Aesthetic Biology, Biological Art

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[In response to Jeremy Rifkin's article in *The Guardian*, 1/14/03, at http://education.guardian.co.uk/higher/research/story/0,9865,874470,00.html]

1.

Reading over Jeremy Rifkin's article "Dazzled by the Science," one is struck by a paradox. On the one hand there is the litany of controversial examples pertaining to biotechnology and art. You would expect a cohesive argument to emerge from this. But it doesn't. There's a position, however, and it's very clear: biotech is bad. Or, if we were to be more generous, we would say that Rifkin's position is that biotech is an infringement upon nature, and as such is morally reprehensible, not least because it is driven by economic imperatives. But this, to my mind, verges on being reactionary. Why does it matter? It matters because Rifkin's article is exemplary of the level of the current public discourse surrounding biotech. This so-called public discourse mostly consists of poll-like perspectives on hot topics such as cloning, GM foods, and stem cells. Are you for or against human cloning? You can vote now on a corporate-owned news media website near you.

The fault is of course not Rifkin's. Indeed, as a long-time author and activist, Rifkin's work with the Foundation on Economic Trends has done much to influence public policy and to increase public awareness of very real and pertinent issues such as genetic patenting, cloning, and environmentalism. So, in a sense, it is disappointing to see someone who has authored several books critical of biotech take such as reductive position. But then again, The Biotech Century followed a similar pattern: a litany of controversial examples from the biotech industry, accompanied by condemnations of biotech's market-driven infringement upon nature. The end of Rifkin's article in *The Guardian* states: "Now that we can begin re-engineering ourselves, we mistakenly think of the new technological manipulation as a creative act, when in reality it is merely a set of choices created in a laboratory and purchased in the marketplace. The biotech revolution

is the ultimate consumer playground… the new genetic technologies grant us a godlike power to select the biological futures of the many beings who come after us."

Rifkin's "biotech-is-bad" position is actually twofold. First, it is bad because it transgresses the sacred boundaries between the natural and artificial worlds, between biology and technology, between "godlike" creation and instrumental artifact. Second, biotech is bad because it is motivated by predominantly economic concerns (find a gene, make a pill, sell it to you). Now the question: does one position necessarily imply the other? In other words, can we develop a political-economic critique of biotechnology, without having to adopt the moralizing of the first position? Again: why does this matter? It matters because too often, in the public discourse on biotech, political critique slides into moral conservatism. Rifkin does not – or cannot – distinguish these two positions. For him, saying that biotech is bad is also saying that something mysterious called "nature" is good, and that the latter should by all means be protected from the invasion by the former.

But we might ask – what is the "opposite" of biotechnology? Indeed, what is biotechnology? Sure, there are definitions in molecular genetics textbooks, as well as pop science books on the genome, but definitions vary. Is the selective breeding of animals or selection of seeds biotech? If so, biotech is a very old practice indeed, extending back to antiquity. Or is it only techniques developed after genetic engineering in the 1970s? If so, then "technology" is equivalent to lab gadgets. Historians like Robert Bud have adopted one approach often taken: biotechnology is a set of practices, in which biological "life" is appropriated for human use in a range of industries (chemical, biomedical, agricultural). Recent work in science studies and sociology has been more specific: biotechnology is a discourse in which what is legitimately recognized as "life" is reformulated alongside emerging scientific, cultural, and political paradigms (molecular biology's genetic "code" – see the work of Lily Kay, Richard Doyle, Hans-Jorg Rheinberger, Donna Haraway, Vandana Shiva, Catherine Waldby). Critical Art Ensemble – one of the groups condemned by Rifkin – have been more specific on biotech. Biotechnology is first and foremost an industry, and as such it functions as a "flesh machine," generating new products and services, and thereby creating new niche markets, in the process transforming public understandings of what counts as nature, the body, and health.

None of this should be new or surprising to anyone who has followed the news headlines concerning the genome project, stem cell debates, or the latest genetic chimeras. The point here is that, when positing a critique of biotech, we would do well to assess our own position as well. What are we protecting when we condemn biotechnology? Is it a mythical, pre-technological state of nature? Is it the last

remnants of our faith in the uniqueness of "the human"? Is it theology (if not religion)? Is it the dream of a post-capitalist society? In a sense, critiquing biotech is easy. Finding "bad guys" to point at is easy. The hard part is figuring out what the critique is defending.

Actually, finding the bad guy in biotech is not so easy. Corporations are always easy targets, and, in a sense, convenient straw men. (Literally.) Is the problem only economic? We are mistaken if we think that an extraction of the economic aspects of biotech will solve any problems. Supposing that we could somehow separate economics from bioscience research, we would still be left with a series of epistemological and ontological issues. But we should also be clear. Yes, there have been and are now injustices which have occurred in relation to the biotech industry, and which raise issues concerning human rights, environmentalism, bioterrorism, and cross-cultural negotiations concerning sustainability. And yes, in such cases accountability should be an issue, no matter how monolithic a government agency or pharmaceutical corporation may seem.

