Donovan's volumes on the *Natural History of British Shells* as someone who found many new molluscan species along the coast of Wales.

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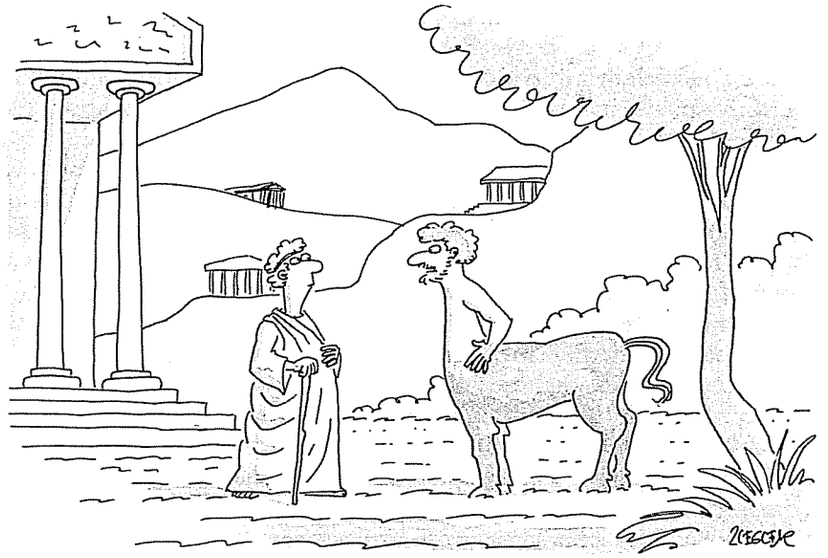
4 Chimerical Figurations at the Monstrous Edges of Species

Jill H. Casid

FIGURATION 1: BY WAY OF INTRODUCTION

In a September 3, 2001, *New Yorker* cartoon by Jack Ziegler (Figure 1.1), a toga-wearing man balanced on a walking stick meets a bearded centaur under a tree. The centaur informs his companion, "Being a hybrid, I get to have my way with a variety of species, and at the same time I enjoy a healthy tax credit." This encounter between one "man" who openly declares himself a hybrid and another who depends on an extra appendage made of the same substance as the tree intimates how human-animal-plant interdependence might itself constitute a form of hybridity. And this encounter between different forms of hybrids is crucially staged on the



"Being a hybrid, I get to have my way with a variety of species, and at the same time I enjoy a healthy tax credit."

Figure 4.1 Jack Ziegler, "Being a hybrid," cartoon, *The New Yorker*, September 3, 2001, © Jack Ziefler/The New Yorker Collection/www.cartoonbank.com.

common ground of disputes over same-sex marriage and the special tax credits afforded married couples and couples with children, the characterization of same-sex unions as akin to bestiality, and controversies over human embryonic stem cell transplants.

While the walking, talking, and mating centaur of cartoon humor might seem a chimerical figuration in the sense of a conception without ground in material reality, its setting in the time-space of an ancient Greece where such mythical creatures form an essential part of everyday reality also indicates, as bioethicist and legal scholar Henry T. Greely declared, that "[t]he centaur has left the barn more than people realize" (Dowd 2005). In the public policy context of a 2005 workshop held by the Institute of Medicine to determine what ethical guidelines should constrain stem cell research, Greely turned to the ancient mythological half-human, half-animal centaur to mark the already generated and living transgenic hybrids. But this pointed reminder that the question of "whether or not" is posed in the wake of the materialized realities of the fantastic made flesh does more than resituate ethical questions and public policy deliberations on the heels of the retreating hooves of myth made matter. Greely's phrasing represents such new bioforms as themselves in action, not simply as crosses between species, but also as crossed species that transgress.

The centaur that has left the barn is not a figure of stable hybridity but a roving, even rogue body that moves out of protective or controlling enclosure, traversing, overturning, and even destroying boundaries such as the fence between human and animal to an as yet unimagined and undefined space of future conceptions and consequence. This problem of reckoning with hybridity's own uncontrollable agential destructive and procreative power is at the core of contestation over transplantation, the crossing of species, and the generation of unprecedented forms of life that in current medical, legal, public policy, and environmental discourse goes by the name of another mythological beast, the "chimera," or an organism with the genetic information from two or more different species (Clayton 2007). While the National Academies' *Guidelines for Human Embryonic Stem Cell Research* were modified in 2007, 2008, and 2010, they nonetheless retain the human-animal chimera—still the limit horizon for stem cell transplantation—as the hard edge of the ethical map in the place of the fantastic beasts that inhabited the corners of the world on early modern charts of the earth (Begley 2005; National Academies Human Embryonic Stem Cell Research Advisory Committee 2010).

I do not invoke this cartographic analogy to the place of beast bodies in the history of mapping conventions lightly (Traub 2000). The chimera troubles because what it *is* cannot be separated from what it *does*: the chimera is a figure that performs figure-ground problematics (Winkler 1907). The chimera is more than an unstable taxonomic classification and hybrid form of being (Greely 2003; Robert and Baylis 2003). The promiscuous kinship of the very name "chimera," its mating of different types of

hybridity produced by different processes and productive of different outcomes poignantly attests to the power of the chimera as a dynamic, living entity of both destructive and generative potential, a force that severs ties assumed to bind the "normal" and forges alternate bonds of kinship across the divides of difference and the ruptures of death. The chimera traverses the imagined distance between being and doing while altering and even pulling up the ground behind it and casting new terrains ahead. And it does so through its powers of materializing figuration, its potential to give active, viable material form to that which would seem to be without ground because it is taken to be out of order. The chimera troubles as an active conceptual linkage between idea and matter that overturns the relations of body and ground, before and after in its power to potently reconceive groundless abstract, speculative, and fantastic ideas in the form of living matter that makes its own grounds and futures.

While the phrase "chimerical figuration" does the labor of revealing the chimera as active materializing force, the "monstrous edges of species" in my title recalls Anna Tsing's poetic articulation of "human nature" as an "interspecies relationship" with fungi in her powerful "Unruly Edges: Mushrooms as Companion Species" (Tsing forthcoming). But in my invocation, the monstrous edges of species marks the domain of incorporations that exceed companionship and is intended to do some complicated historical and cultural boundary-defying work in pushing us to think human, animal, plant, and environment as a complex and dynamic assemblage without priority, hierarchy, or ground. And it is not just the traversal of bounds but also the very erection and maintenance of such perimeters that may be understood as monstrous, if we consider the history of boundaries that cut, histories of the construction of race in terms of distinct species, slavery's conversion of persons into nonhuman things, the constitution of sexed embodiment as a matter of absolute difference, and environmental transformation and destruction as predicated on the separation of biobodies from the ecologies that support them.

