a colleague, painter Vince Falsetta. “Vince, is this too crazy? Would the university ever fund the manufacture of a series of art-diamonds?” Vince’s reply: “I don’t know any painters who weave their own canvas.” In the past, he explained, painters had received the very same grant funds for canvas. No one ever asked who would own the paintings created with university funds.

When my evaluator raised the question of ownership, it became a turning point for the project. If work is produced on a grant and not commissioned, who actually owns it? I had simply assumed that I would, but apparently, by virtue of my materials, this had been thrown into question for my evaluator. Up to that point, the notion of ‘stealing’ a diamond I’d created as an artwork hadn’t occurred to me. The reviewer’s question challenged an unexamined assumption on my part: that what I made with a grant would be mine. I thought it would be interesting for the project to engage this question directly.

I envisioned a ‘theft’ that would pay homage to *Napoleon d’Or*’s sister performance: *Diamonds are Forever*, also from 1981. Prior to *Napoleon d’Or*, Burden procured a diamond and a similar cubic zirconia for a show sponsored by Ikon in the UK. At the exhibit, Burden placed the zirconia on display, keeping the actual diamond in his pocket. After the show, Ikon’s board met to figure out if it should pay the jeweler for the diamond or if Burden had swindled them. After what Burden described as a “brouhaha”, Ikon wrote

© Chris Burden. Courtesy Gagosian Gallery



**Napoleon d’Or**, Chris Burden, April 6, 1981 Musee National d’Art Moderne, Centre George Pompidou, Paris, France

*Napoleon d’Or* was a performance that I executed in Paris consisting of casting in gold a miniature Napoleon. The lost wax process used a plaster mold that I had prepared in England before my arrival in Paris. I chose the image of Napoleon because I feel that the French people regard the Napoleonic era as their most glorious hour. After the audience was assembled, the gold was placed on the top of the small plaster mold and heated to the melting point with a welder’s torch. The mold was then swung vigorously in a circular pattern, forcing the molten gold into the mold. After several minutes the mold was broken open and the gold Napoleon was placed on a stand for viewing by the audience. Relic: Gold figure (from *Napoleon d’Or*), and diamond and cubic zirconium (from *Diamonds are Forever*) on base. Case: 8 x 22 x 10 inches, Collection: Judy and Stuart Spence, Sunland, California

a check to the jeweler.<sup>12</sup> Burden kept the diamond, which sits beside the zirconia in the collection of Judy and Stewart Spence as a relic of the performance.<sup>13</sup> Diamond ephemera.

It’s a compelling mystery whether or not Burden pulled off an elaborate heist-as-art in *Diamonds Are Forever*. Maurizio Cattelan entertained no such ambiguity when he broke into Galerie Bloom in Amsterdam in 1996. He and his accomplices removed the entire contents of the gallery, from artwork to office equipment. He then displayed the boxed-up stolen goods as *Another Fucking Readymade* for De Appel gallery’s *Crap Shoot* group show. Cattelan noted afterwards that he would never have done this in New York, where he’d have likely done jail time. Galerie Bloom

**Diamonds are Forever**, Chris Burden, April 28 - May 28, 1981 Ikon Gallery, Birmingham, England

Immediately upon my arrival in England, I was taken to the diamond district in London, where I used the entire materials budget allocated for my project by the Ikon Gallery to purchase a 1/4 carat diamond and an identical but valueless cubic zirconium. The 3,000 square foot basement exhibition space at the Ikon Gallery was painted black and all light leaks were sealed. I constructed a miniature spotlight from a car radio antenna in order that the suspended “diamond” would shine in the dark. Viewers were admitted to the pitch black space and could make their way toward the shining star with the aid of a handrail. For security reasons, I hung the cubic zirconium in lieu of the actual diamond, which I kept in my pocket at all times. Relic: Diamond and cubic zirconium (from *Diamonds are Forever*), and gold figure (from *Napoleon d’Or*) on base. Case: 8 x 22 x 10 inches Collection: Judy and Stuart Spence, Sunland, California



**Another Fucking Readymade**, 1996 © Maurizio Cattelan. Courtesy Marian Goodman Gallery; New York



Gunpowder carbon dissolved in sulfuric acid.

Courtesy of the artist

summoned the Amsterdam police, but ultimately chose not to press charges on condition that he do a show at their gallery. When Nancy Spector commented on the satire in Cattelan's work, he responded, "Comedians manipulate and make fun of reality, whereas I actually think that reality is far more provocative than my art. [...] If you think my work is very provocative, it means reality is extremely provocative, and we just don't react to it. Maybe we no longer pay attention to the way we live in the world."<sup>14</sup>

#### MARKET SOLUTIONS

I revised the proposal and re-submitted it for a different university Research Enabling Grant designed to enable activities for which "funds are demonstrated to be unavailable". I proposed that diamonds made with University funds will be sold at auction to cover the cost of a second set of diamonds. The work becomes a self-sustaining system designed to run indefinitely from an ever-expanding list of culturally charged carbon materials.

