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The Gene as a Cultural Icon

Visual Images of dna*

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In 1993 conceptual artist Larry Miller exhibited *Genetic Code Certificate*, an elegantly drawn certificate stating: "I ... born a natural born human being ... do hereby forever copyright my unique genetic code, however it may be scientifically determined, described or otherwise empirically expressed. Sworn and declared by me, an Original Human, with fingerprint affixed. "¹ Miller's work plays on the construction of DNA as the essence of being human, the source of individual identity, the very definition of self. It mocks the idea that an individual's genetic code can be copyrighted and thereby commodified as if a person is a patentable object.

The gene is a biological structure, the unit of heredity, a sequence of DNA carrying the information that helps to form living cells. It is, in its biological reality, text without context, data without dimension. But the gene has also become a cultural icon, a convenient way to explore the essence of identity and the forces that shape human nature. Miller is, thus, but one of many artists who are using molecular metaphors in visual art today. Indeed, scientific visualizations of chromosomes, molecules, DNA sequences, and the double helix are appearing in both the multilayered genre of high art and the more direct iconography of media illustration.

Drawing from these different genres, I offer a sociological perspective on the ways that contemporary artists are treating the images they borrow from the science of genetics. Some seem simply attracted to the aesthetic forms of molecular structures. Others dwell on a theme that I refer to elsewhere as "genetic essentialism", a view of genes as powerful and deterministic entities, as central to understanding the human condition.² Still others use their art to express their fears of a technology they believe to be out of control. For DNA artists the biological gene—a nuclear structure—appears as a cultural icon, and the science of genetics provides a set of visual metaphors through which they can express the essence of personhood, the nature of human destiny, and, especially, their concern about the social implications of an expanding, important, but historically dangerous scientific field.

The portrait artist Kevin Clarke portrays his subjects—usually other artists—by using the alphabetical letters of their DNA sequence as a way to express their individuality, their essential, underlying selves. Over an image that he associates with his subjects (perhaps one of their paintings), Clarke draws the sequence of the letters ACGT that represent the four amino acids that are the basis of a person's genetic code (see his work in *Models, Metaphors, and Matter*). In these portraits Clarke is searching to define the essence of the individual. As he puts it: "What moves me is the confluence of notions of individuality, language, physicality, and the development of a codex to describe a most elusive reality." The DNA sequence, to Clarke, is "the invisible made visible through an apparently simple genetic alphabet".³

Other artists also employ molecular metaphors to define identity. Suzanne Anker uses her own DNA fingerprint to create a self-portrait that she titles *Chromosome Chart of Suzanne Anker, Artist* (see *Models, Metaphors, and Matter*).⁴ Even tattoo artists have joined the trend;

for example, one waiter in a New York East Village restaurant sports a double-helix tattoo on his arm.

Nancy Burson explores the boundaries of personhood and the meaning of normality in her series of documentary photographs of children with craniofacial disorders that are caused by such rare genetic conditions as Apert's Syndrome. Her photographs address our fears of disability as physical differences and painfully challenge our ideas about identity. The children are difficult to look at. But by depicting them in normal play activities, she also captures their essential humanity and demonstrates the difficulty in defining normality and disease.⁵

For these artists genetic metaphors are a way to represent the inner essence of a person, the truth behind appearance, the nature of authentic self. As essentialist visions their work often has quasi-religious overtones. Critic Alan Jones captures his aspect of DNA art in a description of Clarke's work: "The DNA becomes an invisible cathedral, an architecture whose purpose is to lead to the contemplation of the divine."⁶ Such paintings project a sense of awe, as if the gene—as the essence of personhood—is the source of authenticity, even the secular equivalent of the soul.

These quasi-religious images are not only a product of artistic imagination. The notion of the gene as the essential self is fostered by the rhetorical strategies of geneticists as they describe the importance of their work on the Human Genome Project. Scientists often use religious metaphors, referring to the genome as the Bible, the Holy Grail, or the Book of Man.⁷ Their language is often highly deterministic. There is a complex, interactive, and poorly understood relationship between genetic predisposition and environmental conditions, between biology and culture, between nature and nurture. Yet, scientists refer to DNA as the master molecule; we are but readouts of our genes. Scientific metaphors are also futuristic: they refer to the human genome as a Delphic Oracle, a trip into the future, a medical crystal ball.