In ancient myth and particularly Ovid's *Metamorphoses*, the body is a biology without destiny and the chimera incarnates changes in substance and aim with the power to fundamentally alter any presumed teleology. Consider the tale of Byblis, whose passion for her likeness in the form of her twin brother Caunus drove her to abandon home, possibilities for marriage, and fatherland for the territory "where the Chimaera prowled with lungs of fire and lion's breast and head and dragon's tail" (Ovid IX, 446–665). From Byblis, whose hot desire melted the bounds of custom and kinship until cooled in the arms of wood nymphs—her human form deliquescing into a spring of shed tears—to the chimera itself and on through the many human-to-plant and human-to-animal transfigurations that characterize the *Metamorphoses*, Ovidian myth continues to provide the rhetorics and visual imaginary not merely for substantial corporeal change but also alterations in form and desire that change the relations of body to place and of

figure to ground and violate the regulating bounds governing relations of kind and the presumed trajectories or destinies of biological form.

While the results of transplantation are now figured as monstrous hybrids or chimerical combinations of human, plant, and animal, the action or process of figuration has also been conceived from the early beginnings of modernity in the eighteenth century as the fantastic power to commingle, reshape, and materialize potent, order-defying combinations that transgress the body bounds of species (Bailey 1730). It is the monstrous living reality and destructive as well as conceiving force of the chimera that challenges and haunts not merely futuristically but also historically, insisting that we think past and present, before and after in more dynamic relation. In the work of historian Richard Grove, from *Green Imperialism* to his more recent historicizations of anxieties about climate change, global warming, desiccation, species extinction, and biodiversity decline, we find the argument that contemporary environmentalism and, in particular, conservation as a programmatic response to fears about destructive anthropogenic effects begin with late eighteenth-century "colonial environmentalism" in the practice and form of forest preservation on the plantation islands of the east and west Indies (Grove 1996, 2000). This imperial practice also produced a hybridized or intermixed landscape, combining, at once, the radical transformation of the plantation machine, the transplantation of exotic species (including sugarcane itself), and around it the botanical garden and the forest preserve.

As I have argued elsewhere, this island landscape of both transformation and conservation served to produce imperial power as natural possession through the ostentatious spectacle of preservation and reproduction in the reimagining of the plantation machine as a technics that brings in its wake not destruction of the indigenous environment but rather agricultural improvement figured as the heterosexualized sowing of seed, the preservation of the features of the place (particularly forest), and an effect of "pleasing" variety (Casid 2005). I would still assert that the eighteenth-century discursive and material practices of claiming a right to possession through the materializing metaphor of planting scattered seed as heterosexual reproduction, imperial networks of botanical transplantation, the slave trade, and sugar, coffee, indigo and spice plantations with their transformation and remaking of tropical landscape are not just the devastating "before" of environmentalism: these contradictions of colonial landscaping are embedded in environmentalism's putative origins and its afterlife. Environmentalism's postcoloniality is registered both in the aftereffects of guilt and the very discourse and practice of the preservation of the "natural" order of species in the wake and face of change.

The discourse and imaginary of environmentalism has deeply problematic colonial roots that potentially tie us to discourses of paternal stewardship and constructions of the "natural" order and bounds of species that have historically served to instate heterosexual dominance and imperial power as the order of nature through claims to land and the status of the natural. Yet I want to insist that thinking with this history reveals

rich figurations with possibilities for the present and future that are not exhausted by the impurities and even taint of their inception. Thinking critically and, indeed, queerly with and against the eighteenth-century colonial origin story of environmentalism may allow us ethically and politically to reimagine and, indeed, revalue the place of queer species, the hybrid, the monstrous, and the protean in discourse and practice. This chapter accordingly courts and conjures the creative possibilities of monstrosity, activating the work of figuration by practicing the monstrosity of mixture it takes as its subject. It assembles into promiscuous contact a set of protean and unstable figurations from contemporary stem cell transplantation, speculations about transgender neurons and consciousness, and bioart to eighteenth-century experiments in transplantation and materialist philosophy. I enlist these chronologically dispersed instances of materializing figuration to think about the history of the dangers and possibilities of transplantation, asking what this ambivalent colonial history might offer a queered discourse on transplantation and cross-species encounter and transformation (Franklin 2007; Giffney and Hird 2008). In the spirit of the monstrous hybrids I discuss and their challenge to temporality, I will shuttle back and forth between a problematized before and after, then and now. Allen S. Weiss's ten theses on monsters represent the creation of monsters through the "confusion of species" as a dynamic aesthetic and political process that manifests the "plasticity of the imagination" in its wondrous "catastrophes of the flesh" (Weiss 2004). This essay lays out its argument across ten volatile figurations that demonstrate not just the plasticity of the imagination but also the protean propensities of matter itself.

FIGURATION 2: THE SCARECROW ON THE ROAD TO OZ

Experimental and yet also serious—even mortal—boundary play with species is the domain of the ArtScience collaborative Le Laboratoire in Paris. Le Laboratoire has deeply serious aims—for the environment and for world health—but it takes, of all possible and fantastic figurations, *The Wizard of Oz* as the extended metaphor for the laboratory site as both a catalyst and productive environment for the cultivation of change at the level of the stem cell (Edwards et. al. 2008, 16). While Le Laboratoire's move to Oz may surprise many a reader, the path to the yellow brick road in fact makes richly playful sense. *The Wizard of Oz* retells the story of modernity as a shift from gray into a projective color that challenges us to rethink the origins and beginnings of the projected image and scientific method in relation to both Sir Isaac Newton's *Opticks* and Enlightenment alchemy with its investment in the possibilities of substantial alteration (Casid forthcoming). Le Laboratoire's 2007 hybrid catalogue, novel, and manifesto titled *Niche* represent the opening exhibition, a collaboration between artist Fabrice Hyber, who speaks of his work as rhizomes, and chemical engineering

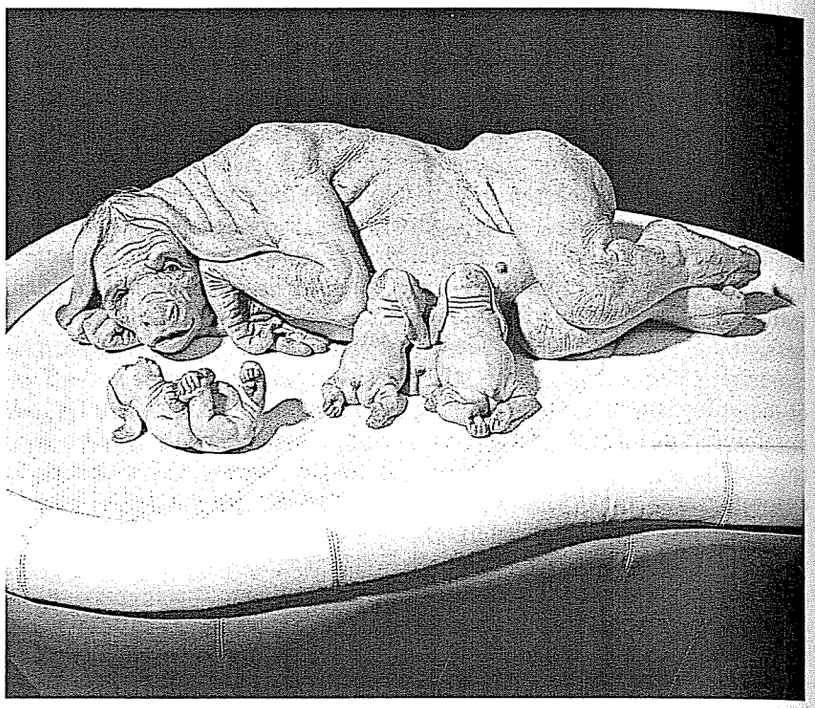


Figure 4.2 Patricia Piccinini, *The Young Family*, 2002-3, installation sculpture from *We Are Family*. Courtesy of the artist.

