

The Museum as 21st Century Bestiary

DENISA KERA

National University of Singapore

Contemporary art and exhibition practices increasingly reflect upon the emergent forms of life and matter created in the bio and nanotech laboratories. They translate scientific protocols into art manifests (Symbiotica, Marta de Menezes, Eduardo Kac, Adam Zaretsky, etc.), philosophical tractates (Donna Haraway, Hannah Louise Landecker, Nikolas Rose, Aihwa Ong, Catherine Waldby, etc.) and experiments with new institutional models of presentation and production. They articulate how the new forms of life and matter enter and transform our culture, society and politics. They raise and express the expectations and fears that resemble in many ways the Medieval Bestiaries and their treatment of monsters and wonder.

Artists and curators working with biotechnologies and nanotechnologies simply deal with the new forms of monsters and wonder that is created by present science and technology. Semi-living tissues, immortal cell lines, custom-made bacteria, artificial DNA, viral quasispecies, various transgenic, chimeric, synthetic and copyrighted organisms, all challenge our anthropocentric presumptions about life, evolution and nature. The artworks dealing with these emergent sciences make us realize how our normative and aesthetic ideals are culturally and socially bound to certain assumptions on what is alive, human and part of the organic life on this planet. The art-science reflections and translations thereby transform the gallery space into something of a “post-biological” arena, a place in which the organic and the nonorganic, the natural and the constructed, the human and

the non-human, physis and techné, mix, play and blend.

The museum as a post-biological arena in which we play different organisms one against another is  a moral and aesthetic space, a 21st century bestiary expands the ambiguities of a society and politics immersed in science and technology. The ambiguities are already present in many of the concepts we use to describe our present situation in terms of technological society, information society, network society, post-industrial society, service society, globalised society, transnational empires etc. What are these hybrid, technological, social and political concepts trying to name and whose interests do they serve?

The museum is becoming a place where such questions are posed by artists and curators and where we are testing the different relations to the newly discovered biotech and nanotech entities. When artists create sculptures from tissues, do performances with DNA, make installations from biotopes and use media displays made from bacteria, they are testing the limits and possible connections between what is given by tradition and society and what is made in the laboratory. Do such artworks provoke us to change our views on what is a society today or force us to re-evaluate the meaning of science and technology that destabilize our sense of security, order and values? How to reconcile the challenges of every new discovery and innovation with the demands placed on us by the principle of justice, ideals of a good life, aesthetic judgment on beauty and various values? How to balance scientific facts discovered in laboratories with the norms,

values and rules defined by our institutions and traditions? These are just some of the questions that summarize the twin response of artistic practices to the emergent sciences.

Biopolitical fears and post-human fantasies

On one side, artists are trying to formulate a conservative response that is close to the philosophy of biopolitics, questioning the effects that technology and sciences have upon our individual and collective lives. On the other side, their artistic practices are close to what we can call a “portraiture of a passing species” that represents our post-biological and post-human future and redefines what society and politics mean today. The bestiary for the 21st century is connecting both approaches and agendas; it is a biopolitical freakshow and at the same time a portrait that mirrors the changing perspectives on what it means to be human.

From the biopolitical perspective (Michel Foucault, Giorgio Agamben, Francis Fukuyama, Roberto Esposito) we are facing the end of history and the depolitisation of human societies by technology and science which reduce politics to the management of biological life. Such management lacks any historico-political or aesthetic and moral aspirations and leads to a dangerous homogenization. Attention is given to what Giorgio Agamben calls the “last, post-historical and apolitical mandate” which is physical fitness and reduction to physiology: “Genome, global economy, and humanitarian ideology are the three united faces of this process in which post-historical humanity seems to take his own physiology

as its last, impolitical mandate” (Agamben 2004, 77).

The post-biological and post-human perspective (Bruno Latour, Donna Haraway, Deleuze & Guattari) criticizes this narrow view of what is politics and history and questions the whole dichotomy between the social, the human and the natural on one side, and the technological, the non-human on the other. The clear distinction between what is material and semiotic, biological and political is unattainable in a world where we are witnessing assemblages and networks between both and where organisms could be viewed as communities, forms of “symbiogenesis” (Lynn Margulis), co-evolution and mutualism and as a form of “sociable life” (Myra J. Hird).