These are often instrumental metaphors, directed to promoting the importance of a costly science in order to obtain funds. But they have captured public attention, appearing in popular culture, art, and illustration. Just as the gene is a way to reveal the essence of identity, so it has become a way for artists to explore the meaning of destiny, the nature of human fate.

Frank Moore, a precisionist painter who is attracted to political themes, uses molecular imagery to address the impact of AIDS and the problems of environmental pollution. In his painting *Eclipse*, a tiny stick figure, made up of molecular structures and carrying a pill, stands on a beach that is cluttered with condoms and syringes. The sun is eclipsed by a molecular model of the HIV virus and it emanates words of pain. In another painting, *Niagara*, the mist over Niagara Falls is filled with the molecular structures of toxic chemicals arranged in a helical pattern. Moore's intricate molecular images suggest the biological inevitability of illness and pollution and convey a sense of destiny and despair.⁸

Illness is also the theme of Ronald Jones's series of biomorphic sculptures. One of them is a Brancusi-like figure called *DNA Fragment for a Human Chromosome*, which Jones subtitles as "the malignant oncogenes which trigger rapid cancer tumorigenesis." In the light of the deterministic themes that appear elsewhere in Jones's work, this figure projects a sense of relentless biological mutation that is beyond human control. In its stylistic distortion of Brancusi, the sculpture also seems to be a comment on mutation in art as well as in nature.

The concept of genetic destiny has influenced Alan Rath's anthropomorphic sculptures. Rath creates hybrids of man and machine. The connection between information theory and molecular biology inspired *Nucleic Acid*, in which a bell jar contains the letters ACGT. Rath sees the jar as a container for the genetic information that encodes the recipe for the construction of life forms.

Illustrators and cartoonists have addressed the theme of DNA as destiny more directly. Cartoonist Nick Downes, for example, captures the association of DANN with destiny; in a striking drawing, reader-advisor Ms. Tena stands in front of the astrology shop. Next door is her competitor, geneticist Madame Rosa. Both are waiting for their clients; both are in the business of predicting future fate.⁹

In newspaper and magazine articles on genetics, illustrators are appropriating molecular images to depict the idea of genetic determinism and to represent the meaning of biological limits of genetic constraints. The crossbars of the double helix have been drawn as barbed wire or as the bars of a prison. The coils of nucleotides have been drawn as a ball and chain or the strings that manipulate puppets. Some illustrators have imposed the double helix on the human torso to suggest the deterministic power of the genes. Others incorporate such objects as knives or handclasps in their drawing of the double helix to suggest the genetic basis of such specific behaviors as violence or cooperation. In one sketch the double helix is inscribed on the roots of a tree that is carried on the shoulders of a burdened man. These images suggest that genetic destiny is a load to bear, a prison, a fetter, a constraint: Genetics is our future; we are prisoners of our genes.

Cultural visions of the gene as an essential and deterministic entity lend more than aesthetic meaning to DNA art. Some artists, preoccupied with the historical abuses of genetics, are using their work to express profound reservations about genetic engineering. Because experiments in gene therapy and biotechnology involve the manipulation of genes, they have been the subject of continued public debate. Those who write about this research invariably refer to the excesses of the eugenics movement.¹⁰ So, too, the danger of genetic manipulation has become a theme in paintings, installations, and illustrations.