All of this is to suggest something quite simple: that Rifkin's article, exemplary of the public discourse on biotechnology, is as reductive as the science and art he denounces.

2.

Now part two. Rifkin may be reductive, but saying so is not a round-about way of defending the scientists and artists he critiques. Rifkin is mis-informed – or un-informed – about biotech research and bioart. But his basic points are well worth considering, if in a more articulated manner.

In short, Rifkin is mostly right about bioart. Much bioart is just bad art, "bio-" or no "bio-". But to lump together scientist-entrepreneurs like Venter (of Celera), and artists like Eduardo Kac into one group is ridiculous. Clearly Rifkin has not done his homework (and no, visiting websites does not count). And there are not only numerous exceptions to the rule, but differences between artists. Critical Art Ensemble's work is very, very different form the work of Kac. Different approaches, different methods, different media, different positions (indeed, one may guess that CAE would eschew the very notion of "bioart"). Anyone who has taken even a surface interest in the current intersections of art and biology knows that there is a great deal of diverse work out there, being produced in a range of contexts. Which, again, doesn't mean it's all good art. But it is both an emerging and a diverse field.

That being said, we can refine some of Rifkin's comments concerning bioart:

- Bioart usually benefits the artists more than the scientist collaborators While there are a great many examples of scientists collaborating with artists on projects, there are a few asymmetries worth noting. First, the work itself is usually shown in an art context. Second, if publication occurs, it is more likely to be in an art journal than a scientific one. Third, when instances of professional recognition arise (e.g., tenure & promotion), the artist gets recognition, while the scientist often does not. Fourth, artists and scientists work with very different funding budgets. Very different.

- The context for bioart is often the site of the gallery. This may not be problematic in itself, but when bioart claims to be speaking about biotech in terms of education and public awareness, then we have to wonder about the site of this engagement. The art gallery is itself a specialized site, quite alienating for many people. How can art claim to reach a public about science, when it still has not resolved its inability to reach a public about art?

- In bioart, "gee-whiz" science often overwhelms critical engagement. That is, bioart often eschews ethical considerations in favor of technical ones. Anyone will admit that learning how to work the automatic sequencing machine is cool, but it is worthwhile to reflect on it a little. The old question "can I do this" versus "should I do this" is worth reconsidering in the context of bioart practices – as art practices.

- Bioart can sometimes become PR for the biotech industry. In some cases the aestheticization in bioart can feed into the "rhetoric of wonder" abundant in popular discussions of the genetic understanding of life. It is fascinating that your DNA stretched out is five feet long (or whatever it is) And…?

- But not all bioart is formalist. In fact, a number of artists enjoy and cultivate the "outsider-artist" persona, which indicates that bioart may be attempting to fashion itself as the new avant-garde (oh no, not again…). By pitching itself as transgressive, bioart risks replaying the tired narrative of mainstream recuperation. Except that recuperation will this time be activated by government research institutions and biotech companies with programs titled "a celebration of art and science." (Might we someday see artists as spokespeople for pharmaceutical companies?)

It should be clear that an overall attempt to carefully differentiate the topics under discussion is needed. Again, Rifkin's article and position is symptomatic. While it may be tempting to demonize "biotech industry" as a whole, we need to pay attention to the way in which biotechnology is becoming more and more diversified. Take genomics. It's not just "the" human genome project, it's human genome projects, plural. It's also tied to structural genomics, proteomics,

pharmacogenomics, population genomics, studies of polymorphisms, haplotypes, SNPs, and of course all that junk DNA. Each of these are sub-industries and sub-disciplines in themselves. The more one learns about the rabid specialization in biotech, the more it becomes difficult to say that the biotech industry does this or that. Again, the question is not whether this is good or bad (though diversification is always good for revitalizing the flows of capital). The question is that we have not yet learned how to ask adequate questions.

The same can be said for the loose grouping of art-science collaborations called "bioart." The work of bioartists such as Critical Art Ensemble, Joe Davis, Natalie Jeremijenko, Kac, SymbioticA, and Adam Zaretsky is anything but a homogenous group of tech-geeks doing it "just because." I won't say that every bioart project is unproblematic, but I will say that the issues and methods employed are incredibly diverse, from performance, to sculpture, to robotics, to tissue engineering, to activism. The more one learns about the manifold intersections between art and science (and their problematics), the more ridiculous it seems to imply an equivalence between bioart and entrepreneurial biotech.

3.

This has already been too long just to make a few points. What to do. Why not be prescriptive?