An auction is a kind of interactive performance in which participants negotiate market value. This is precisely what the project required to become a self-

contained system. Thanks to my first evaluator's misunderstanding, I'd found the essence of the project: an interactive performance to negotiate the value and ownership of the diamonds themselves. Each diamond would be accompanied by a performance: a live art auction in which the value of the diamond is negotiated and determined by auction participants. I made a new selection from my list of carbon materials, shifting the focus from the u.s. to Africa. The *Gunpowder Diamond* remained, alongside the *Rainforest Diamond* and the *Devalued Currency Diamond*.

Before it was suspended in 2009, the Zimbabwean Dollar traded at 150 billion zwb to one us Dollar. In Zimbabwe, this could purchase four eggs. Zimbabwe has a small diamond mining industry centered in the Marange diamond fields. Marange does not technically produce "conflict diamonds" or "blood diamonds" – diamonds mined in war zones and sold to finance armed conflicts – but in 2008 soldiers forced villagers to mine diamonds in Marange and that year 200 Marange miners were killed by the military.<sup>15 16</sup> While referencing this situation, a diamond made from Zimbabwean Dollars would also generate something of relatively stable market value from a currency literally worth less than the paper on which it's printed. In spite of rising concerns and awareness, primary

rainforest deforestation continues at an alarming rate. Nigeria doesn't contain a large percentage of the world's rainforest, but the UN reported that from 1990 to 2005 it lost 79% of primary rainforest to deforestation.<sup>17</sup> This was the worst deforestation rate in the study. Nigeria now has the most endangered untouched rainforests in the world. A few kilos of undergrowth is a small price to pay for a diamond made from such a vanishing treasure.

#### WHO IS THE ENEMY?

Considering challenges and setbacks I've faced in other collaborations, I've been awestruck with the ease of my collaboration with Dr. Youngblood. Collaboration can be tricky business, especially across far-flung academic disciplines, but Dr. Youngblood has been generous and dedicated. We met in 2009 when I was searching for a chemist to help me with my *Gunpowder Diamond* idea. He appreciated the gesture and immediately began working on a solution. In a few weeks he performed all necessary research, sifting through patents for gunpowder de-nitration processes dating back to the 1800's. He said it was fun.

Dr. Youngblood and I both served as Peace Corps Volunteers in 1997 but did not know each other. I was a Volunteer in Bolivia for two years. He served in at the same time as a Volunteer in Swaziland. At a conference on science and the environment in South Africa, he became inspired to work as a chemist to improve the global ecosystem.

My experience in Bolivia taught me that money can't solve long-term problems. Only people can. For this reason Peace Corps doesn't provide access to large-scale funding to Volunteers. We were integrated with a community to find locally sustainable solutions. Dr.

Youngblood and I both take a similar approach to overcoming challenges with limited resources.

Chemistry was my worst subject in high school, but he patiently tutored me in each step so I could help perform most of the de-nitration myself. We had to perform the de-nitration steps in multiple batches, and for this he enlisted undergraduate lab assistants to help.

I'm thinking of telling Dr. Youngblood about the theft part. I'm generally up-front about everything and subterfuge is new creative territory for me. It makes me uncomfortable, but I'm afraid it might jeopardize our collegiality. If I do it without telling him, would he think I used him? That would be worse. At one point, when we were working in the lab, we discussed writing up the results of our experiment for a journal. I was already writing this article, but I held my tongue about it. Maybe I'm writing this as a public confession in the hopes that he'll run across it.

It reminded me of the *Collaborating with the Enemy* course by Cooper, Mason and Bellas. Dr. Youngblood isn't the enemy. If there's an enemy here, it's me. Like Burden and Cattelan I suppose I'm playing the cartoonish villain, laboratory and all.

### OPERATIONALIZED AESTHETICS

There are some details to work out. I have little skill as a thief. It's an inside job though, so I don't expect breaking and entering. I have time to consider both the crime and the crime scene because LifeGem's diamond manufacture process "grows" the diamond over a nine-month gestation period. For a company selling reincarnation, this comes across like clever marketing.

Each diamond will cost \$3000 to manufacture, and while the project was moving forward I still had no funding. I arranged a meeting to learn more about the grant evaluation process. When I mentioned this to someone, they accidentally let slip that one of the two evaluators for my new proposal was a close colleague. Evaluators are supposed to remain anonymous. She was standing there when she was accidentally exposed as my evaluator. In an otherwise smooth and collegial professional association, it was awkward and unexpected. I understood why the Research Office had switched to inter-departmental evaluators, this time it hadn't worked. I knew she was partial to the project, so I tried to joke about it. It was still weird.