While the bestiary for the 21st century is trying to connect moral lessons to some new monsters or to produce a portrait of a “passing species” by rethinking possible post-human futures, both strategies create a strong impact on the public. Contemporary art involving biotechnologies and nanotechnologies is an arena and a space in which we confront our deepest fears and fantasies related to otherness and agency behind what is human. It is a space of the “uncanny”, where life is at its most vital expression because it faces paradoxes, death and the other (inorganic) life as described by one of the first curators and supporters of these artistic practices, Melentie Pandilovski, who as the director of the Australian based Experimental Art Foundation organized numerous events on the theme: *Bioart poses a micro/macro, life/death relation that travels in waves of matter moving. The force of bioart is an ethics of affect that functions through the micro-physics of power*

to effect strange new ways of becoming life. It calls into question the operations of indeterminacy at play in the constitution of the human. The human is forced to acknowledge its properly contingent existence as a macro construction that is formed in translation from the micro. The human is thereby encouraged to give up its claim to superior status and engage in an ethical relation with its surround. Like art, biotechnologies also affect new relationships between matter and life, human and non-human. Bioart must function in rhythm with these techniques in order to pose a critical counterpoint to their operations. (Pandilovski 2008).

In a similar fashion to which the Medieval Bestiaries describe and define our relation to the unknown, to the transgressive and the monstrous, various contemporary art projects and philosophical essays are dealing with the issue of the “uncanny”. In both cases we are searching for a new model of the common world where strange new entities are discovered and invented. These probes into the emergent forms of global collectives and hybrid identities of the biotech and nanotech age do not serve any teleology or ideal. They simply bring forward the dynamic and heterogeneous agency of the material world and the “new relationships between matter and life” (Pandilovski 2008). They make us realize that the world outside is not a passive *hylé* (substance) which we can shape according to our will but it has the attributes of the Nietzschean “abyss that looks back at us” which is one of the first, dramatic formulations of the importance of non-human agency and the “uncanny” in the last century.

Post-human and post-biological condition

The post-human and the post-biological condition replaces the aesthetics and moral values of beauty, integrity and unity with expressiveness and hybridity. Our world becomes a stage and an arena in which we do not strive for perfection but for constant change and for new types of connections and networks between the different entities and actors that appear. While science protocols and experiments may bring more lasting networks between different actors, artistic performances and philosophical theses create often new and unimaginable combinations to help us grasp alternative futures. They help us face the challenges of the biotech and nanotech age and the new forms of symbioses between the organic and the inorganic worlds, between technology and society.

For many centuries, only philosophers dared to work on these limits of our thinking and matter, to investigate the ultimate nature of our being and our world and to seek what constitutes reality. By the end of the 20th century metaphysical questions are not only back but they are increasing in number and urgency with disciplines such as theoretical physics, astrophysics, biotechnology and nanotechnology. Not only are the limits of our thinking and matter still at stake but also the limits of what we consider human and even organic life are becoming more burdensome. All these questions are transgressing into experiments with science and technology. The metaphysical pursuit today involves not only human minds but also machines and different instruments. Since

the 17th century the instruments of science and technology, different protocols and machines, have taken on the traditional roles of the philosophers, reflecting on the limits and notions of life, community, reality, meaning and truth.

