“Nanobiotics” — Speculative Design Scenario

Proposal for Joanna Berzowska, DART 492

Zachary Kain, March 14th, 2012

INTRODUCTION

My research, exercises and brainstorming have led me not to the conceptualizing of a speculative design artifact, but rather, of what I call a speculative design ***scenario***. As I touched on in my pecha-kucha presentation, what I find to be worthy of interrogation is not the details of a future artifact’s implementation or operation, but the repercussions of that artifact’s existence in the cultural/social sphere. I intend to use design to create a narrative which frames my speculative scenario, investigating the utopic and dystopic implications of our society adopting paradigm-shifting new technologies.

Medical Nano-Technology

The near-future emergence of nano-technology is a foregone conclusion; as research in the fields of bio-engineering and computer science grows ever-closer together, nano-technology will undoubtedly revolutionize healthcare (alongside manufacturing, warfare, environmentalism) within our lifetimes. With medical science currently engineering biological ‘machines’ on a nano-scale to fight heart disease and cancer, the leap to *Revelation Space*[1]-style ‘medbots’ is not a hard one to make.

The potential of this technology to alter our physical existence is staggering: will we gain unprecedented influence - on a local and global scale - over our environment, will nano-technology end disease or unlock the secrets of immortality? Geneticist and regenerative medicine specialist Aubrey de Grey has stated that “the first person to live to be 1,000 years old is certainly alive today[2].” Given, then, that this paradigm-shifting technology is imminent, how might it change how we live our lives: how will social norms shift, will it create new class distinctions or widen the economic divide, or the digital divide?

CONCEPT

I intended to identify several future scenarios involving medical nano-technology and interrogate the utopic and dystopic implications in a series of diptychs. As suggested in the progress meeting, I think I will focus more narrowly on one particular scenario, develop it further and design a more thoughtful response. The initial point/counter-point format will be dropped as I work towards a more subtle, layered approach. I am still unsure as what format that will entail, but utilizing infographics is appealing to me. I envision my final deliverable to be either A) a single large infographic (interactive or poster), or B) an 'in character' visual campaign of several smaller pieces.

POSSIBLE SCENARIOS

Utopic

- Government public health campaign to introduce nanobots to the water supply, much like fluoride
- Commercial efforts to ease the public's fears about nanotechnology, touting its benefits/features
- Nano-technology as a tool to address global warming, local weather, etc
- Nano-technology improving survivability of soldiers, perhaps an end to combat casualties