Andrea Zittel, an installation artist, constructed a chicken-breeding unit at the New Museum of Contemporary Art in SoHo, New York. She called it a *Breeding Unit for Reassigning Flight*, and it is, in effect, an experiment in selective breeding. The breeding unit is a device in which only those chickens who can fly to a higher level in the structure are able to hatch their eggs. Zittel's installation represents the deliberate social manipulation of "natural" selection, for the selection of survival traits (the ability to fly high) is determined by a culturally designed structure. As an elaborate visual pun on upward mobility, the work is a cynical statement about the social biases that underlie evolutionary theories of genetic selection.¹¹ A similar message is conveyed by Nicholas Rule in his painting of a genealogy of horses, *Black Tie Affair*. This work expresses the manipulation of equine lineage and the deliberate selection of certain traits in the context of commercial interests in the horse racing industry.¹²

In a complex and Surrealist installation *The Spotted Merino*, Laurel Katz develops a related set of themes concerning the genetic manipulation of natural processes. Katz constructed a realistic-looking sheep that she describes as genetically engineered to have a large area of yarn on its back. This area has a particular shape that can be directly transformed into a sweater by a so-called hooked beetle. The beetle is genetically engineered to have legs like hooks, and is trained to walk in circles on the back of the sheep, catching the wool in its leg clamps and looping the yarn to create the sweater.¹³ The exercise—elaborate and absurd, yet

worked out to sound quite reasonable—has no redeeming social value. Katz's installation is a cynical and satirical comment on the role of science—in particular, biotechnology and genetic engineering—in the commercial exploitation of nature. Just as Miller mocks the efforts to patent DNA, so Katz, who sells the sweaters that are ostensibly made by the genetically engineered beetle from the back of a genetically engineered sheep, mocks the commercialization of a natural process. Both artists use their work to criticize the objectification and commodification of nature that is implied by recent advances in biotechnology.

For Paul McCarthy, an installation and video artist who likes to question fixed identities and stereotypes, hybrid mutants are a natural attraction. His installation *Tomato Heads* is, perhaps, a take-off of the bioengineered tomato that is sometimes referred to as "Frankenfruit." McCarthy, like many of these artists, approaches social issues raised by biotechnology with cynical humor.

These critiques are, indeed, a cynical response to the involvement of geneticists in the biotechnology industry and to their repeated promises that knowledge of genetics will enhance control over the human future. Geneticists are, at the moment, mainly concerned about identifying the marks of and genes for specific diseases, the development of gene therapies and pharmaceutical products, and the use of biotechnology to enhance agricultural productivity. But some artists relate advances in the science of genetics to the troubling history of eugenics. In their representations they envisage experiments in breeding human beings (as well as plants and animals) for desirable traits.

This is the subject of Ronald Searle's drawing called *The Double-Edged Helix*, commissioned by the New York Times to illustrate my Op-Ed piece on genetic screening. Searle portrayed a panel of judges sitting on a bench next to a sign reading: "Blue Eyes Control, Quality Control, Inborn Criminality Control, Compensation Claims Control, Insurance Exclusion Control, Selective Breeding Control." The judges are holding rubber stamps and watching a scientist who is sifting babies through a screen. Emerging are a variety of strange, distorted mutants and grim horrors (one is carrying a knife). But among them is a chubby, cheerful infant who is stamped "OK".¹⁴

The popular genre of comic-book art, long preoccupied with mutants and manipulations, has readily adapted to the molecular revolution. A recent comic-book series, called DNAgents, is about the company Matrix, which has created synthetic human beings whose DNA codes have been altered to make them the perfect special agents.

These mutants are portrayed as attractive human beings with Aryan features, and although they are engineered, they have irrepressible human qualities. The message? "Science has made them but no man owns DNAgents." Genetic manipulation cannot change the essence of humanness because human DNA demarcates the human from the robot. Even constructed beings are essentially human if they have human DNA.¹⁵

Scientists themselves are often the subject of illustrations and cartoons. Geneticists are depicted as creating monsters and mutants, or as walking precariously on a tightrope of coiled DNA. In a striking illustration for an article on genetic engineering, Stuart Goldenberg drew a figure imitative of Edvard Munch's *Scream*. The figure stands horrified, mouth agape, eyes opened wide. Its hair, standing on end, is a mass of the coiled strands of the double helix.¹⁶ In these images genetic manipulation represents a dangerous assault on nature, defying natural categories, common morality, and human understanding.

The gene as contemporary art has become a cultural icon. Genetic metaphors offer a way to represent the link between nature and culture—a problem that has always fascinated artists and long attracted them to scientific and, especially, biological metaphors. Artists—from Jan Vanmeer to the Latin American Remedios Varo—have used science both as a source of aesthetic imagery and as a subject for their work. Scientific discoveries in astronomy and cartography appeared in seventeenth-century art. Scientific theories of time, space, and matter inspired the images of Cubists and Surrealists in the early twentieth century.