The explorations of the limits and border zones between the human and its other (non-human, non-organic life) are examined in one of the most important exhibitions on biotechnology and art in recent years. *Sk-interfaces. Exploding Borders in Art, Technology and Society* (Liverpool, FACT in 2008 and Casino Luxembourg in 2009) uses the metaphor of skin to explore the limits and interactions between us and some form of alterity. Jens Hauser, who curated the exhibition, reflects his long term involvement with this type of art as a research of these limits: “*sk-interfaces* explores what was once believed to be the limit of our bodies and identities, the external boundaries, but which are currently being perceived as more and more unstable. Launching FACT’s 2008 *Human Futures* programme, *sk-interfaces* emphasizes the growing importance of the liminal state of ‘inbetween-ness’ which we encounter in the age of technological extensions and bio- and nano-political changes, even beyond the consequences of the digital age. Its focus is on the process of becoming, rather than on snapshots of what we think that we are. Materially and metaphorically, artists explore trans-species relationships, xenotransplantation, telepresence and permeable architecture. The exhibition presents ‘victimless’, tissue cultured miniature leather garments or designer replacement hymens, video-, interactive- or haptic

installations” (Sweeney 2008).

We live at a time when different particle accelerators, colliders, supercomputers and grids investigate the limits of our physical microworld and test our limits of processing data and understanding reality. These are the true metaphysicians of our time, simulating conditions almost unthinkable by human minds and constructing theories and experimenting with the frontiers of matter. We live at a time when different models of computer networks from WWW to P2P networks and different forms of distributed and cloud computing create not only new businesses and economies but new legal issues, new social dynamics, new regulatory bodies, institutions and a whole new politics. We live at a time when biotechnology creates hybrids and hard-to-define forms of life which turn our world into a post-biological arena and almost a circus. Museums are simply becoming these liminal spaces, these skins through which we experience ~~these~~ various forms of limits and “inbetween-ness” that Jen Hauser is trying to define. In them we are testing and trying to define the cultural, social and political perspectives on our biotech and nanotech future.

The task of categorizing these new types of entities, phenomena and beings and defining their rights and relations to the rest of the planet and the universe is what we are doing as curators but also as viewers of biotechnological and nanotechnological art in the public experiments presented in museums. Museums are simply what Jens Hauser describes as incubators “in which the technologies of our age make new aesthetics and models of self-understanding breed and hatch...”

But we should not see *sk-interfaces* as a ‘sci-art’ exhibition. Its aim is not to illustrate knowledge or scientific methods but to subvert them to primarily non-utilitarian ends, in order to make us think about how our technologies and media have taken over the role of our skins through which we relate to the world” (Sweeney, 2008).

The bestiary as a search for normative ideals for messmates

The bestiary for the 21st century that is created by the various nanotech and biotech exhibitions across the world is simply questioning the central role of humans and the normative ideals based on humanism. Are science and technology still signs of human dignity, greatness and intelligence or do they mark our decline and end? How to resist the anthropocentric bias implied in these questions? Should we try to define something of a post-human condition in the age of science and technology which includes not only humans but also our new “worldmates” or as Donna Haraway calls them “messmates”? How to connect or divide political and social issues of justice from biological issues of evolution and technological issues of innovation? How are the natural processes of evolution, the social processes of globalization and the general processes of negentropy in the universe linked?

By trying to formulate the new normative ideals, we are also formulating new questions about our common future. Biotech and nanotech art are the ideal probes into these new forms of interactions and networks between society, nature and technology. The emergent and hybrid effects of these

misalliances force us to constantly reconsider and adapt our views of society, evolution and nature but also of philosophy and art. The only thing that remains constant in these processes is the critique of anthropocentrism. We are simply witnessing systems and ecologies which are as complex as society or nature and which we cannot label either as human constructions nor as natural facts. To appreciate these complex and hybrid networks we need new normative concepts which will surpass the limitations of anthropocentrism. Since we cannot know in advance what is the form of this newly formed “us”, we can only experiment (Latour 2004).

The post-human condition is not a state or some definitive equilibrium but only a constant experiment and search for new forms of networks between emerging entities in our universe. The simple rule is to accept all entities and actors as partners rather than labeling them as monsters and enemies or even slaves: no hierarchy and no divisions, only an endless play of networks and new collectives which include more and more foreigners, parasites and other hard to define actors. The universe does not start nor does it end with humans. In this “cosmopolitical” (Latour 2004) universe we cannot have a universal law and goal but only processual and tactical decision making that changes in every concrete situation. The normative ideal of this cosmopolitical and post-human order is a processual one. The goal is not to act according to the maxim of one’s agency which can become a universal law for the agency of that kind. The cosmopolitical ideal is to act so that every situation remains a unique and unrepeatable

chance for new decisions and negotiations between new and different agencies and actors.