She gave the project high marks in the final evaluation, but the other evaluator, coming from another discipline, saw little value in the proposal and gave it low scores. Evaluators must discuss score disparities and try to find a middle ground. Since neither of my evaluators would budge, the gulf between the two sets of scores was extreme – aside from the "Originality" category. I didn't get the grant.

At our meeting, the Research Office advised me to submit the proposal a third time and revise it again to make it more accessible to non-artist researchers by "operationalizing" my concept. "Show what you're doing that hasn't been done before" and "what someone can learn from this that they didn't know before". I was also encouraged to clarify how the project "solves a problem".

When explaining what distinguishes art from other disciplines, I like to quote media artist Osman Khan when he said "art doesn't solve problems, it creates them."<sup>18</sup> It's an absurd performance in itself to propose problem creation to those whose livelihood and sense of purpose depends upon problem solution. After doing it three times, I'm convinced that creative activity may sometimes *include* research, but creative activity itself is *not* research, as defined by other disciplines. The Research Office requested that I submit recommendations for how the internal granting process can be made more relevant to creative projects. I felt motivated to advocate for creative practices like mine that engage with institutional market pressures. I'm working on alterations to the grant application and evaluation form to clarify the different standards by which creative projects must be evaluated. As an interdisciplinary artist I can't help noting the irony that as a result of my creative practice I'm now enthusiastically demarcating the boundaries between disciplines.

I did my best to revise the proposal according to the advice I received and submitted it a third time at the next grant cycle. I reinstated the *Roadkill Diamond* and removed the *Rainforest Diamond* and *Devalued Currency Diamond* in favor of the *Superman Diamond*. Last year, photographer Paho Mann reminded me of a scene from the 1983 movie *Superman III* in which our hero crushes a lump of coal into a perfectly cut diamond. Superman is the perfect foil for the enemy-artist-evil-scientist, so I conspired to imprison him in



Gunpowder de-nitration reaction.

Courtesy of the artist

a diamond. Since gunpowder becomes similar to celluloid film at one point in our de-nitration process, we can also make a diamond from a cellulose acetate film print of *Superman III*. Bulletproof Superman symbolizes u.s. creative destruction, protecting and policing the world in “a never-ending battle for Truth, Justice and the American Way”.<sup>19</sup> A *Superman Diamond* re-enacts the media cycle that repackages and sells our mythologies back to us.

In the proposal I didn't mention how difficult it is to acquire a 35mm print. It's illegal for individuals to own them unless they're the public domain. Studios lease the prints to distributors for a theatrical run, at the end of which they are generally destroyed. I was certain I'd eventually get a print, but I had to gamble that my proposal reviewers would be unaware of the logistical challenge presented by the law.

In the proposal evaluation, under the section “Weaknesses of the Research Plan”, one reviewer wrote, “Art based research is a relatively new approach in educational research. In this case, the pieces are all in place for a solid arts based research project, but sometimes the applicant lacks the correct terminology to frame his ideas in a traditional research proposal format.” I still have no idea what the correct terminology might be, but I was close enough, since the evaluator urged “other reviewers to keep in open mind the research potential in arts based projects such as this one” and the grant was approved for funding.

## DIAMOND ICEBERGS

The aesthetics of science sometimes come across to me like exaggerated caricatures. There appears to be a Minimalist efficiency and rigor to the way Dr. Youngblood works and thinks. Theoretical physics can sound like Absurdist Theater. Biotechnology alternates between Surrealist nightmare and Romantic utopia. Scientific research investigates the nature of life, death, thought, reality, and the senses; such dramatic subject matter reminds me of Cattelan's observation that reality is more provocative than his fictions. The more we frame scientific activity as something restrained, emotionless and empirical, the more expressive drama seems to burst from its seams.

My favorite example took place in January 2009 when Harvard physicist Isaac Silvera's research team melted a diamond. By applying a powerful laser and 40 million atmospheres of pressure, they were able to melt the diamond without turning it into graphite first. While slowly reducing the pressure and 50,000-degree heat, chunks of solid diamond began to unexpectedly float on the liquid diamond surface like ice on water.<sup>20</sup> The implications of this discovery read like an astrophysics velvet painting: Planetary scientists have long speculated that seas of liquid diamond might account for irregularities in the magnetic fields of Neptune and Uranus, where high pressure conditions could maintain large bodies of the liquid.<sup>21</sup> Silvera's study suggests that “diamond icebergs” might drift upon the diamond seas of Neptune.

All it needs is a unicorn. ■

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**photograph** Murat Germen,  
*Muta-morphosis #79*, Istanbul,  
150 x 85 cm, 2011, 7 editions + 2 AP,  
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