scientist Robert Langer of MIT, whose work on tissue culture continues to inspire creative bioart projects (Langer and Vacanti 1999). While the subject of the exhibit is the transformation of stem cells and the environment or niche necessary to that process, the image for this process is taken from the scarecrow's song "If I Only Had a Brain" (1939): "I could while away the hours / Conferrin' with the flowers / Consultin' with the rain / And my head, I'd be scratchin' / While my thoughts were busy hatchin' / If I only had a brain." From this image of the semblance of a man made of the very environmental and plant substances with which he is in companionate dialogue comes the manifesto for the creative powers of art-science collaboration on the model of the stem cell that violates these categories in its capacities for transfer and growth between human, plant, animal, and machine. The novel-catalogue-manifesto of art-science collaboration asserts the transformative capacities of science in the discourse of a hybrid form of bioart, proclaiming: "The Artist will be a stem cell-becoming-a-neuron! The Artist shall . . . through the magical art force, become an embryonic stem cell scraped off some available baby embryo blastocyte and figure out his own path to transformation through cell division. Such is the Yellow Brick Road" (Edwards et. al. 2008, 16).

FIGURATION 3: TRANSGENDER CHIMERAS

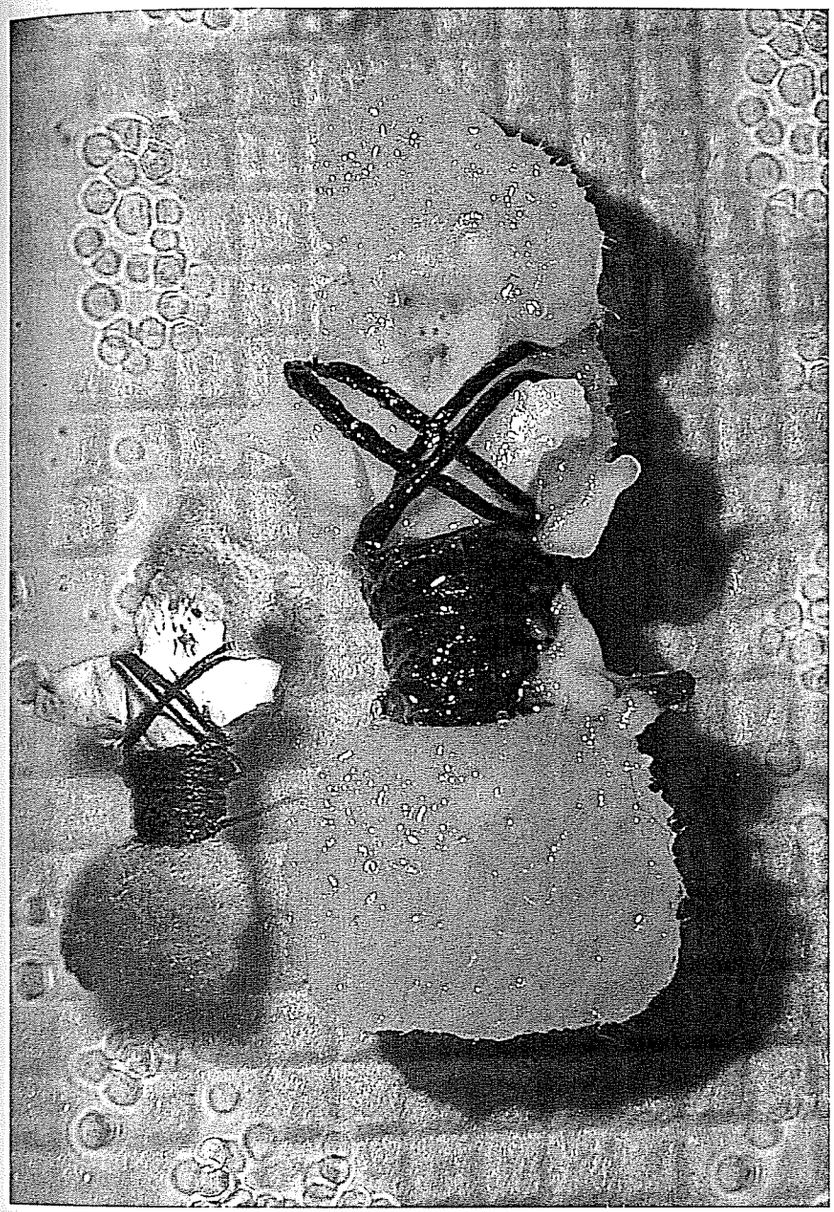


Figure 4.3 The Tissue Culture and Art Project (Oron Catts, Ionat Zurr, Guy Ben-Ary), "Worry Dolls" from *Tissue Culture & Art(ificial) Wombs: An Installation of Semi-Living Worry Dolls,* 2000, live tissue in incubator. Courtesy of the artists.

Though fanciful and bordering perhaps on the absurd, this winding yellow road of figurations is not the detour from the "real" and consequential materialities of the science and politics of transplantation it might appear. To bring out the consequential materialities of chimerical figuration, let me take a further risk, this time into personal anecdote. In the spring of 2007, my mother was diagnosed with acute myelogenous leukemia, which her oncologist conjectured was induced by the particular chemotherapeutic agent (Adriamycin) used to treat her third round of breast cancer. As they were unable to induce remission with high-dose chemotherapy and she did not have siblings, the only option was determined to be an experimental peripheral blood stem cell transplant from an unrelated donor. Peripheral blood stem cells are considered "hemopoietic," a redolent word which signifies their ability, if the stem cells engraft, to rewrite the blood and recompose their recipient host such that the transplant patient becomes a chimera in another, ostensibly invisible, sense: the recipients are recomposed of both their own DNA and the DNA of their donor. As is typical of unrelated donor transplants, we were told nothing about the donor except, in this case, that he was a man. I raise the issue of this sharing of the donor's attributed sex (and sexuality) because of the framing figuration narrated as comic inversion: my mother's transplant doctor at Baylor University Medical Center joked that we would know that the stems cells engrafted if and when my mother asked for *Penthouse* and started to pump iron (Fay 2007).