First, we need to, once and for all, dispense with the easy opposition between pro- and anti-biotech positions. Again, while there are very serious issues regarding biotech that need to be directly addressed – biopiracy, patenting, globalized health care, informatization – simply condemning a monolithic "thing" called the biotech industry helps no one. To simply demonize biotech is to miss the point. The problem is not just economics in business, not just reductionism in science, not just moralizing in the humanities. It is all of these together. What is needed is not a persecutional search for the bad guy; what is needed is the ability to develop a critical engagement with biotech. The theorists and artists mentioned so far all support this basic position.

Second, there is a need to reconsider our views of technology in light of the ongoing advances in biotechnology. Over 30 years ago, Marshall McLuhan famously declared that the "medium is the message" – and thirty years before that Walter Benjamin warned against the "aestheticization of politics" he saw in avant-garde art such as Futurism. Unlike computer technologies, bio-technologies take life itself as the means and the medium. Life becomes indissociable from technological instrumentalization. A medium is no longer a "machine" (in the literal sense of the term), be it a TV, VCR, or computer. A medium is above all a

process, a transformation, and an objective. What do we see with biotech? A process of steadily reiterating a new central dogma: genetics is code and code is both immaterial (in the computer, in silico) and material (affecting a patient, in vivo). We also see that process (encoding, recoding, decoding) affecting transformations: gene discovery, genetically-designed drugs, stem cell therapies, GM foods, etc. Finally, that process and its resultant transformation occur within a set of objectives (and this is where it gets sticky): for the pharmaceutical industry, that objective is making pills; for the biotech industry, that objective is raising capital and demonstrating effective clinical trials; for the IT industry, that objective is feeding high-tech into biotech; for the health care sector, that objective is assessing whether or not genetic medicine will become a part of routine health care; and so on.
What do we have when biology is a technology? What do we have when our notions of technology are no longer decisively separate from our biologies? We have something that can only be called "biomedia."

Third, as public discussions over biotech continue, those of us involved need to be aware of the moment when political activism turns into moral conservatism. Positioning oneself against the patenting of living beings is one thing; but offering a view of an untainted, pure nature against invasive bio-technologies is quite another. We do not need religious or moral fundamentalism in order to counteract and intervene in the biotech industry.

Rifkin's overall anxiety is strangely expressed - as if the real threat is that publicly available biotechnologies will spawn a new fashion movement (bioPrada?). While Rifkin cites a number of controversial examples, it appears that the primary reason for their being condemned is that they infringe upon nature (human biology included). Rifkin's comments are noteworthy when they raise the question of ethics. But it is not clear to me how, in this day and age, we can still make an argument for a pure nature beyond the reach of technology or artifice. According to Rifkin's exceedingly broad terms, we've had human "bio-technologies" for sometime. It's called the institution of marriage. Again and again, the position being expressed by Rifkin appears to simply be that biotech transgresses the sacred domain of nature. Crossing genes, goat + sheep, fish + plant, human genes in mice, spider genes in goats, genetically-engineered super-spiders?... The arithmetic of this position is straightforward. And incredibly reductive. And what is the true definition of art for Rifkin, in this context? Art is an "expression of love." No comment. If art has a definition, it certainly isn't as formulaic as that (or so one would hope). Rifkin's understanding of art is no more sophisticated than the scientists he criticizes.

All the same, Rifkin's point concerning non-scientists doing science poses a thought experiment: will the PC happen to biotech? Is the human genome project

the equivalent of the ENIAC? In other words, if the tools, techniques, and knowledge of molecular genetics and biotechnology are opened to the public, will this be a moment of liberation or of enslavement? Likely neither. But it does beg the question: if we condemn renegade scientists and avant-garde artists, different as they are, then who holds the privilege to make decisions about who can have access, about how knowledge is disseminated? Not so long ago the same question was posed in relation to computers. But, you say, computers are just machines, just a bunch of bits, totally different from the "real stuff" of biology. Perhaps. But have computers not been as materially effective in transforming our lives as any biotechnology? Recall the U.S. government's ongoing paranoia surrounding hacking and computer terrorism. Computers have also affected modes of production, and not only in Third World microchip factories. Work is no longer an activity that takes place at an office; labor is immanent, biopolitical.

The anxieties surrounding biotechnology are no different, and certainly not new. (Brave New World, yes. But also Dr. Moreau, Frankenstein, The Golem, even Ovid's *Metaphorphoses*). The double-bind expressed by Rifkin is the following: on the one hand, there is a deep anxiety about and mistrust of biotechnologies. But on the other hand, there is an even deeper anxiety about such technologies becoming accessible to the general public ("let into the wild," as it were). So the question pertains to the policing of disciplines as much as policy decisions or economics. And we police our own disciplines, meaning that we police our own set of knowledges as well, and the ways in which those knowledges are instrumentalized. The solution is clearly not to just open the gates and give every citizen their own PCR machine. We need to complexify our understanding of the issues beyond the ballot-mentality (are you for human cloning or against? Are you for or against bioartists? How about that on the next ballot?…). Recognizing that this stalemate must be overcome is an important step.

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