In *The Magic Mountain* Thomas Mann used the device of the chest X-ray to reveal the inner person. His protagonist in the Swiss sanatorium, Hans Castorp, cherishes the X-ray of Frau Chauchat as the essence of her personhood.¹⁷ Similarly, artists like Clarke draw inspiration from scientific discoveries and use them to look beneath the visible world, to reveal the essential nature of observable things. But science has also been a source of Surreal fantasies and dystopic, even apocalyptic, visions, as many artists have cast themselves as social critics.

The DNA art of the 1990s reflects these various patterns in the historical intersection of science and art. In attributing cultural powers to a biological entity—in accepting the premises of genetic essentialism—some of the artists I have described use molecular metaphors to probe underlying truths. But others are raising questions that are more broadly troubling with the ascendance of genetics as an explanatory science. Can the self be reduced to a molecular entity? Can persons—human beings, in all their social, historical, and moral complexity—be equated with their genes? If the premises of genetic essentialism are accepted as a basis for social policy, what will be the social implications? Such questions, captured by artists and illustrators, worry many scientists as well.¹⁸ For the social and ethical meaning of genetics—the implications of the belief in genetic essentialism—will become increasingly critical as scientific advances in molecular biology change the way we regard human behavior and how we shape our social codes.

Notes

Ellen Levy generously provided material and advice that have helped to shape this paper.

¹ Miller's work appeared in an exhibition called *Genus Memorialis: Imitations of Immortality* at Horodner Romley Gallery, New York, February 1993.

² See Dorothy Nelkin and Susan Lindee, *The DNA Mystique: The Gene as a Cultural Icon* (New York: W.H. Freeman, 1995), which is about representations of DNA in verbal metaphors and popular stories.

³ Kevin Clarke, in Alan Jones, Kevin Clarke, *Tema Celeste 40*, Spring 1993, pp. 72—73

⁴ Suzanne Anker's work was exhibited in a show called *Wonderful Life* at Dooly Le Cappeline Gallery, New York, December 1991

⁵ Photographs are in the Jane H. Baum Gallery, New York. See also Nancy Burson, *Faces*, Twin Palms, Santa Fe, 1993.

⁶ Jones, "Kevin Clarke," 73

⁷ For discussion and documentation of these frequently used metaphors, see Nelkin and Lindee, *DNA Mystique*, chap. 1

⁸ Moore's work is exhibited at Sperone Westwater, New York. *Niagara* appeared in the 1995 Whitney Biennial. See Faye Hirsch, review of Frank Moore at Sperone Westwater, *Art in America* 81, April 1993, pp. 131—32.

⁹ Nick Downes, cartoon in *Science* 238, November 9, 1987, p. 772.

¹⁰ See Daniel J. Kevles; Leroy Hood (eds.), *The Code of Codes: Scientific and Social Issues in the Human Genome Project*, Harvard University Press, Cambridge 1992.

¹¹ Zittel's construction was exhibited at the New Museum of Contemporary Art, New York, 1994.

¹² Nicholas Rule's painting appeared in an exhibition called Gene Culture: Molecular Metaphors in Visual Art at Fordham College, New York, January 1995, curated by Suzanne Anker.

¹³ Laurel Katz's work is exhibited at Postmasters Gallery, New York.

¹⁴ Ronald Searle, The Double-Edged Helix, in: Dorothy Nelkin, The Double-Edged Helix. *New York Times*, February 4, 1994.

¹⁵ Mark Evanier and Will Meugniot, DNAgents, Eclipse Enterprises Series, November 1992, cover.

¹⁶ Stuart Goldenberg, cartoon in the *New York Times*, September 16, 1990.

¹⁷ I want to thank Vera Zolberg for calling my attention to this example.

¹⁸ A working group on the ethical, legal, and social implications of genetic research has been established as part of the Human Genome Project and receives from 3 to 5 percent of its total funds.