However volatilely amusing (or potentially offensive) the use of such sex stereotypes to visually flesh out the invisible transformation of my mother into a genetic chimera, this joking figuration of the chimera's violation of the bounds of binary gender and sexuality also points to some actual transgendering and queering possibilities. The results of a 2004 study conducted at the University of Florida and published in *The Lancet* reported that peripheral blood stem cell transplants performed on three female breast cancer patients who developed leukemia and received transplants from male donors showed the presence of transgender neurons in the brain (Cogle et. al. 2004). The study demonstrated evidence of the plasticity of adult hemopoietic stem cells, that is, their potential to develop into neural cells. But the study also showed the potential recomposition of the patient's brain with transgender neurons. This is, of course, still comfortably distant from the transformation of the consciousness of a sixty-six-year-old woman into that of a twenty-year-old porn-watching, iron-pumping man. But in his own research as well as in conversation with the author, stem cell biologist Clive Svendsen has raised the question of "how neural transplants of stem cells from a wide range of sources may modify the brain of the recipient hybrid in a way that leads to a change in consciousness" (Svendsen 2008).

My interest and concern about the ways in which how we imagine the real and as yet unrealized but potential possibilities of radical transformation frame and constrain how we value and, hence, also practice are animated in no small part by the figuration of my mother as a kind of monster: a queer, transgendered chimera. (This interest is ghosted as well by an

acknowledged wish that the experimental stem cell transplant had, indeed, successfully engrafted to sustain life in altered form. The experimental stem cell transplant was performed on July 28, 2008; Susan Casid Miller died on November 11). Figuration is not a second-level concern of representation, but is embedded in how and what we are able to practice. Therefore, the three strands of my project—imaginary, historical, and theoretical—are necessarily as entwined as the strands of DNA.

FIGURATION 4: MONSTROUS MOTHERS

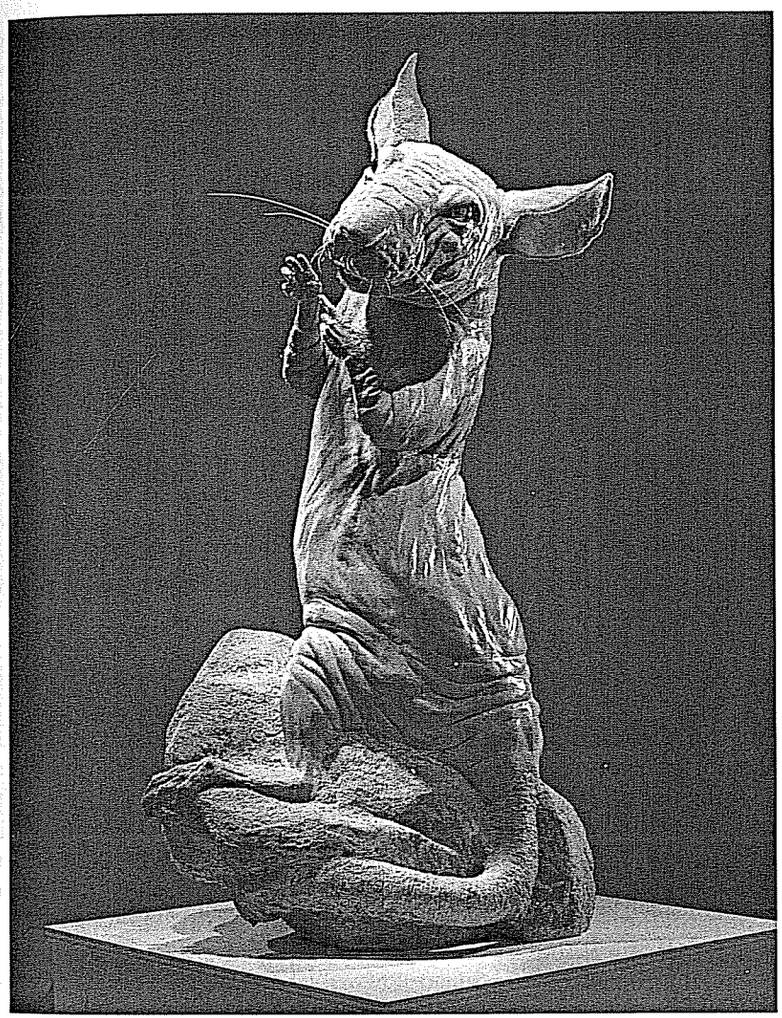


Figure 4.4 Bryan Crockett, *Ecce Homo*, 2000, 6-foot synthetic marble sculpture. Courtesy of the Artist.

It might seem a strictly disciplinary question pertaining to the domain of visual studies to ask how transplantation is visualized in a general sense and, in particular, what social, cultural, and political work the use of the highly visual conceptual image of the chimera does in giving a certain gendered teratological body to the outcome of transplant processes. But the visual power and gendering of the chimera strike in such observations on the figurative rhetoric of the chimera as William Safire's little piece in which he notes with a wry parenthetical, "It's [the genetic hybrid's] always described as a she-monster, you never hear about chimerical he-monsters" (Safire 2005). While not the she-goat of classical mythology, the monstrous hybrid suckling mother she-pig of Patricia Piccinini's sculpture (Figure 4.2) *The Young Family* (2002–3) demonstrates well how the chimera demands a confrontation with the gendering of genre or species. This she-pig incorporates a combination of synthetic and natural materials (silicone, acrylic, human hair, and timber) to stage the porcine parts of organ transplants as potent vehicles that not only remake the maternal body (the figure for reproduction) but also take on the life-giving and transformative powers attributed to sexual reproduction. Piccinini's monstrous mother also allows us to think about the chimera as a powerful discursive figure that, in mobilizing an imaginary of monsters, contributes to the persistent tethering of the products of transplantation to the specter of the monstrosity of reproduction and the vagaries of kinship.

FIGURATION 5: WETWARE WORRY DOLLS

Such familial attachments can also work affectively as practices of a kind of love and not just recoiling horror. This practice of love is strangely palpable in the contestation and play with the possibilities of monsters in such wetware art projects as the "worry dolls" by The Tissue Culture and Art Project (Oron Catts, Ionat Zurr, and Guy Ben-Ary). These seven "semi-living objects" on the model of Guatemalan worry dolls (Figure 4.3) recomposed of human tissue give the monstrous dynamic, volatile, and, as the collaborative team describes it, "gender-less, childlike" form as transporting libidinal carriers with which to play out and with our anxieties about and desires for transformation (Catts and Zurr 2002). The "gender-less, childlike" form and lab setting—which the collaborative team strategically call, in their manifesto on tissue culture, the "artificial womb"—for the dolls' (re)production provide the gestation ground for reinvented sex practices outside the maternal body: "The next sex created in the artificial womb may be a cold, calculated act for the best sex" (Catts et. al. 2000). While it is easy to be suspicious of yet one more project to alienate and colonize the womb, it is harder and yet I think worth the risk to hold onto the possibilities of such chimerical figurations as the she-pig and worry doll not as

Figure 4.5 Miguel Cabrera, *From Spaniard and Indian, Mestiza,* 1763, oil on canvas, private collection.

finalities or endpoints, not as postgender or postsex flesh forms but rather as hybrid sites for the production of queer natures that problematize our ability to distinguish nature and culture, worst and best, and also proffer (semi)living ways of being and becoming beyond the binary oppositions of human and animal, male and female.

