

- Louis Gates Jr. and Lemke Sieghinde (eds), *Zora Neale Hurston: The Complete Stories*. New York: Harper Collins.
- Gelder, Ken. 2000. "Postcolonial Voodoo," *Postcolonial Studies* 3:1.
- Hemenway, Robert E. 1986. *Zora Neale Hurston: A Literary Biography*. London: Camden Press.
- Herskovits, Melville. 1964 [1938]. *Life in a Haitian Valley*. New York: Octagon Books.
- Hurston, Zora Hurston. 1938. *Tell My Horse*. Philadelphia and New York: J.P. Lippincott.
- Leyburn, James G. 1941. *The Haitian People*. New Haven: Yale University Press.
- Merraux, Alfred. 1972 [1959]. *Voodoo in Haiti*. Translated by Hugo Charters. London: André Deutsch.
- Moore-Gilbert, Bart. 1997. *Postcolonial Theory: Contexts, Practices, Politics*. London and New York: Verso.
- Niles, Blair. 1926. *Black Haiti: A Biography of Africa's Eldest Daughter*. New York: Grosset & Dunlap.
- Richardson, Alan. 1993. "Romantic Voodoo: Obeah and British Culture, 1797-1807," *Studies in Romanticism* 32:1.
- Richardson, Michael (ed). 1996. *Refusal of the Shadow: Surrealism and the Caribbean*. Translated by Michael Richardson and Krzysztof Fijalkowski. London and New York: Verso.
- Rhys, Jean. 1966. *Wide Sargasso Sea*. London: Penguin Books.
- Schaefer, Pamela. 1998. "Catholicism's Black Sister," *National Catholic Reporter* 35:6.
- Spiwak, Gayatri Chakravorty. 1999. *A Critique of Postcolonial Reason: Toward a History of the Vanishing Present*. Cambridge, Mass.: Harvard University Press.
- Verges, Françoise. 1997. "Creole Skin, Black Mask: Fanon and Disavowal," *Critical Inquiry*. 23.
- Williams, Joseph J. 1932. *Voodoo and Obeahs: Phases of West India Witchcraft*. New York: Dial Press.
- Wucker, Michele. 1999. *Why the Cocks Fight: Dominicans, Haitians, and the Struggle for Hispaniola*. New York: Hill and Wang.
- Ken Gelder is Reader in English with Cultural Studies at the University of Melbourne, Australia. His books include *Reading the Vampire* (1994) and, with Jane M. Jacobs, *Uncanny Australia: Sacredness and Identity in a Postcolonial Nation* (1998). He is coeditor of *The Subcultures Reader* (1997) and editor of *The Horror Reader* (2000), both published by Routledge.

## Are We Not Men? The Horror of Eugenics in *The Island of Dr. Moreau*

David A. Kirby  
Cornell University

One of the most memorable scenes in horror cinema occurs in the 1933 film *Island of Lost Souls*, the first cinematic adaptation of H.G. Wells's 1896 novel *The Island of Dr. Moreau*. Atop a cliff the whip-wielding Dr. Moreau, portrayed by the goateed Charles Laughton, stands above his creations, the hairy and disfigured Beast-People, berating them with the question "What is the law?" The Beast-People, led by the Sayer of the Law portrayed by a makeup-obscured Bela Lugosi, chant their answers to Moreau, affirming each chant with the hopeful question: "Are we not men?" This scene effectively portrays the suffering of the Beast-People, and their intense fear of their creator, Dr. Moreau and his "House of Pain." While this scene successfully conveys a sense of horror, it also highlights a theme running through much of the recent literature on the genres of science fiction and horror: how do we determine who or what is human? The scene also forces us ask the equally important question: who has the right to determine what is human? There have been three film adaptations of *The Island of Dr. Moreau*: *Island of Lost Souls*, *The Island of Dr. Moreau* (1977), and *The Island of Dr. Moreau* (1996).<sup>1</sup> I believe that these three horror films can help us to understand historically how society has viewed these two questions in relation to biotechnology, and, ultimately, to understand how these two questions relate to the process of science.

