Artlink

The beginnings and the ends of Bio Art

Suzanne Anker, Feature

Pioneering bio artist and Chair of the Fine Arts Department at the School of Visual Arts (SVA) in New York City Suzanne Anker describes some recent directions of bio art in its "remapping, recombining and reorienting" of life.

Since the late 1980s a significant number of artists have begun working with biologically related concepts and materials. Of course the infusion of biology into the visual arts is not new. For writer and theorist Jack Burnham a shift in visual art took place in the late 1960s, not because of Arthur Danto's proclamation that art was over, but because the visual arts began to derive substitute methodologies for the creation of artworks: earth works, systems theory and real-time media became fresh working tools. As early as 1969, in Beyond Modern Sculpture, Burnham sees the integration of "men and machines into optimally functioning systems as tantamount to creating synthetic organisms"[1], a concept which provokes the imagination of artists, designers and scientists of today.

Synthetic biology and its attendant molecular technologies transform matter into never before existing combinations. What is novel is the adaptation and exploitation of biologically generated art that harnesses the advancing developments in technical apparatus, molecular primers, and laboratory procedures to make visible or statistically believable what has never been accounted for before.

Beginning with a working definition of bio art, a contested term in and of itself [2], three distinct yet sometimes overlapping sub-categories emerge from the genre. These sub-genres take into consideration allied practices necessary to transform matter on a molecular level:

Imagery garnered through methods such as MRI, atomic force microscopy, electrophoresis, gene sequencing and PCR technologies[3]. Images of chromosomes, body scans, genotypic and phenotypic variations, and laboratory-fabricated animals enter the domain of image-making. They can be found in painting, sculpture, photography, video, music and theatre.

The incorporation of 3D computer modelling software, artificial life, robotics, biodegradable scaffolding and an interest in emergent theories of life as subject matter for new media installations, rapid prototype sculpture and algorithmic codes.

The inclusion of wet laboratory practices such as tissue engineering, the cloning of animal and plant cells, transgenic microorganisms and ecological investigations. Artists now employ living matter as their medium.

Summoning awareness of the political, economic and social consequences of altering life is of particular importance to bio art. From relational aesthetics to performance art, from the institutional critique to new media installations, from photographic realities to manipulated ones, bio art is supported across myriad formats. Scientific paraphernalia, biological processes, body fluids and serums support this evolving body of work. Dead or live animals, plants, and microorganisms often appear in art installations. It is common to see charts, sensors, computer chips and naked bodies as well. As a fusion of art and science, design and architecture, various parameters can be employed to evaluate bio art, based on a sliding scale of observations in support of the following end points:

Can a work of bio art be judged on the difficulty of the biological processes being employed?

Are bio artists no more than amateur scientists?

Can the philosophical questions bio art raises be embedded in visual art scenarios? Or, put another way, do the aesthetic principles of design arrive to save the day in the presentation of hand-blown glass, lab coats as costumes, an array of plants and horticultural apparatus, robotic systems and scripted dialogues?

Can bio art be separated from bio design or speculative design? What is the role of utility in these manifestations?

When scientific facts are falsified by bio artists how does that affect (or not affect) the resultant work of art?

What terms are employed in bio art and how are they subsequently scrutinised in philosophical discourse concerning life and life forms?

Bio artists and designers often engage in collaborative processes, sharing ideas, methods and perspectives. Often enough, teams combine scientists, visual artists, designers, computer software specialists, photographers, dancers, actors, philosophers, physicians, technicians, anthropologists and writers. There are many cases of successful collaborative experiences. Additionally, this status of unorthodox practice can garner results through chance and achieve recognition outside of traditional scientific methods.

The question of working with life as a medium is a complex one. Through mixing and matching, cutting and pasting, freezing and heating, the cell has become a domain of dynamic interactions. Along with procedural knowledge, a host of concepts have also migrated into bio art parlance such as transgenic art and semi-living and other terms such as victimless leather, in-vitro meat. As far as transgenic art is concerned, does it mean any transgenic organism is potentially a work of art?

How is semi-living defined? Characteristics of life include: metabolism, reactions to stimuli, growth and an ability to reproduce. Are freshly killed cow's cells an example of semi-living? A person in a coma? Can they be considered alive if they are hooked up with an external apparatus? Is this a form of assisted living? Cultured cells need to be externally fed and comatose patients require a machine to continue their physical existence. There is of course no such thing as victimless leather or vegetarian in-vitro meat since animal by-products are the necessary foodstuff to keep cells alive. What do we mean by such concepts and why do they continue to be bandied around without being examined?

Microorganisms have become significant material sources for artists, designers and scientists. Bacteria has become a prime ingredient in photography, fashion design and synthetic biology. Alexander Fleming, the father of penicillin, was an early practitioner of employing microbes to create pictures. Using microbes that were differentiated by colour, Fleming was able to have his various microbes 'bloom' at the same time, thus portraying a rich palette of living organisms in a Petrie dish. Fleming, it may be argued, is the father of bio art. As synthetic biology re-engineers DNA, creating entities that are not part of the natural order, a host of other consumables comes to market such as genetically altered male mosquitoes which render their offspring non-viable when mating with 'wild type' females. In a sense these are living machines. Many other experimental products are being explored by artists such as Alexandra Daisy Ginsberg, Christina Agapakis and Sissel Tolaas.

BioCouture is yet another offshoot of the growing application of bio art. Donna Franklin and Gary Cass have invented dresses made from cellulose generated by bacteria from red wine. Suzanne Lee composes 'growing' textiles produced by sugar, tea and bacteria to fashion jackets and kimonos. Sonja Baumel employs genetic data as the source of her designs. Pia Interlandi creates 'corpse couture' for the deceased, in which the fibres are intended to aid in decomposition. Anna Dumitriu works with bacteria as communicating devices whose colour changes when they receive messages from one another. Whereas bio art does not look towards industry or economic models, bio design is intricately connected to product development. Looms, weaving and pattern making are changing to include alternate biological models.

Bio art questions the limits of the human body and its remaking and explores the implications of altering nature. In some cases, bio artists base their work on a critique of science. Although there are alliances between bio art and bio design, there are also many differences. Scientists and designers work in teams where all contributors are acknowledged. What remains to be seen are the ethical issues involved in these practices, as synthetic biology, a form of genetic engineering, becomes more popular. The innovations reflected here are projections of the future, continually remapping, recombining and reorienting what is already extant.

1 Jack Burnham, Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of this Century, George Brazilier, 1969, p. 54.

2 See Bio Art entry in Oxford Art Online, Oxford University Press, 2007-2014.

3 Polymerase chain reaction (PCR), a technology used for amplifying DNA sequences.

Suzanne Anker is a pioneering bio artist and Chair of the Fine Arts Department at the School of Visual Arts (SVA) in New York City. She is a lead instructor in the Bio Art Lab at SVA.

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