FIGURATION 6: THE MONUMENTAL ONCOMOUSE

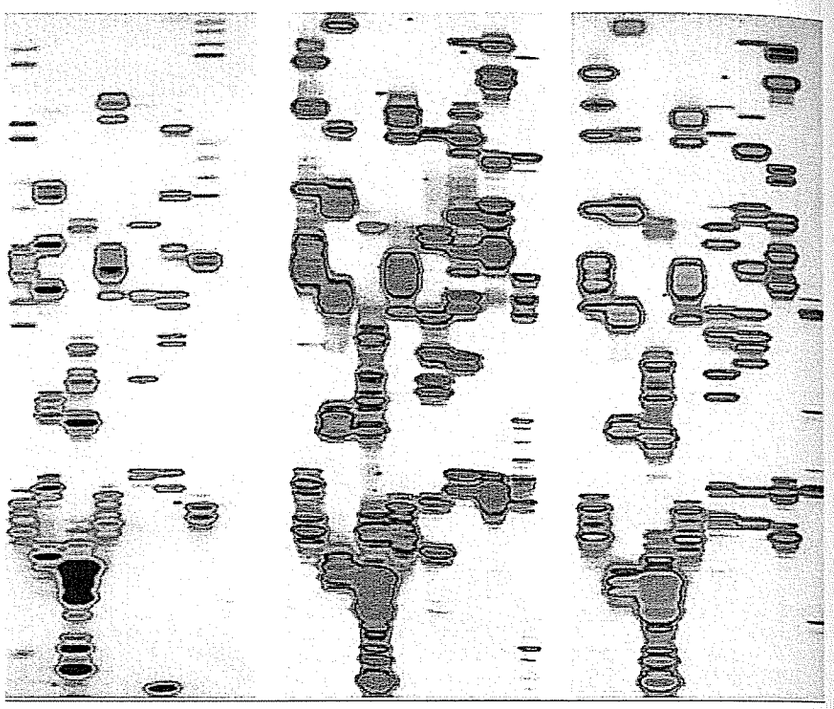


Figure 4.6 Iñigo Manglano-Ovalle, *Glenn, Dario, and Tyrone,* 1998, three c-prints, Collection of the Guggenheim Museum, New York.

Bryan Crockett's human or even greater-than-human-scaled six-foot statue *Ecce Homo* (Figure 4.4) restages in marble and epoxy the witnessing of the body of Christ with the genetically engineered oncomouse in the place of a/the savior. This substitution asks not only what is the difference between science and religion but also what is the difference—not just in body but also in the values attributed to those bodies—between human, animal, and superhuman, even divine. Despite decades of challenges to and efforts to think outside of absolute, binary conceptions of difference from poststructuralist philosophy to postcolonial theory's championing of hybridity, créolité, mélange, and mestizo and feminist and critical race studies scholarship and critiques of science, the question of how difference and sameness are conceptualized remains central to the ethical and political problem of the chimera. When hybridity is figured not as a consequence or product of the crossing or mixture of entirely distinct and opposed entities but rather as combinations that depend for their viability on an affinity or even kinship that make such distinctions difficult, the implications for the practice of transplantation in terms of scientific research, public policy, and ethics begin to change. That is, figurations such as the queer transgender chimera, the she-pig, the wetware worry doll, and the oncomouse might also present opportunities to forge living practices of connection, a kind of monstrous kinship, and alternate

forms of embodiment in the present without the assumption that one must or even can know the outcomes in advance. Interdependence, risk, and vulnerability are not choices: they are the chimerical context we inhabit.

FIGURATION 7: CASTAS, CROSSBREEDS, AND QUEER KIN IN THE GARDEN OF DELIGHTS

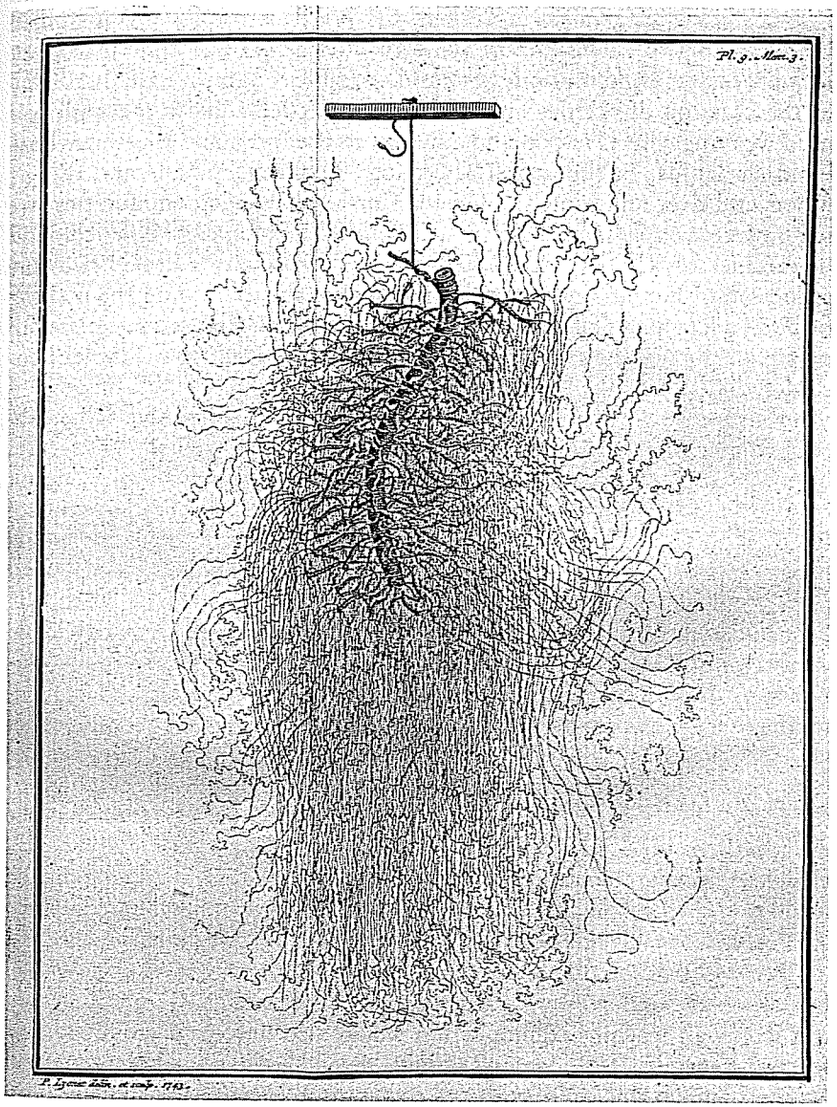


Figure 4.7 "Cutting of Fresh Water Polyp" from Abraham Trembley, *Mémoires pour l'histoire des polypes* (1744). Courtesy of Special Collections, University of Wisconsin-Madison.