I will argue that these three films engage the question of who has the right to determine what is human by criticizing the willingness of scientists to use technology to change human genetics (the "new" eugenics). On the other hand, I maintain that the films address the question of who or what is human by supporting the notion of genetic determinism, or the belief that human beings are defined by their genetic makeup. Therefore, I will deal with how these film adaptations capitalize on the fear of genetic manipulation and the new eugenics, while at the

<sup>1</sup> There are many films "inspired" by the novel, or that are thinly veiled adaptations. For a review of films related to Wells's novel see Weaver (1996). In this essay I address the three direct film adaptations.

same time supporting the notion that human beings are nothing more than the sum of their genes (genetic determinism). Ultimately, I am interested in the historical relationship between entertainment media and science, and I believe that science-based horror films, like the film adaptations of *The Island of Dr. Moreau*, provide an excellent opportunity to answer questions about humanity and its relationship to biotechnology.

#### *The Story*

Before proceeding with an analysis of the films and their cultural contexts, it is useful to give an overview of Wells's novel and its filmic variations. A shipwreck victim, Edward Prendick, ends up on Dr. Moreau's island and Moreau treats him as a guest. (The name of the shipwreck victim differs between all three films and the novel.) He discovers Moreau's "experiments," runs off, and stumbles into the lair of the Beast-People, who are animals transformed into pseudo-humans by Moreau. Prendick hears a Beast-Person known as the Sayer of the Law describing the "Laws" that Moreau has given to the Beast-People. Moreau finds Prendick and explains why he is trying to change animals into humans. The human characters discover a dead animal, and Moreau assumes that a Beast-Person killed the animal. Killing is a violation of the "Laws," and Moreau punishes the guilty Beast-Person. (The 1933 adaptation does not include this plot element.) Moreau is subsequently killed by his creations and Prendick escapes the island. There are five characters who appear in the novel and all three film adaptations: Dr. Moreau; a shipwreck victim; Moreau's assistant Montgomery; the Sayer of the Law; and M'ling, a dog-man servant. In addition to these characters, the three film adaptations contain the character of a female puma transformed into an almost "perfect" human. The only other characters of note are from the 1933 film: Captain Davies, who rescues the shipwreck victim and deposits him on Moreau's island; Parker's fiancé Ruth; Captain Donohue, who takes Ruth to Moreau's island; and Ouran, a Beast-Person formed from a gorilla.

#### *History of the "New" Eugenics*

Eugenics is a social movement that hopes to eradicate societal problems through the application of evolutionary theory to humans. Although eugenics has taken on various connotations this century (Paul 1998), it is commonly defined as an attempt to accelerate human

evolution by improving the genetic makeup of humans. Before the publication of *Origin of Species* in 1859, most people did not look to biology for solutions to societal problems. In *Origin of Species*, Charles Darwin compelled humanity to rethink its position in the natural world. Until *Origin of Species*'s publication, humankind had considered itself uniquely created, separate from animals. Darwin's book challenged this notion by claiming humans are animals with an evolutionary link to all life on earth. In *The Descent of Man*, Darwin asserts that, because of this evolutionary connection, humans retain many animalistic "instincts," such as deceit, revenge, jealousy and suspicion (89). Many scientists, including Darwin's cousin Francis Galton, embraced this concept, and concluded that most of society's ills were due to these inherited animal behaviors. To ameliorate societal problems, Galton decided to apply evolutionary thought, particularly Darwin's Theory of Natural Selection, to our own species *Homo sapiens*. If crops and animals could be improved by selective breeding, Galton wondered, "Could not the race of men be similarly improved?" (1; Kevles 1985). Galton envisioned a system of artificial selection, which he termed eugenics in 1883, where society allowed humans who had "desirable" qualities to have children (positive eugenics), while society prevented humans with "undesirable" traits from having children (negative eugenics). The traits that Galton was interested in were not limited to physical deformities, but "those qualifications of intellect and disposition" (1; Kevles 1985).

