



**PLAZA
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Gene Culture: Molecular Metaphor in Visual Art

The Chimera:

Chimera: 1)(a) a fire-breathing she-monster in Greek mythology having a lion's head, a goat's body, and a serpent's tail. (b) an imaginary monster compounded of incongruous parts. 2) an illusion or fabrication of the mind, esp. an unrealizable dream. 3) an individual organ or part consisting of tissues of diverse genetic constitution.¹

The practice of art over the last several decades has relied heavily on techniques of recontextualization. The transformation of material into metaphor by cutting and pasting is a procedure known as collage. In collage, aspects of one image are substituted and reconfigured as part of another. Originating with the Dadaists and Surrealists, this technique creates images which are psychologically, philosophically and aesthetically complex. Collage and film editing are similar. They both join disparate elements in space and time and in doing so seemingly fuse fact with fiction. Collage is not merely a style. It has had profound perceptual effects.

In his photocollage, *German Natural History*, 1934, (fig. 1) John Heartfield portrays members of the German government in three biological stages of development. Following the evolution diagrammed in the photograph, Heartfield comments on the inevitability of Hitler's rise to power by linking the Weimar Republic with fascism.² Here metamorphosis links natural history and political power. The politician is joined to the insect and a visual mutation, a chimera, is created.

The chimera has appeared once again, not just in art but in biology. A recent example has been created by Dr. David Ow, a biologist at the University of California, Berkeley. He has fused the genetic material of a firefly and a tobacco plant, forming phosphorescent plants. By understanding the ways in which aspects of one biological kingdom can be useful to another, the goal of this type of research is to combat disease. Nevertheless, these experiments, by breaking species boundaries, change our relationship to living matter. For example, if one is a strict vegetarian, would

one be violating one's principles by eating a tomato whose genetic material has been altered with flounder genes for purposes of frostproofing? If art and science can both use the collage technique, are not the boundaries between them blurred? Is not gene splicing in some way an art form? Is life not imitating art?

The genetic metaphor is of great interest to artists today. The field is broad enough to encompass a variety of styles, materials and ideologies. We are used to looking at illustrations in *Scientific American* or microscopic photographs and remarking on their beauty. The art in this show, although often beautiful, is not about that. Rather it uses the visual language of science to help us understand the complex social codes of our culture.

The Copy and the Copyright:

Copy: 1) An imitation, transcript or reproduction of an original work (as a letter, a painting, a piece of furniture or a dress. 2) one of a series of mechanical reproductions of an original impression.

Copyright: 1) The exclusive legal right to reproduce, publish and sell the matter and form of a literary, musical or artistic work.

Clone: 1) A group of genetically identical cells or organisms all descended from a single common ancestral cell or organism. 2) genetically engineered replicas of DNA sequences.³

An article in *The New York Times*, on Sunday, October 24, 1993, described the cloning of the first human embryo.⁴ This method, although common in animal breeding or occurring naturally in identical twins raises serious ethical questions concerning the integrity of life. Since embryos can be frozen and used at a later time, identical twins could be born years apart.⁵ Cloning, however, is not the only way to copy genetic information. PCR (polymerase chain reaction) does in the laboratory flask what the Xerox machine does in the office.⁶ Andy Warhol's replication of images (fig. 3) by photosilkscreening, to all intents and purposes clones the *Mona Lisa* and a host of other cultural icons. As a title of his says, *Thirty Are Bet-*

ter Than One. Copyright, normally associated with the protection of artistic intellectual property, has now been extended to biology. Gene sequences, once they are translated into a letter script can be patented.

The current artistic practice of appropriation, or the copying of one artist's style by another, is a form of cloning, a benign plagiarism. It tests the notion of the copyright while at the same time challenging the accepted value of originality. Appropriation may copy form but it does not copy intent or historical context. Ronald Jones', *Untitled (Core of the Human Retrovirus)*, 1989, may look like a Brancusi, but it operates on totally different principles. While the Brancusi was created as a transcendent, almost spiritual form, the Jones is secular in the extreme. It is a casting in bronze of the HIV virus. He seems to be saying, how can something with such beautiful form be so deadly? The Jones is a unique object, the virus it portrays destroys by replication.