The current use of the name "chimera" to designate transplant subjects has a complex history that is inextricably imbricated with colonial taxonomies of race and gender (McLeod 2000; Schiebinger 2004; Schiebinger and Swan 2005; Delbourgo and Dew 2008). Consider the taxonomical elaboration of eighteenth-century Mexican casta paintings such as *From a Spaniard and an Indian Woman, a Mestiza* (Figure 4.5), the first painted panel in a series of sixteen by Miguel Cabrera (Katzew 2005; Carrera 2003). This "genre scene" in multiple senses (quotidian life, species, and gender) represents the bodily crossing and imagined blood mixing of an "Español" with an "India" producing a "Mestiza" as a process of combination that can be seen through the visual analogy of the creation of textiles and their interthreaded tints in the multicolored weavings displayed on and adjacent to the India and Mestiza whose hand she holds. In this material analogy between humans and things, blood and dye, and animate and inanimate exchange commodities, we see how crossbreeding is also intertwined with colonial and neocolonial hierarchies of what is "human" and what counts as "culture." But the reduction of human and plant bodies to alienable parts and the making of bodies into parts of a larger aggregate and ordering scheme also call up the origins of that new form of power in life itself that Michel Foucault called "biopower."

In his lecture "The Meshes of Power," Foucault asserted the eighteenth-century origins of the biopolitics of blood and bodies and the production of power through efforts to control reproduction (Foucault 2001). Foucault may not have posed a colonial origin to this eighteenth-century inception of biopolitics and the forging of ways in which "sex" and procreation would become instruments for the regulation of individual bodies and of bodies as parts and generators of populations. But in "Society Must Be Defended" Foucault argued that one of the principal forms of biopower is developed with colonization, a form he called racism (Foucault 1997). Racism works, he argues, by introducing a rupture into the biological continuum that allows for the conception of society as a whole in terms of a mélange of distinct races while, at the same time, treating particular bodies in terms of fragmenting subdivisions of "species." Foucault dates this cutting practice of biopower to the nineteenth century, but we can see the main techniques at work in the eighteenth-century castas with their simultaneous anatomization of the individual body and its placement within a larger scheme, and their materializing analogy between humans, plants, and things. They situate sex, race, and species, as Foucault phrased it, at the crossroads of disciplines and regulations that turned society into a "machine of production." Further, the castas' human-object analogy of humans as woven cloth seems to anticipate that this (colonial) machine of production would also become a crossroads for forms of generation, kinship, and affinity beyond heterosexual reproduction.

The complex biopolitics of the castas of colonial Mexico have also been given new life as the templates for queer configurations of family

and generation in *The Garden of Delights* by Iñigo Manglano-Ovalle, an installation of DNA portrait triptychs. In place of heterosexual pairs of distinct racial identifications and taxonomically positioned mixed-race children, participants in Manglano-Ovalle's project chose their mates and their "offspring." The all-male three-some (Figure 4.6) of *Glenn, Dario, and Tyrone* (1998) are figured as a monumental and abstract blue-on-white arrangement of DNA patterns on three chromogenic prints face-mounted to acrylic that, inspired by the alchemical and transformative couplings of Bosch, reformat the castas as a kind of altarpiece to the possibilities of nonheterosexual reproduction, a reminder that Catholic altarpieces consecrated to the witnessing of a virgin birth already are such figurative imaginings (Zamudio-Taylor and Armstrong 2000).

FIGURATION 8: SENSITIVE MAN-PLANTS, HYDRA POLYPS, AND UNRULY RHIZOMES

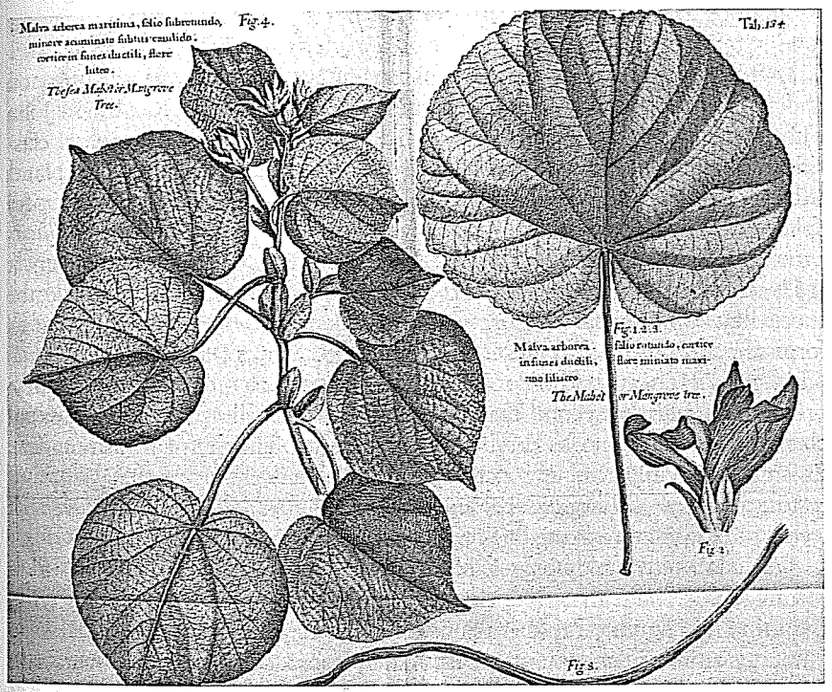


Figure 4.8 "The Mangrove Tree" from Hans Sloane, *A Voyage to the Islands of Madera, Barbados, Nieves, S. Christophers and Jamaica* (London, 1701–25). Courtesy of Special Collections, University of Wisconsin-Madison.

Investment in the potential power of bioforms across species (including plants) to act and react, to be both self-moving (even auto-generating) and sensitive, was also at the center of the radical materialism of the metropole and especially the work of Julien Offray de la Mettrie (Vartanian 1960; Wellmann 1992; Thomson 1996). La Mettrie's key text *Man a Machine* has incited controversy since its publication in 1748 for the contention that a noncentralized vital force may govern the actions of the smallest parts of plant, animal, and even human bodies. An essential piece of la Mettrie's argument about the vital commonalities between man, animal, and machine develops in the second part of his treatise *Man a Plant,* which la Mettrie opens with an evocative image of a "natural" metamorphosis based on commonality rather than absolute difference between species:

> Here is man metamorphosed into a plant. But do not think that this is a story such as Ovid might have told. On the contrary, the singular analogy between the plant and animal kingdoms has led me to the discovery that the principal parts of men and plants are the same. And if, herein, my imagination plays sometimes, be assured that it is on the table of truth. My field of battle is that of nature, whose legions I reduce to one (de la Mettrie 1994, 77).