For a thirty-year span, between 1900 and 1929, the eugenics movement captured the attention of America's leading reformers, academicians, professionals, and political leaders, including industrialist John Kellogg, inventor Alexander Graham Bell, and women's rights advocate Margaret Sanger. By the early 1930s, however, the climate that had been receptive to eugenics in America had broken down. Several factors led to the decline of the American Eugenics movement, such as the restrictions on marriage and child bearing required for a selective breeding campaign, and the Stock Market crash of 1929 (Pickens 1968). Scientifically, the ideas of eugenics had been shown to be untenable by developments in genetics in the 1920s.

Despite the decline of an organized American Eugenics Movement, many people still felt there was a dire need to improve humanity's genetic stock. Since selective breeding was shown to be flawed, scientists who still wished to improve the genetic makeup of humanity were searching for *technological* means to "evolve" humans. Evolutionary geneticist J.B.S. Haldane dismissed the "old" eugenics for its limited application of genetic principles and for the control that

would be influenced over individual lives, but he believed strongly in the need for some sort of eugenics program. In his 1925 popular science book *Daedalus, or the Science of the Future* he proposed a technological solution to the "eugenics problem." He envisioned a reproductive technology, called "ectogenic creation," in which the human genome was directly manipulated to create offspring that contained desirable genetic traits. Although his process was considered "fictional science" at the time, he offered a vision for the "new" eugenics that avoided selective breeding and instead relied on technological breakthroughs. Therefore, the eugenic goal of changing the human genetic makeup can be accomplished through advances in biotechnology without relying on the socially unacceptable regime of selective breeding entailed by the "old" eugenics.

Haldane's book was both influential and controversial. Haldane's vision for a "new" eugenics had many proponents, including, and perhaps most vocally, evolutionary biologist T.H. Huxley's grandson Julian Huxley. By the late 1920s, Julian Huxley and many other scientists were writing that the best way to overcome biological problems concerning eugenics and environmental problems was to directly manipulate humanity's genetic material. In 1931 Julian Huxley wrote that the only way for human beings to evolve to a higher state was to "alter the very nature of nature, changing the balance not by changing the conditions, but by changing the inherent qualities of the organisms involved" (409).

Although the scientific community saw promise in ectogenic creation, most of the general public found the idea of directly manipulating humanity's hereditary material unpalatable and frightening. Many people viewed Haldane as a "Moreauesque" figure who saw genetic technology as a means for attaining his vision of humanity. Several members of the literary community considered ectogenic creation as another attempt by scientists to seek social solutions through technology, and direct genetic manipulation was the subject of many critical texts starting in the early 1930s. For example, Haldane's vision of ectogenic creation was the inspiration for "Bokanovsky's Process" in Aldous Huxley's (who was Julian Huxley's brother) novel *Brave New World* (1932). Likewise, C.S. Lewis observed, in a quote aimed at his longtime nemesis J.B.S. Haldane, that "Man's power over nature is really the power of some men over others with nature as their instrument" (8; Howard and Rifkin 1977). Criticism on the new eugenics was not limited to literature, however. In fact, these attacks found more of a voice in science-based horror films than in any other media form (Kirby 2000).

#### *The Social Context for Eugenics in The Island of Dr. Moreau*

For science, horror films can be considered cultural records reflecting concerns about, and attitudes towards, scientific discovery and technology (Tudor 1989). *The Island of Dr. Moreau* was adapted for the screen at three time periods where emerging biotechnologies, or the notion of directed biological change, made it appear that a new technologically driven eugenics was just around the corner. For filmmakers, *The Island of Dr. Moreau's* story of a scientist who is punished for trying to create the "perfect" human being through scientific manipulation seemed to resonate with the way in which "contemporary" American society viewed those scientists involved in the eugenics movement. As a eugenicist, Moreau determines what *should* be human, and Moreau only deems an individual human if they adhere to his behavioral laws, "not to go on all Fours, not to suck up Drink, not to Eat Flesh" (79-80; Wells 1996). Moreau uses scientific techniques to evolve "new" humans that he hopes will adhere to his vision of humanity. This makes Moreau equivalent to real-life eugenicists who have a socially determined set of rules for humanity, yet insist that the only way to improve humanity is through genetic manipulation.