*The Genetic/Aesthetic Matrix:*⁷

Genetics: 1) The scientific study of heredity. 2) Related to or determined by the origin, development, or causal antecedent of something. 3) Coined by William Bateson in 1902.

Aesthetics: 1) a branch of philosophy dealing with the nature of beauty, art and taste; coined in 1825 by Baumgarten.

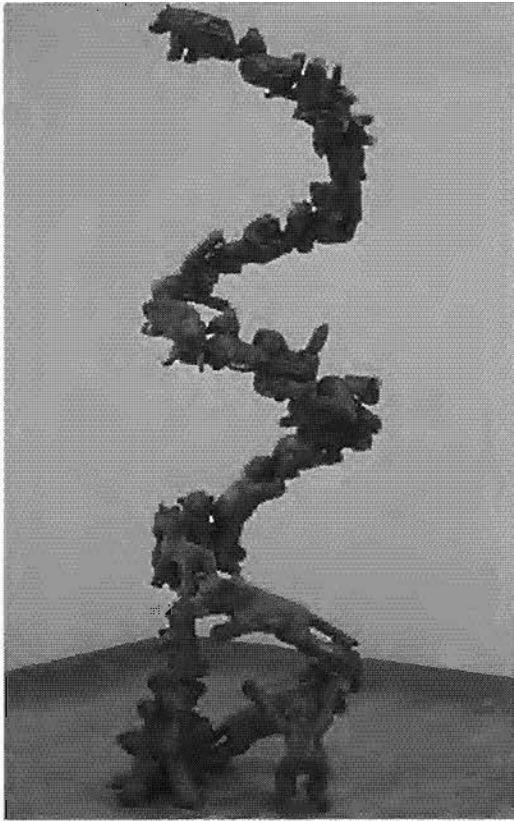
Genetic material, microscopic in scale, can be made visible by a number of laboratory methods, mapping devices, and diagrammatic models. Each representation focuses on different levels of cellular and molecular organization. The double helix is probably the most popular representation of DNA. Although it can never be visualized through a microscope, it has become the twentieth century's iconic molecule. In Tony Cragg's, *Code Noah*, 1988, (fig. 3), stuffed animals cast in bronze are welded together in a spiral chain. Consisting of two intersecting bands, this sculpture refers to the physical structure of the DNA molecule. It is playful and scary. It is a comment both on sci-

ence and on a commodity-based culture. Are these popular culture items the life that is saved after Noah's flood?

Chromosomes, from the Latin, meaning "colored bodies" come in different sizes and shapes—styles in a manner of speaking—and serve as a template for all life forms. Steve Miller's *Portrait of Isabel Goldsmith*, 1994, represents a direct view of human chromosomes as seen under the electron microscope. During their moment of replication, which as a process has the dynamism of dance, the chromosomes elongate, form chains and then replicate into identical pairs. Miller has been working with a variety of technological imaging devices, from the sonogram to the CAT scan. He reduces life to a series of clues.

Cytogenetics deals with the structure of chromosomes and molecular genetics deals with smaller units known as genes. They are represented or mapped in different ways. Molecular genetics codes the sequences of genes by using four letters representing the nucleotide bases A, T, G, or C.⁸ Each person embodies his or her own particular variation of the sequence, making every individual biologically unique. Kevin Clarke's photographs combine a laboratory-derived alphabetical sequence with a symbolic icon. In *Portrait of Jeff Koons*, 1994, a cash register is superimposed on a molecular printout, derived from a sample of the subject's blood. In Clarke's portraits, the self is portrayed as the combination of internal biological language and a logo that represents the person's identity in the world.