La Mettrie's book did not include literal figurations, but this vivid play on and against Ovid calls to mind such personifications of plants as Robert John Thornton's *Temple of Flora* (1812), which explained Linnaeus's sexual classification system through an extended conceit of Cupid inspiring the plants with love and a full range of forms of love including the myth of the beautiful ephebe Hyacinth, favorite of Apollo, who, killed by jealous lover Zephyr, is turned into a flower by the sun god. A story of alchemical transformation, it is Hyacinth's spilled blood that forms the flowers whose buds are said to be stained by Apollo's tears (Thornton 1812). Such transmutations of life-forms forms the substance of Charles Darwin's father Erasmus Darwin's *The Botanic Garden* (1791), the first book of which is dedicated to an extended discourse on vitalism and the second to a poetic narrative retelling Linnaeus's sexual classification of system as the loves of the plants. The art of transmutation, Erasmus Darwin insists, is consistent with nature itself. Using the rhetoric of restoration, Darwin argues that uncovering the protean, agential powers of trees and flowers is to bring back their "original animality" (Darwin 1799).

While la Mettrie may protest too much against an influence from Ovid (a metamorphic chain that runs through la Mettrie, Thornton, and Darwin), the animating figure for these various efforts to conceive a vital unity between humans, animals, and plants is ultimately more contemporary: Abraham Trembley's self-generating freshwater polyp (Figure 4.7) of his *Mémoires pour l'histoire des polypes* (Trembley 1744). Trembley's experiments with cutting up the hydra and watching it regrow from parts "like branches of a tree" have been hailed as the beginnings of an experimental biology challenging the boundaries of animal, human, and plant (Lenhoff and Lenhoff 1986).

Trembley's work displaying an animal that behaves like a plant and hence the viability of "man a plant" was immediately translated into English and was included, for example, in George Adams's *Micrographia Illustrata*. At issue in Adams's text is not only the continuity of animals and plants in terms of behavior but, even more, in terms of sexuality, an upending challenge to the rule that "there is no fecundity without Copulation" (Adams 1747). In this, the freshwater polyp Hydra behaves like (and prefigures) the rhizomorphic plants theorized by Gilles Deleuze and Félix Guattari as an antihierarchical alternative order to the imperial hierarchies of arborific structures, a concept with real colonial roots, for rhizomorphic plants were the stated enemies of the plantation system (Deleuze and Guattari 1983). Mangrove plants (Figure 4.8), such as those illustrated in Hans Sloane's *Natural History of Jamaica,* represented monstrous asexual (or nonheterosexual) reproduction, a form of generation from any point that betrays hierarchies and produces a root system so difficult to eradicate it came to stand for the potential to undermine or, at least, stall the workings of the plantation-machine (Sloane 1701–25).

FIGURATION 9: LIVE TOOTH TRANSPLANTATION

Fascination and concern with the possibilities for promiscuous asexual or nonheterosexual growth are also at the center of the early modern discourse and practice of human transplantation. The first live human surgical transplantation was done in the eighteenth century by surgeon John Hunter with live human teeth, the results of which were published in Hunter's *The Natural History of the Human Teeth.* In the last chapter, we find the articulation of the principle of a uniting ground of similarity that Hunter argues is consistent with the work of la Mettrie and Trembley. The discovered fact that it is not necessary to find a tooth that fits the cavity because the mouth will grow to accept the tooth, Hunter concludes, is a visible sign that "the living principle exists in the several parts of the body, independent of the influence of the brain, or circulation, and that it subsists by these, or is indebted to them for its continuance . . . and in many animals there is no brain nor circulation, so that this power is capable of being continued equally by all the parts themselves, such animals being nearly similar in this respect to vegetables" (Hunter 1771, 127). The mouth that grows around a transplanted tooth provided Hunter the living figuration for the conception of an active force dispersed among and across a continuum of parts from human and animal to vegetable.

While live tooth transplantation from one human to another might not seem to defy bounds between sexes and species, it is important to underscore the hierarchy and order-defying implications drawn in the eighteenth century from such figurations of parts surviving and participating in the transformation of their new host environments. Hunter's surgical experiments were as interested in defying assumed boundaries and hierarchies between top and bottom and male and female as those between human, animal, and plant. The Royal Academy of Surgeons has preserved the

Figure 4.9 Robert Dighton, *The London Dentist,* 1784, color aquatint, collection of the British Museum. © Trustees of the British Museum.

artifacts of some of those reordering, even monstrous, transplants Hunter proudly recounted as evidence of the viability of crossing the bounds of species and gender: "Taking off the young spur of a cock, and fixing it to his comb, is an old and well known experiment. I have also frequently taken

out the Testis of a cock and replaced it in his belly, where it has adhered, and has been nourished; nay, I have put the Testis of a cock into the belly of a hen with the same effect" (Hunter 1771, 127).

Anxieties surrounding the active potential for transplantation, the vehicle for the creation of chimeras, to interrupt hierarchy-preserving continuities in genus or species and disrupt assumed and hierarchalizing discontinuities between "the races" or "the sexes" play across two satirical British prints of the period: Robert Dighton's 1784 *The London Dentist* (Figure 4.9) and Thomas Rowlandson's 1787 *Transplanting of Teeth* (Figure 4.10). They represent live tooth extraction and transplantation in action and in the form of intimate contact across not just commonality (human to human) but also fetishized differences of color, sex, and class (Blackwell 2004). Blackening plays a triple role as sign of class (the dirt of labor covering the central figure in Rowlandson's print), race (the skin of the young attendant in the Dighton print), and death (the blackened oral cavities where teeth had once been). The precarious potential for disorder is also enacted by the promiscuous assemblage of these scenes of transplantation in the interdependent co-presence in domestic space of bodies marked by difference with fingers and hands gesturing at and almost into the oral boundary between inside and out. The central blackened figures (the laborer in the Rowlandson print and liveried attendant who recalls the slave system in the Dighton print) may also serve as carriers for anxiety that the very need for such transplantation was caused by blackened tooth decay from another costly transplant: slave plantation-grown sugarcane and its domestic consumption in the metropole.

(TRANS)FIGURATION 10: CHIMERAS TO COME

These lines I have traced across time, genre, and geography have taken on new life. "Trembley's polyps have gone transgenic" as the Hydra has proved an important system for the study of stem cells (Steele 2006). Meanwhile, contemporary artists such as Aziz+Cucher invoke Ovid's songs of metamorphosis to articulate their new media practice with transformations in form, as in the digital photography series (Figure 4.11), *Chimera* (1998–99), that confronts the viewer, in the visual idiom of the indexical document, with unknown, illegible, and as yet unrealized variations on the most hypervalued bodily marks of sexual difference. Presenting questions of political and ethical value as indivisible from aesthetic ones, these photographs "of" ultimately unrecognizable organs without bodies or of organs as bodies ask us to reckon with our affective and visceral responses to the violations of sameness and difference, manifesting forms that ambiguate with an almost but not quite. These fleshly proximates look like flesh and even sex organs, but, at the same time, are radically unlike those marks that gender and engender known form. And, yet, in their vague resemblance to organs of procreation, these chimeras also present us with a strange condensation of both the potential outcome and vehicle for the production of further monstrous transformations in the flesh.