*Island of Lost Souls* was produced soon after the publication of Haldane's book *Daedalus*, at a time when society was first starting to address the concept of direct genetic manipulation. The story of a mad scientist using biotechnology to create his idea of humanity would have resonated with contemporary audiences familiar with the ideas of J.B.S. Haldane. For Paramount Pictures, who were looking for a way to take advantage of the horror film boom in the early-1930s, *The Island of Dr. Moreau* seemed to be the perfect novel to capitalize on societal fears of the "new" eugenics. With highly successful film adaptations of classic horror stories such as *Frankenstein* (1931), *Dracula* (1931), and Paramount's own foray into horror *Dr. Jekyll and Mr. Hyde* (1932), the studio considered an adaptation of a "horror" novel by the popular author H.G. Wells a safe bet (Weaver 1996). The studio itself played up the possibility of "creative biology," as the idea of genetic engineering was referred to as a promotional device for their film. For example, one of their publicity features claimed that "Science Tries to Create Life!" The story claims that "today, perhaps, we are approaching the first tentative steps to new horizons in the world of 'creative biology'" (Publicity Feature - No.3). The story goes on to quote "authority" Dr. Raymond Ditmars, curator of the Bronx Zoological Gardens who discusses "modern experiments similar to those that *Island of Lost Souls* author [H.G. Wells] conceived of quarter-century back" (Publicity Story

-No.24). The filmmakers even invited Julian Huxley on to their set to get his approval of the scientific accuracy of their film. Finally, the studio lucked into the fact that as the film was being released Russian scientists announced plans to evolve a human from an ape, which the studio was quick to take advantage of in press releases.

The rise of Nazism in the 1930s completely discredited the scientific and ethical validity of the "old" eugenics movement for the next four decades. Eugenics re-emerged as a scientific endeavor and a social issue following the successful completion of genetic engineering experiments at Stanford University in the early-1970s (Kevles 1985). These experiments showed the validity of direct gene manipulation, and led many critics to question whether genetic engineering would usher in a "new eugenics" and lead us into a "Grave New World." The rampant anxiety over genetic technologies led to public hearings in the mid-1970s, and the threat of restrictive governmental regulations on the use of genetic engineering (Krimsky 1982). Horror films were quick to capitalize on these fears, and *The Island of Dr. Moreau* was one of several films released during 1977-1978 that incorporated genetic manipulation, including *Demon Seed* (1977), *Rabid* (1977), *The Boys From Brazil* (1978), *Paris: The Clonus Horror* (1978), and *Piranha* (1978). It is clear from the literature and news stories surrounding the 1977 film version of *The Island of Dr. Moreau*, as well as AIP's production notes, that the filmmakers were making a direct connection between their film and the genetic engineering debates especially with regards to possible eugenic uses. For example, the director Don Taylor remarked that Wells wrote a "very prophetic story" about the "debates over genetic manipulation" (7; Kocian 1977). Burt Lancaster, who plays Moreau, says that he chose the role because he found the story to be about the "responsibilities of a science toward mankind" (M11; Train 1977). In addition, Lancaster directly addresses the fear of eugenic applications of gene technology by saying "it's theoretically, and for all we know practically, possible to make superior people. But who is to decide superiority? Where shall the seal of power be?" (M11; Train 1977).

It was less than twenty years between the 1977 film and the next adaptation of *The Island of Dr. Moreau* released by New Line Cinema in 1996, a date chosen to coincide with the 100th anniversary of the release of the novel. While the 1977 film was about the emerging possibility of changing human genes, the 1996 film is about the reality of human gene manipulation. Although the 1996 film received poor reviews, many critics acknowledged that the existence of gene altering technologies made this an appropriate time for a cinematic adaptation of *The Island of Dr. Moreau*. For example, Brian Johnson (1996)

answers the question of why "Hollywood offers yet another remake" of *The Island of Dr. Moreau* by saying that "perhaps because we have the technology, Genetic engineering has brought Wells's prophetic story one step closer to reality (italics his)" (59). As with the other two film versions, the filmmakers themselves acknowledge that *The Island of Dr. Moreau* is a "relevant warning for our time because of recent developments in genetic engineering" (3; Production Notes 1996). For example, director John Frankenheimer said, "I see the story coming right out of the headlines" (16; Bond 1996). Additionally, producer Edward R. Pressman says "it's a great story, and its resonance for today seems more relevant [today] than it was back then because of the reality of gene manipulation" (16-17; Bond 1996). Even actor Marlon Brando, who plays Moreau, states that he "was attracted to the project because it offered the possibility of putting into dramatic form the issue of genetics, its research and application to the future development of mankind" (12; Production Notes 1996).