Mutations between museums and laboratories

Museums and exhibitions working with bio- and nanotechnologies are sites for such cosmopolitical negotiations and experiments with our future. They are places where the public engages with emergent and hybrid science and tests the limits of imagination. We describe them as apost-biological arena and bestiary to explain our struggles to define and form relations with emergent entities and to imagine our common future. Such spaces bring emergent science and technology to our everyday life and they have the power to create a personal experience as Marta de Menezes, a well known artist working at the intersection between art and biology, summarizes: “Bioart is like science fiction, a great way to think about important social, philosophical, political, ethical, aesthetical, biological, artistic... issues that we face ourselves everyday at a more personal level as well as a more general level. I think that it is a way of doing science fiction in the visual arts, which coincidentally makes the fiction part closer to reality than we would expect! And for me this is the major clue about bioart, it is how far can you go in the line between fantasy and reality through fiction” (Skype interview with the artist, January 15, 2010).

Marta de Menezes is also a founder of Ectopia, an experimental laboratory and artist residency housed at the Instituto Gulbenkian de Ciência in Oeiras, Portugal,

that represents the important trend in bioart and nanoart practices which create new forms of institutions. Under the Ectopia program, the Institute's scientists collaborate with participating artists not only in the presentation of bioart in museum and gallery spaces but in the actual creation and production of new works. Spaces such as Ectopia or The Arts and Genomics Center at the University of Leiden and the artistic laboratory and Centre of Excellence in Biological Arts – SymbioticA at the University of Western Australia are probing new types of relations between research, art, public display and involvement in the sciences. These hybrid forms of institutions are similar to the hybrid forms of life we are witnessing in the science laboratories in terms of their ability to create new networks and assemblages, whole new ecologies of actors. This is well summarized on the main page of SymbioticA www.symbiotica.uwa.edu.au: “SymbioticA is an artistic laboratory dedicated to the research, learning, critique and hands-on engagement with the life sciences. With a strong emphasis on experiential practice, SymbioticA facilitates a thriving program of residencies, research, academic courses (undergraduate and postgraduate), exhibitions, symposiums, and workshops. Researchers and students from all disciplines work on individual projects or in interdisciplinary teams to explore the shifting relations and perceptions of life. As a research centre within the School of Anatomy and Human Biology at The University of Western Australia, SymbioticA enables direct and visceral engagement with scientific techniques. Crossing the disciplines of art and the life

sciences, SymbioticA encourages better understanding and articulation of cultural ideas around scientific knowledge and informed critique of the ethical and cultural issues of life manipulation.”

From the Academy of Sciences to Academy of Games

Public fantasies and fears, scientific facts, aesthetic values and social norms all meet and merge in these new types of institutions and interactions between exhibition, research and artistic creation. Spaces based at the universities such as SymbioticA and Ectopia or independent institutions such as ANAT (Australian Network for Art and Technology) revive original ideas about the interaction between science, technology and the public envisioned way before the first museums and professional scientific institutions in Europe by G. W. Leibniz. In his famous *Odd Thought Concerning a New Sort of Exhibition (or rather, an Academy of Sciences; September, 1675)* Leibniz ceases to discuss the advancement of sciences and technology in terms of metaphysical and philosophical issues of truth, limits of human mind and reality. Progress in sciences and technology is discussed in a modern and even cynical way as a phenomenon defined by money, intensity of attention and level of public support related to the wonder that science and technology can attract. Science and technology are linked to society and they are defined by their ability to generate new ecologies of interest and influence, new institutions, networks and relations between different actors. They are connected to business, art, entertainment, tourism, and simply everything

that can raise human curiosity and wonder. Inspired by the 16th and 17th century Cabinets of Curiosities (*Kunstkammer*, *Wunderkammer*) and the emerging museums and collections of natural and artificial rarities (*rerum naturalium, curiosa*) Leibniz is envisioning revolutionize and accelerate science and technology by linking it both to the general public and political and economic elites of his time.