Figure 4.10 Thomas Rowlandson, *Transplanting of Teeth,* 1787, color aquatint, collection of the British Museum. © Trustees of the British Museum.

Chimerical figurations are not mere representations and they do not just matter historically: they materialize the dynamic interplay of histories and futures. To argue that the chimera *has* colonial histories of race, sex, breeding, and landscaping behind, around, or even in it (as in, for example, cellular inheritances) might be taken to posit that histories are like baggage just carried along for the ride. But the chimera, as I have attempted to show, is not just a hybrid mixture produced in time. The operations of history may themselves be understood as chimerical to the extent that the chimera challenges priority, order, and biology as destiny. While the embrace of becoming stem cell with which I began this essay may seem absurdly, even dangerously, utopian in the face of climate shift, the capitalization of transgenic hybrids, and prospects of uncontrolled and uncontrollable volatility, I would also insist that strict lines between human, animal, and plant, the dangerous purities of conservation and preservation, or hard and fast distinctions between natural and unnatural cannot and have never served an antiracist, anticolonial, or queer-feminist vision for environmentalism. To put this more positively, we have something to hope from and even inhabit in the protean ontological possibilities of chimeras: from monstrous mothers and she-pigs to transgender transplant subjects, sensitive man-plants, and the almost but not quite flesh forms and organs of generation of what may yet be conceived.

Transplantation and the plasticity of matter that the chimera's viability demonstrates do not just expose the chimerical "nature" of body and

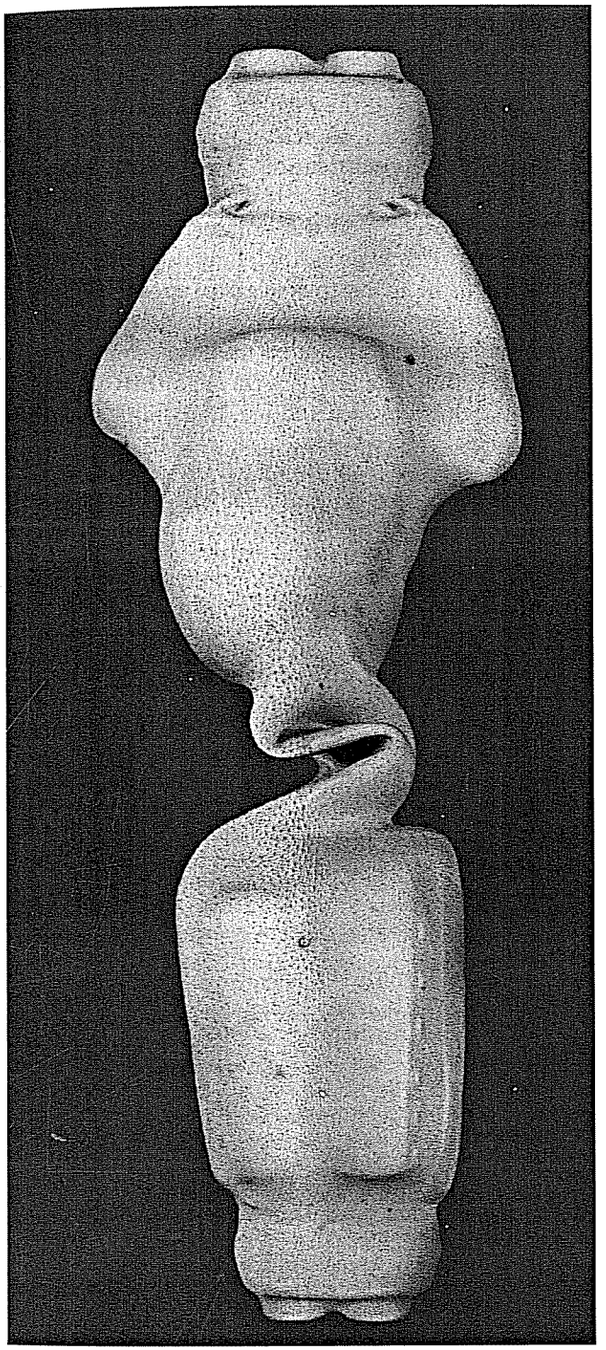


Figure 4.11 Aziz+Cucher, *Chimera #8*, 1998, C-print, 60 X 30 inches. Courtesy of the Arists.

environment but also the chimerical directionalities of history—from political and environmental histories of bodies and land to the histories embedded already in the genomes of human, animal, and plant bodies as the expressed, the not yet, and the may yet become. What might the indeterminate and as yet unnamed, as yet unfigured subjects to come "after" protectionism and "after" conservation bring forth? This afterlife—this living after—of colonialism is not a leaving behind of conflict. It is, or rather it might be, a creative agonistic contact with the colonial history of those many precedents already grown, already developed, and persisting in one form or another at the monstrous edges of species. The futures we can imagine are already in the process of being conceived in the monstrous overlaps of the anachronistic, the unfounded, and the ostensibly past, including that of the colonial. If time will tell, it is through the volatile, materializing power of figuration, which crosses and makes a chimera of time itself.

To Ann Pellegrini.

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5 The City Refigured
Environmental Vision in a Transgenic Age

Allison Carruth

The cofounder of Terreform ONE, Mitchell Joachim, takes green architecture to task for a "bland" aesthetic that, while founded on sound principles, effects only incremental alterations of the urban environment. By comparison with the popular LEED standards for green building,[1] Joachim envisions a radical "ecological code": design principles that would catalyze a paradigm shift in urban planning by facilitating collaboration among architects, artists, engineers, ecologists, planners, farmers, and geneticists.[2] With respect to this final group, Terreform positions biotechnology as an asset to building sustainable cities. The rise of transgenic organisms—crops, pharmaceuticals, and tissues that cross species at the molecular level—has been of particular interest to Joachim and his collaborators, who are critical of the corporations that control most genetic research and yet curious about whether such technologies can work for the environmental and social "good." Nor is the group alone. An emerging generation of artists, architects, and writers is conceptualizing biotechnology as a resource for reconfiguring twenty-first-century cities to address ecological and social justice challenges. This unorthodox brand of urban environmentalism signals a movement from postmodernism to a new cultural formation, one centered not on the structures of mass media and consumerism but on scientific practices of research and development.[3]

This chapter explores the nascent alliance among environmental ethics, urban aesthetics, and genetic science that shapes the urbanism of Terreform ONE. I begin not with Terreform's conceptual architecture, however, but with Indra Sinha's 2007 novel *Animal's People*, a narrative of an Indian city that takes its inspiration from the 1984 Bhopal gas disaster (Sinha 2007). My pairing of *Animal's People* and Terreform ONE is deliberate, but it is not in the service of tracing thematic or formal commonalities. Rather, I intend the comparison to reveal the conceptual threads between two aesthetic projects that treat the ethical question of how to make cities sustainable—in human and ecological terms and despite irreversible environmental constraints. The rationale for pairing materials more disparate than similar is to tease out my larger hypothesis that a phase change is underway in how literature, art, and architecture imagine the relationship between environmentalism and technology.