#### *Genetic Determinism and The Island of Dr. Moreau*

As I have tried to show, filmmakers adapted Wells's novel for the cinema in time periods when American society was concerned about the possibility of scientists using technology to change humanity's genetic makeup. Bioethical issues have surrounded the notion of directed genetic changes since Haldane's publication of *Daedalus* in the 1920s. These concerns have remained through the advent of genetic engineering in the 1970s and the reality of human gene manipulation in the 1990s. One of these issues involves the limited access to genetic information, and the technology to manipulate it, to a handful of scientists. Traditionally, bioethicists believed that if we allow the genetic manipulation of human traits, it would be these few scientists who determine what characteristics represent the best of humanity. For example, Ted Howard and Jeremy Rifkin (1977) felt that supporters of gene altering technology fail to ask, "What constitutes a superman? Who will decide on the traits and attitudes these 'better individuals' embody? Who among us will be in control of securing our evolutionary future?" (21). It is this bioethical concern—the eugenicist who wants to impose his vision of humanity on society, and the scientist who has the technology to do it—which provides the major theme for the three film adaptations of *The Island of Dr. Moreau*. In this way, the films engage the question of who has the right to determine what is human with the answer: not scientists.

Roslyn Haynes (1994) traces this interpretation of Moreau—as the epitome of the obsessed overreacher who determines the traits that are best from humanity—back to Wells's novel. Bioethicists now believe, however, that the nature of genetic changes in humans will not be determined by scientists, but will primarily be driven by societal preferences (RiKin 1998). The real issue with gene manipulating technologies is not who will decide what human traits to change, but whether or not these changes will have any effect. In other words, we need only fear genetic changes if we believe that a human being is defined solely by its genetic makeup.

Genetic determinists believe that the development of a human being is determined predominantly by their genetic makeup with little influence from environmental factors. Genetic determinists consider that heredity is equivalent to inevitability; therefore, they believe that unless we modify the genes of individuals we have no hope of solving society's problems. If society is composed of individuals, and their genes determine each individual's behaviors, then the only way to cure societal ills is to change the genes of individuals. According to Richard Lewontin, Steven Rose and Leon Kamin (1984), biologists and longtime critics of the genetic determinist ideology, genetic determinists believe that "ultimately, all human behavior—hence all human society—is governed by a chain of determinants that runs from the gene to the individual to the sum of the behaviors of all individuals" (6). Genetic determinists, and by extension eugenicists, argue that social programs and education would be useless in helping humanity evolve, because human nature is fixed in an individual's genes before birth. For eugenicists, the only possibility for human improvement is to remove our "animal inheritance" by improving the genetic makeup of individuals.

Although the film versions of *The Island of Dr. Moreau* critique the use of biotechnology to change human genes, the films actually *endorse* the ideology of genetic determinism, or the belief that human behaviors are coded for in our genes. First, all the films deviate from the source novel in their choice of the mechanism Moreau uses to change animals into humans. In Wells's novel, Moreau uses the non-heritable technique of vivisection, while in all of the film versions Moreau uses the heritable technique of genetic manipulation. Therefore, in the film versions Moreau's relative success in changing complex behaviors through genetic manipulation gives credence to the assertion that most human behaviors have a genetic basis. In each film, Moreau's genetic manipulations have produced Beast-People who have overcome their animal origins and behave as human beings. Likewise, each film

contains a panther-woman who Moreau creates through genetic engineering and who is considered to be the "perfect" woman devoid of animalistic behaviors.