“Academy of Sciences” and even “Assembly of Academies of Sciences” that will exhibit new inventions to fundraise money from the general public, rich aristocrats and the court to support innovations by presenting the technological progress in different countries. “Academy of games and pleasures” modeled as a casino that will engage and trick the naïve public into gambling and indulging in complex games and mechanical toys designed by the scientist. A place to present technological wonders with various functions from entertainment to state surveillance. “Theater of Nature and Art” connecting performances, opera, scientific experiments, exhibitions of mechanical toys and new media, exotic plants and animal species. “General clearing house for inventions” using various business models to strike a balance between investment and profit in science and technology and involving investors and different stakeholders. “Museum of everything that could be imagined”, “Museums of rarities”, menagerie, observatory, anatomical theater... these are just some of the expressions, descriptions and examples that Leibniz uses to discuss a proposal for the diffusion of scientific knowledge and for strategies to promote and support innovation in the

17th century (Wiener 1940).

Leibniz’s “academy” points to something between a business incubator, technological park, science museum, performance space and even a tourist attraction. This “odd thought” (*drôle de pensée*) on a “new sort of exhibition” (*nouvelle sorte de representations*) is almost a prophetic vision of the type of public engagement and hybrid organization which we are witnessing today. Spaces such as Ars Electronica in Linz, ZKM in Karlsruhe, FACT in Liverpool, Laboral in Gijón, numerous smaller centers around the world (Le Cube in Issy-les-Moulineaux, CIANT in Prague, MediaLab Madrid, RIXC Media Space in Riga, Art & Technology centre – Eyebeam in New York) but also festivals (Transmediale in Berlin, Pixelache in Helsinki, TransGenesis in Prague) as well as novel forms of public performances (TEDx conferences) and alternative incubators (Hackerspace, The HUB) all represent this move to the hybridity of forms, functions, interests and goals that define the type of spaces in which science, business, art and technology meet. These spaces not only present novel research in science and technology or new business models and ideas but they literally perform the uncanny ability of science and technology to bring together new actors and create new heterogeneous networks between them.

Institutional mutations in the age of curiosity

The hybrid potential of science and technology to create new networks and hard to define types of institutions is well represented by the famous centers such as Ars Electronica

in Linz with its museum of the future closely connected to the annual festival but also incubator (Futurelab) or FACT in Liverpool (Foundation for Art and Creative Technology) that incorporates exhibitions, education and research projects, runs its own cinema, shop and even consultancy, training and multimedia services. Another space that is connecting art, business and museum functions is Laboral, an “Industrial Creation Centre”, a hybrid institution that is part of the economic revitalization of a whole region in Spain (Asturia) involving the public but also the political and economic elites of the region and the research capabilities of the local universities. The famous ZKM (Zentrum für Kunst und Medientechnologie) in Karlsruhe also connects the various educational, research and museum functions.

Even more interesting in this respect are the small-scale types of institutions and events that fulfill Leibniz’s vision. Alternative forms of incubators, open community labs and high tech kibbutzes that are self-funded and organized by the researchers and entrepreneurs themselves like Hackerspace (<http://hackerspaces.org/>) , The Hub (<http://www.the-hub.net/>), NextFab studio (<http://nextfabstudio.com/>) demonstrate well Leibniz’s early thoughts on self-supporting and autonomous “clearing houses for inventions”. After brainstorming the various functions of his Academy, Leibniz is very pragmatic about the type of business model for such future and science and technology oriented institutions: *The use of this enterprise to the public as well as to the individual would be greater than might be imagined. As to the public, it would open*

people's eyes, stimulate inventions, present beautiful sights, instruct people with an endless number of useful or ingenious novelties. All those who produce a new invention or ingenious design might come and find a medium for getting their inventions known, and obtain some profit from that. It would be a general clearing house for all inventions, and would become a museum of everything that could be imagined. (Wiener 1940, 239). He is even anticipating the membership-fee model which is common in these alternative incubators and studio places “preferably different rooms like palace shops in the same house where private parties having rented the rooms, would show the rarities” (Wiener 1940, 236). In a margin note he adds a definition of what we call incubators nowadays: “Having a fund, there would be a perpetual income from interest and from other sources, such as the formation of companies for new manufactures” (Wiener 1940, 236). Leibniz believed it is good to bring people from different backgrounds together and connect them, so the people that are good in “defraying expenses” will work with people that could “constantly invent new things” which is exactly the model under which these new spaces operate.