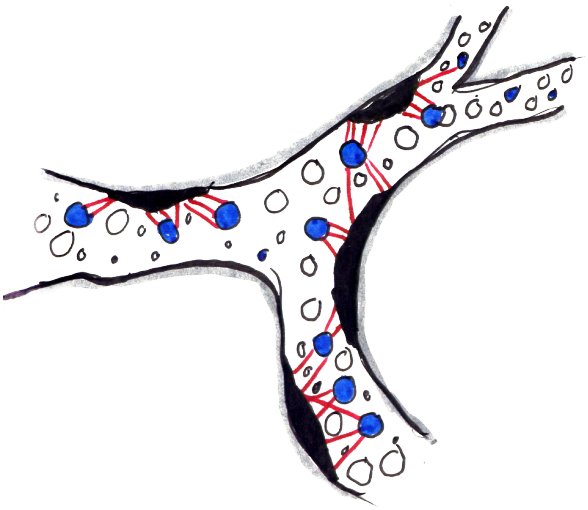
Dystopic

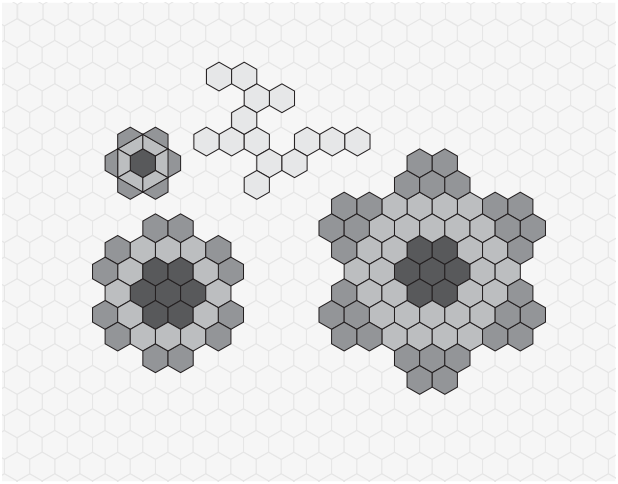
- Fears of society becoming a plutocracy, as the life-spans of the rich grow
- Emergence of a technological elite class possessing nanotechnology, and an underclass without
- Nano-technology as a tool to address global warming, local weather, goes horribly wrong!
- Nanotechnology as a weapon of mass destruction, at once chemical, biological and electronic

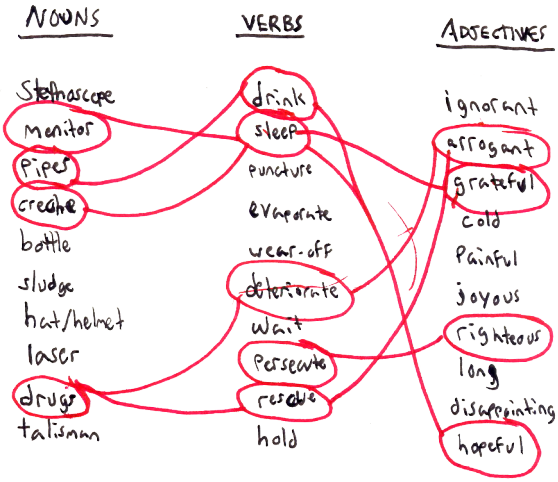
1. Reynolds, Alastair. Revelation Space. Ace 1st ed. New York: Ace Books, 2001. http://en.wikipedia.org/wiki/Revelation_space

2. http://en.wikipedia.org/wiki/Aubrey_de_Grey

BRAINSTORM MATERIAL







← WORDPLAY EXERCISE

- → Arrogant + Deteriorate + Drugs
- → Arrogant + Rescue + Drugs
- → Grateful + Sleep + Monitor
- → Righteous + Persecute + Drugs
- → Hopeful + Sleep + Creche
- → Hopeful + Drink + Pipes

** used to develop personas

PERSONAS

'The Patient'

Horace is a 58-year-old high-school English teacher who recently suffered an unexpected heart attack; he needed to undergo immediate double-bypass surgery. Luckily, the teacher's union had a good health & benefits plan, which covered a nano-surgical procedure that made open-heart surgery unnecessary. Horace was able to fully recover after several injections of medbots, which flooded his bloodstream and cleared the blocked vessels around his heart.

Horace expects to enjoy a full and healthy retirement, and has little fear of a second attack thanks to monthly booster injections, which keep his bloodstream filled with nano-bots that gradually clear away plaque and fat from his arteries.

'The Survivor'

Janet is a 42-year-old editor in the local office of a national newspaper. She was diagnosed with lung cancer five years ago, and has survived 2 rounds of chemotherapy and multiple surgeries.

The medication Janet was taking recently lost effectiveness, and her cancer was in danger of metastasizing. Placing a high value on quality of life, Janet was not willing to undergo another invasive surgery. She asked her doctor about alternative palliative care options, and managed to join a trial of medical nano-technology.

Janet receives weekly injections of biomechanical nano-'machines' engineered to target and disrupt cancer cells. Though expensive, they are as effective as surgery and as easy as drug treatment, and lack the side-effects of drugs or chemotherapy.

'The Athlete'

Jacob is a 34-year-old professional runner and Olympic gold-medalist. He has encountered heavy criticism from the public and the athletic community in response to the sponsorship deal he recently signed with medical nano-tech firm **NANOBIOTICS**.