DNA sequencing can also appear as a series of band patterns arranged in discrete lanes. As a genetic fingerprint technique, this method of visualization is used in forensic science to establish identity and family relationships. Dennis Ashbaugh enlarges images taken from sequencing gels. These result in a distribution pattern similar to a photographer's gray scale. Using color as if it were a laboratory stain, Ashbaugh's paintings replace technology's coolness with the sensuality of color and the impact of scale.



(fig.2)
 "Code Noah". 1988
 bronze
 129 1/2" x 39 1/3" x 39 1/3"
 Collection Mr. and Mrs. Ware Travelstead, New York
 Courtesy: Manon Goodman Gallery



(fig.3)
 "Thirty Are Better Than One", 1963
 Silkscreen ink on synthetic polymer paint on canvas
 9' 2" x 7' 10 1/2"
 Private Collection
 Courtesy: Artist's Rights Source

In representing a genetic pedigree, a diagram is created that traces successive generations. By creating composites of family histories, traits may be selected out as desirable or undesirable. This concept when applied to animals is called breeding, when applied to humans it is called eugenics. Eugenics, needless to say, has a questionable social and moral history. In *Thunder Rumble*, 1994, Nicolas Rule, relies on family history to draw the blood lines of race horses. The lines connecting different generations are drawn in red. They seem to follow gravity and drip like real blood. Conceptual and diagrammatic, Rule's work creates the visual lineage of a specialized and rarefied commodity, the race horse. For this artist, painting is another rare and specialized commodity operating in a system of scarcity and manipulation.

Using glass, steel and print, Eve Andrée Laramée questions the power of scientific authority in her laboratory tableaux. Using alchemical apparatus, in *Science of Approximation*, 1994, Laramée points up the ambiguity in measurement. Is the laboratory the place where scientific truths are found? Is it a secular equivalent of a church? Like Marcel Duchamp, whose works used language and complex visual puns to expose language's indeterminacy, Laramée sets up a laboratory intent on questioning the paradigms of experimental science. By intermixing quantifiable truth with intuition and belief, Laramée opens up possibilities.

Geraldine Erman's sculptural pieces, can be discussed in terms of eighteenth cen-

tury science, when the homunculus and the preformation theory of conception figured prominently:

*"(it was) believed that human beings were created by God at once, at the beginning of time. Preexisting tiny germs (the fabled homunculi) were immaterially encased in molds, or boxed — as an emboliment— within the egg waiting to be actualized by the male sperm. Coming forth simply meant that beings were unveiled, revealed or unfolded in successive temporal generations."*⁹

This conception of morphology is evident in Erman's work through her portrayal of the cell as an architectural bubble. Encased within, body parts are suspended as uncanny nightmares.

George Gessert is an artist who works with living DNA. Cultivating inses, as Edward Steichen did with delphiniums, Gessert's experiment-like activities extend the definition of live art. Performance art, which converts gesture and body into real time, shares with breeding qualities of the ephemeral. Some of George Gessert's actions have been called "genetic graffiti".¹⁰ He has taken inses that he has cross-pollinated and has distributed them into wilderness areas. He has gently intervened into an ecosystem. His goals are aesthetic rather than practical. How has nature been changed?

Chris Doyle's video installation, *Greenbathing (the Kingdom-Switch Cycle)* 1994, is an attempt to replicate metaphorically the photosynthetic cycle in human beings. The installation consists of two wall-mounted monitors, both of which face upwards. The first has a tray of water containing green algae placed on the top of the lighted screen. The second plays a tape showing a person crouching in a small basin which contains chlorophyll, algae and water. As the person scrubs his skin, he appears to bleed from the abrasions (this "bleeding" is computer generated.) The basin becomes a site of fluid exchange—blood is lost as chlorophyll is absorbed through the skin. The artist traces this blood-chlorophyll transposition, to a piece of writing by the french philosopher-critic Simone Weil:

*"The source of man's moral energy is outside him, like that of his physical energy (food, air, etc). He generally finds it and that is why he has the illusion—as on the physical plane—that his being carries the principle of preservation within itself. Privation alone makes him feel his need. And in the end of privation, he cannot help turning to anything whatever which is edible. There is only one remedy for that: A chlorophyll-conferring faculty of feeding on light."*¹¹

Michael Joaquin Grey is interested in inventing self-organizing systems, art objects similar to artificial life.¹² *Self-Organizing System: Artificial Muscle*, 1991, is a set of photo-stills, made from a videotape.