What is intriguing about this model of science and technology involvement with business, art and the general public, is the importance that Leibniz ascribes to its temporal aspects, to the events and performances that take place in such spaces. The vivid descriptions of the silly and purely entertaining event such as the “Ballets of horses. Races round a ring and Turkish head.... Power of a mirror to kindle a fire...” (Wiener 1940, 237) are coupled with more serious ones that

remind us of today's TEDx conferences which Leibniz would describe as "comedies of the styles, debates of each country, a Hindu comedy, a Turkish, a Persian, etc. Comedies of the trades, one for each trade, which would show their skills, peculiarities, jokes, master-pieces, special and ridiculous styles. In other comedies, Italian and French clowns who would perform their buffooneries" (Wiener 1940, 238) or in another place as "Amusing and colloquial disputes" (Wiener 1940, 237). TEDs(x) conferences - science performances that fuel the interest and investment in science and technology - share the same values that Leibniz expressed: a global and complex ecology of interests and connections across society. The academy and the museum in Leibniz's understanding is basically like his monads, an expression of a new type of ontology of networks or fractals. These institutions and monads represent, mirror and interact with the whole in every part so that the "smallest particle of matter is a world of creatures, living beings, animals, entelechies, souls (more monads)" and "a garden and a pond of gardens and ponds" (Wiener 1940, 66).

Summary

From nano- and bioart exhibitions, to annual new media festivals, various museums of the future and alternative incubators, we are witnessing similar mutations of traditional institutions and practices dealing with art and science. The involvement with emergent sciences and technological inventions transcends business, art and research. The

functions of such spaces vary from the more obvious like popularization and presentation to the more professional like investment in innovation, to the more creative functions and experiments envisioning our common future. The goal seems similar to some early ideas and visions of science, technology and art interactions. Their main function is to foster and accelerate the ability of science and technology to serve very different purposes and connect actors in new networks and ecologies. While the Medieval Bestiaries and cabinets of curiosities served an age of wonder that believed in miracles and God's interventions, we are entering an age of curiosity that believes in hybridity and chance mutations. In these new types of institutions and practices, we dream together with Michel Foucault (1980) of a new age of curiosity: "Curiosity is a new vice that has been stigmatized in turn by Christianity, by philosophy, and even by a certain conception of science. Curiosity, futility. The word, however, pleases me. To me it suggests something altogether different: it evokes "concern"; it evokes the care one takes for what exists and could exist; a readiness to find strange and singular what surrounds us; a certain relentlessness to break up our familiarities and to regard otherwise the same things; a fervor to grasp what is happening and what passes; a casualness in regard to the traditional hierarchies of the important and the essential.... I dream of a new age of curiosity. We have the technical means for it; the desire is there; the things to be known are infinite; the people who can employ themselves at this task exist. Why do we suffer? From too little: from channels that are

too narrow, skimpy, quasi-monopolistic, insufficient. There is no point in adopting a protectionist attitude, to prevent “bad” information from invading and suffocating the “good.” Rather, we must multiply the paths and the possibilities of coming and goings.” The last sentence in this famous quote summarizes the 21st century bestiaries and alternative institutions. Their whole purpose is to “multiply the paths and the possibilities of coming and goings” (Foucault 1980), the possible networks and future scenarios.