The medical nano-bots in Jacob's body help supply his lungs with more oxygen while he is running, and speed muscle repair and regeneration after training. They also record real-time biometrics by monitoring his heart-rate and blood pressure.

Many athletes support the Olympic Committee's prospective ban on performance enhancing nano-technology, but Jacob believes that these products should be treated no differently than sports drinks or performance running shoes.

'The Patriarch'

Nathan is an 80-year-old CEO of a Fortune-500 company. A lifelong entrepreneur, he thrives in the business world and his career has been spent establishing a successful and prolific multimedia 'empire'. Nathan never married or had children, and he was concerned about his legacy: what would happen to his life's work after he was gone?

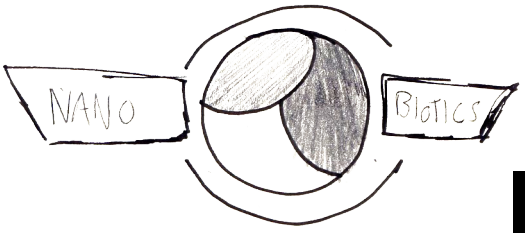
Fortunately for him, nano-tech firm **NANOBIOTICS** offered a solution. Nathan's body is saturated with a cocktail of nano-machines, doing everything from boosting his immune system with synthetic white blood cells, to repairing macular degeneration and other age-related conditions. With a good diet and exercise, Nathan may not have to step down as CEO for another 30 or 40 years.

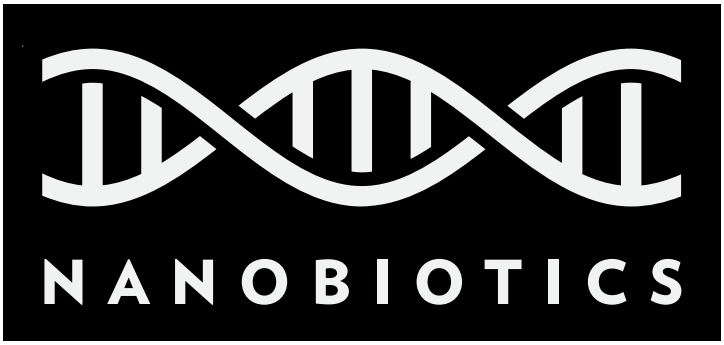
WORKING MATERIAL

Initial 'What If' Statement

What if we had access to medical nano-technology in injection or ingested form? Millions of medbots could flood a person's bloodstream and travel to all parts of the body, breaking up tumors or lesions, repairing damage surgery could never accomplish.

Could we clear clogged arteries? Could we eliminate tumors without open surgery? Could medical nanobots help do the work of our liver and kidneys?





ARTICLES & RESOURCES

1. Scientific American, "Government Fails to Assess Dangers of Nanotechnology".
http://www.scientificamerican.com/article.cfm?id=government-fails-to-assess-dangers-of-nanotechnology

2. "Treating Cardiovascular Disease With Nanotechnology".
http://www.scientistlive.com/European-Science-News/Nanotechnology/Treating_cardiovascular_disease_with_nanotechnology/22563/

3. "Self-Replication and Nanotechnology".
http://www.zyvex.com/nanotech/selfRep.html

4. "Drug Delivery Systems".
http://www.nano-biology.net/showabstract.php?pmid=15031496

5. Science Daily. "Revolutionary Medical Dressing Uses Nanotechnology to Fight Infection".
http://www.sciencedaily.com/releases/2010/07/100707211621.htm

6. "Researchers Test Nanoparticle to Treat Cardiovascular Disease in Mice".
http://insciences.org/article.php?article_id=5474

1. Reynolds, Alastair. Revelation Space. Ace 1st ed. New York: Ace Books, 2001. http://en.wikipedia.org/wiki/Revelation_space

2. http://en.wikipedia.org/wiki/Aubrey_de_Grey