They expose the hidden world of muscle generation. In a miniature test tube (a pipette), Grey placed two proteins, actin and myosin, which are the macromolecules responsible for the formation of muscle tissue. He then videotaped these proteins going through a process of self-organization in which contraction, one of muscle's properties, repeats itself. There is a freeze-frame quality to this work that recalls the stop-motion photographs of the nineteenth century photographer, Eadward Muybridge. However, unlike Muybridge's, Grey's photo-sets are not based on external locomotion. He creates a muscular system outside the body and in full view. Artificial life studies self-organizing behavior as clues to the ways in which narratives of behavior are developed and information is stored in memory.

Robert Lawrence's *Scripts for Performance*, are printed texts that question the use of genetically-engineered life forms. They reveal deep anxiety about the sacred and personal implications of these forms in modern society. Lawrence asks questions that have no real answers and makes statements that give no real comfort. *"Ask yourself how deep you would want the hole if you were burying genetically altered bacteria. Ask yourself how deep you would want the hole to be if it were your grave."*

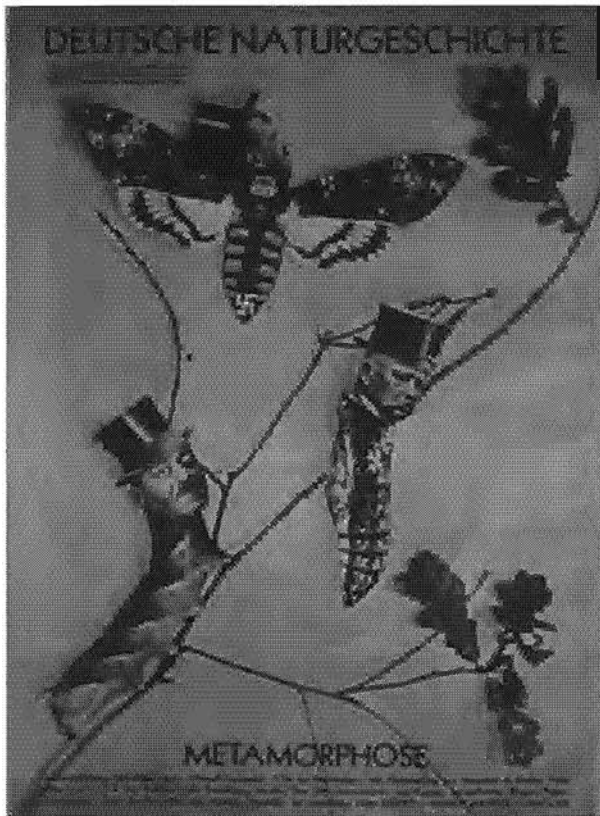
Science has always presented itself metaphorically—an experiment is only a representative of a natural process. Science has also continually diagrammed itself. Models, maps, charts and schema are an integral part of the success of scientific communication. Those representations, while seemingly objective, are not neutral. It is art's role to question the unquestioned and to explore the role of visual metaphor. The new science of genetics provides a particularly fertile field for this artistic investigation. Art now has had a century's worth of experience dealing with abstraction—with systems rather than outward appearances. Twentieth century science deals with objects and systems that are both smaller and larger than those which we normally encounter in our world. Art is well-positioned to understand this.

There is a new language afoot. What is it? Is there a connection between biology and art? When Robert Rauschenberg said that he wanted to operate in the gap between art and life, what does that mean now? The definitions of art and life are inescapably vague. Is a virus a living entity? Is a genetically altered organism in some way a work of art? We intuitively grasp the ways in which both art and science spill out of the studio and the laboratory and into our lives. Inevitably moral and ethical questions are raised. They are there and we must deal with them.