References

- Agamben, Giorgio. *Homo Sacer. Sovereign Power and Bare Life*. Meridian. Stanford, Calif.: Stanford University Press, 1998. Print.
- Agamben, Giorgio. *The Coming Community. Theory out of Bounds V. 1*. Minneapolis: University of Minnesota Press, 1993. Print.
- Agamben, Giorgio. *The Open : Man and Animal*. Meridian, Crossing Aesthetics. Stanford, Calif.: Stanford University Press, 2004. Print.
- Bishop, Ryan, John Phillips, and Wei-Wei Yeo. *Beyond Description : Singapore Space Historicity*. The Architext Series. London ; New York: Routledge, 2004. Print.
- Burns, Timothy. *After History? : Francis Fukuyama and His Critics*. Lanham, Md.: Rowman & Littlefield, 1994. Print.
- Deleuze, Gilles, and Félix Guattari. *A Thousand Plateaus : Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press, 1987. Print.
- Deleuze, Gilles, and Félix Guattari. *Anti-Oedipus : Capitalism and Schizophrenia*. New York: Viking Press, 1977. Print.
- Dennett, and Daniel. "E Pluribus Unum? Commentary on Wilson & Sober: Group Selection." *Behavioral and Brain Sciences* 17.4 (1994): 617-18 pp. 2.07.2009 <<http://ase.tufts.edu/cogstud/papers/wilsonso.htm>>.
- Esposito, Roberto. *Bíos : Biopolitics and Philosophy*. Posthumanities Series. Minneapolis: University of Minnesota Press, 2008. Print.
- Esposito, Roberto. *Communitas : The Origin and Destiny of*

- Community. Cultural Memory in the Present.* Stanford, Calif.: Stanford University Press. Print.
- Foucault, Michel. *The Masked Philosopher* (1980), http://www.stuartgeiger.com/ossdebate/index.php?title=Foucault%27s_Masked_Philosopher
- Foucault, Michel, et al. *Society Must Be Defended : Lectures at the Collège De France, 1975-76.* 1st Picador pbk. ed. New York: Picador, 2003. Print.
- Foucault, Michel, Paul Rabinow, and Nikolas S. Rose. *The Essential Foucault : Selections from Essential Works of Foucault, 1954-1984.* New York: New Press, 2003. Print.
- Foucault, Michel, Michel Senellart, and Collège de France. *The Birth of Biopolitics : Lectures at the Collège De France, 1978-79.* Basingstoke [England] ; New York: Palgrave Macmillan, 2008. Print.
- Foucault, Michel, Michel Senellart, and Arnold I. Davidson. *Security, Territory, Population : Lectures at the Collège De France, 1977-1978.* Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2007. Print.
- Fukuyama, Francis. *Our Posthuman Future : Consequences of the Biotechnology Revolution.* London: Profile Books, 2002. Print.
- Fukuyama, Francis. *The End of History and the Last Man.* 1st Free Press trade pbk. ed. New York: Free Press ;, 2006. Print.
- Gottweis, Herbert, Brian Salter, and Cathy Waldby. *The Global Politics of Human Embryonic Stem Cell Science : Regenerative Medicine in Transition.* Health, Technology, and Society. Basingstoke [England] ; New York: Palgrave Macmillan,

2009. Print.
- Haraway, Donna Jeanne. *When Species Meet*. Posthumanities 3. Minneapolis: University of Minnesota Press, 2008. Print.
- Hird, Myra. *The Origins of Sociable Life: Evolution After Science Studies*. Palgrave Macmillan, 2009. Print.
- Kac, Eduardo. *Signs of Life : Bio Art and Beyond*. Leonardo. Cambridge, Mass.: MIT Press, 2007. Print.
- Kac, Eduardo. *Telepresence & Bio Art : Networking Humans, Rabbits & Robots*. Studies in Literature and Science. Ann Arbor: University of Michigan Press, 2005. Print.
- Kac, Eduardo, et al. Eduardo Kac : *Telepresence, Biotelematics, Transgenic Art*. Ed. no. 6. ed. [Maribor, Slovenia]: Association for Culture and Education, KIBLA Multimedia Center, 2000. Print.
- Landecker, Hannah. *Culturing Life : How Cells Became Technologies*. Cambridge, Mass.: Harvard University Press, 2007. Print.
- Langwith, Jacqueline. *Stem Cells*. Opposing Viewpoints Series. Detroit: Greenhaven Press, 2007. Print.
- Latour, Bruno. *Politics of Nature : How to Bring the Sciences into Democracy*. Cambridge, Mass.: Harvard University Press, 2004. Print.
- Latour, Bruno. *We Have Never Been Modern*. Cambridge, Mass.: Harvard University Press, 1993. Print.
- Margulis, Lynn. *Gaia to Microcosm*. Dubuque, IA: Kendall/Hunt Pub., 1996. Print.
- Margulis, Lynn, and Karlene V. Schwartz. *Five Kingdoms : An Illustrated Guide to the Phyla of Life on Earth*. San Francisco:

- W.H. Freeman, 1982. Print.
- Max-Planck-Institut für Wissenschaftsgeschichte.
Experimental Cultures : Configurations between Science, Art, and Technology, 1830-1950 : Conference, Berlin 7-9 December 2001. Preprint., Berlin: Max-Planck-Institut für Wissenschaftsgeschichte, 2002. Print.
- Ong, Aihwa. *Neoliberalism as Exception : Mutations in Citizenship and Sovereignty*. Durham [N.C.]: Duke University Press, 2006. Print.
- Ong, Aihwa, and Stephen J. Collier. *Global Assemblages : Technology, Politics, and Ethics as Anthropological Problems*. Malden, MA: Blackwell Publishing, 2005. Print.
- Ong, Aihwa, and Michael G. Peletz. *Bewitching Women, Pious Men : Gender and Body Politics in Southeast Asia*. Berkeley: University of California Press, 1995. Print.
- Pandilovski, Melentie. *Journeys to the Other Side of the Navel : Art of the Biotech Era*. Experimental Art Foundation Press, 2008. Print.
- Rose, Nikolas. *The Politics of Life Itself : Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton, NJ: Princeton University Press, 2006. Print.
- Rose, Nikolas *Governing the Soul : The Shaping of the Private Self*. London ; New York: Routledge, 1990. Print.
- Rose, Nikolas *Inventing Our Selves : Psychology, Power, and Personhood*. Cambridge Studies in the History of Psychology. Cambridge, England ; New York: Cambridge University Press, 1996. Print.
- Rose, Nikolas *Powers of Freedom : Reframing Political Thought*.

- Cambridge, United Kingdom ; New York, NY: Cambridge University Press, 1999. Print.
- Shannon, Thomas A. *Genetics : Science, Ethics, and Public Policy : A Reader*. Readings in Bioethics. Lanham, Md.: Rowman & Littlefield Publishers, Inc., 2005. Print.
- Sweeney, Gaynor E., *sk-interfaces and Jens Hauser: Interview and Review by Gaynor Evelyn Sweeney* (2008), <http://www.artinliverpool.com/blog/2008/03/sk-interfaces-at-fact-review-and-interview/>
- Wiener, Philip P., "Leibniz's Project of a Public Exhibition of Scientific Inventions," *Journal of the History of Ideas*, Vol. 1, No. 2 (Apr., 1940), pp. 232-240, <http://www.jstor.org/pss/2707335>
- Mark A. Hlatky et al., "Quality-of-Life and Depressive Symptoms in Postmenopausal Women after Receiving Hormone Therapy: Results from the Heart and Estrogen/ Progestin Replacement Study (HERS) Trial," *Journal of the American Medical Association* 287, no. 5 (2002), <http://jama.ama-assn.org/issues/v287n5/rfull/joc10108.html#aainfo>.
- Waldby, Cathy. *Aids and the Body Politic : Biomedicine and Sexual Difference*. Writing Corporealities. London ; New York: Routledge, 1996. Print.
- Waldby, Cathy, and Robert Mitchell. *Tissue Economies : Blood, Organs, and Cell Lines in Late Capitalism*. Science and Cultural Theory. Durham [N.C.]: Duke University Press, 2006. Print.