Suzanne Anker
November 1994, NYC

Acknowledgements:

I wish to express my gratitude to Fordham College at Lincoln Center for presenting this art exhibition, which is the first devoted to the intersection between aesthetics and genetics. I wish to express sincere thanks to all the individuals, galleries and institutions who generously gave of their time and loaned works to this exhibition: Bill Conlon, Danielle Dimston, Christine de Lignieres, Trish Garcia, Frank Gillette, Richard Kalina, Dr. David Ow, Marisa Del Re Gallery, Barbara Gladstone Gallery, Marion Goodman Gallery, Paul Kasmin Gallery, Andrea Rosen Gallery, Sonnabend Gallery, TZ Art & Co. Gallery, Elga Wimmer Gallery, and Artist's Right's Source.



(fig.1)
 "German Natural History," *Arbeiter-Illustrierte-Zeitung*
 (AIZ, Prague), August 16, 1934.
 Courtesy: Artist's Rights Source

Suzanne Anker is a sculptor who writes about the intersection of art and biology. She is Co-Director of Theoretical Studies in Art, an interdisciplinary seminar program hosted by White Columns in NYC. She teaches Art History and Theory at SVA.

Dennis Ashbaugh is an abstract painter showing with Manisa Del Re Gallery. He collaborated with William Gibson on *Agrippa: A Book of the Dead*, in which he supplied the text in the form of a genetic code.

Kevin Clarke studied sculpture at Cooper Union and participated with Joseph Beuys in the *Fine Universität* during the sixth Documenta in Germany. He is author of *The Red Couch, A Portrait of America* (1984) in which he photographed a cross-section of Americans, on a red couch he lugged across the continent.

Chris Doyle received a Master's degree in Architecture from Harvard University's Graduate School of Design. Primarily an installation artist, his exhibitions include P.S. 1 Museum, The New Museum of Contemporary Art, and Art in the Anchorage, Creative Time.

Geraldine Erman is the recipient of a 1994/1995 Guggenheim Foundation Fellowship in Sculpture. She is also the recipient of the Rome Prize Fellowship, the Louis Comfort Tiffany Award and an NEA, among others. She has recently been a full-time lecturer at MIT in the School of Architecture/Visual Arts Program.

George Gessert did graduate work in horticulture. He has received a New Langdon Interdisciplinary Grant (San Francisco), an Experimental Visual Arts Fellowship from the Oregon Arts Commission and has written several articles for *Leonardo*.

William Gibson is a science fiction writer who coined the term cyberspace. His novels include *Neuromancer*, *Count Zero*, *Mona Lisa Overdrive*, and *Burning Chrome*.

Michael Joaquin Grey studied genetics at the University of California at Berkeley and received his M.F.A. at Yale. He is represented by Barbara Gladstone Gallery. He is the winner of the 1994 Golden Nica Award, Computerimages, ARS Electronica Austria

Ronald Jones teaches sculpture at Yale University. His work integrates scientific, political and popular culture systems. He is represented by Sonnabend Gallery.

Eve Andrée Laramée has received artist-in-residence fellowship awards from the Guggenheim Museum (Chesterwood, MA), the John Michael Kohler Arts Center, and New York Experimental Glass Workshop. She is represented by T2' Art and Co. Gallery.

Robert Lawrence studied humanities at Berkeley and art at UC, San Diego. He is a recipient of a Bush Artist Fellowship, an NEA/Rockefeller Grant for Interdisciplinary Projects and several Jerome Foundation Grants. He teaches at Minneapolis College of Art and Design.

Steve Miller's work was the subject of a retrospective at Espace Art Brenne in France, this year; *L'Origine du Monde*, a ten year survey, 1984-1994, focused on Miller's medical imaging processes. He is represented by Elga Wimmer Gallery.

Nicolas Rule, born in Birmingham, England, exhibits regularly in Europe as well as the United States. He has shown at Galleria Paolo Gentile, in Florence and Galerie Albert Baronian, in Brussels. He is represented by the Paul Kasmin Gallery.