In addition to Moreau's success in genetically changing behavior, the films acknowledgment of a genetic basis for complex human behavior comes from sharing the same assumption as Francis Galton and H.G. Wells—that humanity's "bestial" behaviors are encoded in our genes. H.G. Wells was trained as an evolutionary biologist under "Darwin's Bulldog," T.H. Huxley, and readily accepted that unfavorable behaviors were part of our animal heritage. Wells believed that humans were mired in an evolutionary standstill. In an article published six months after *The Island of Dr. Moreau*, "Human Evolution, an Artificial Process," Wells states that "man is still mentally, morally, and physically, what he was during the later Paleolithic period" (590). Wells felt that humanity needed to do something to help it progress past this evolutionary stage. This theme, of humankind's need to overcome its bestial heritage, permeated Wells's early scientific writings and fictional "scientific romances," including *The Island of Dr. Moreau* (8-9; Phinias and Hughes 1975). The filmmakers maintain Wells's theme of the "mark of the beast" by showing animalistic instincts surfacing in the human characters. In the film versions of *The Island of Dr. Moreau*, the Beast-People define a boundary between what is animal and what is human. The "mark of the beast" is illustrated when the human characters, indicating that they have lost the struggle with their bestial inheritance, repeatedly cross this boundary:

In *Island of Lost Souls* it is the shipwreck victim, Edward Parker, who temporarily loses the battle with his animal nature. As noted by Barry Grant (1986), Parker gives in to his animal passions by grabbing the Panther Woman, Lota, and kissing her (156). Social conventions dictate that Parker should remain sexually exclusive with his fiancée, Ruth, but he cannot deny his animal instincts that "tell" him to grab this attractive woman and "mate" with her. Parker's animal heritage also surfaces when he resorts to violence and punches the abusive captain of the ship that rescued him, Captain Davies, who had been mistreating the Dog-Man, M'ling. Other violent outbursts occur when Parker attacks the Beast-Person, Ouran, who had grabbed Lota, and when Parker assaults Moreau upon discovering Moreau's plan to mate him and Lota. In addition to Parker, several other characters in the film exhibit the mark of the beast. In particular, Captain Davies is shown to be a "man somewhat less human than the creations of Moreau" (76; Williamson 1973), who not only beats M'ling, but also throws Parker overboard when they reach Moreau's island. Along with Montgomery

and the captain who takes Ruth to Moreau's island (Captain Donohue), Captain Davies displays a fondness for alcohol, which still would be considered an "animal" weakness at the end of the prohibition era (1932). Ultimately, the theme of the mark of the beast in *Island of Lost Souls* is summed up in a conversation between Captain Donohue and Ruth, in which he describes a "laughing jackass bird" that laughs exactly like a man. He initially claims that this is a "funny name for a bird," but upon reflection remarks: "When you see he laughs like a man, it's not such a funny name after all." It seems that for Captain Donohue humanity's animal nature makes jackasses and humans equitable.

In the 1977 adaptation, as in the earlier film, it is the shipwreck victim, in this version named Michael Braddock, who exemplifies the mark of the beast. Braddock lives among the Beast-People for a short time in a "vividly realized metaphor of the animalistic qualities within us" (156; Grant 1986). As Barry Grant points out, this metaphor is taken even further when Moreau "regresses" Braddock to an "earlier" and animal stage in human's evolution (156). The filmmakers visually show the idea of the animal within humans by making Braddock as a "regressed humanimal" appear identical to when he is unshaven at the beginning of the film.

In the 1996 adaptation the mark of the beast is not only illustrated by having the human characters act like animals, but also by having characters directly discuss the animal nature of humans. Before he arrives on Moreau's island the plane crash victim, this time named Edward Douglas, informs us that he was on his way to broker a peace accord for a "bloody civil war," while the two other men in the life-raft fight over the last canteen and act "more like beasts, not men." After being on Moreau's island Douglas makes a clear statement about our animal nature when he says he looks at humanity and is "reminded of some likeness to the Beast-People" and feels "as though the animal is surging up in them [humans]." Douglas's own animal instincts surface when he resorts to violence against a drug addicted Montgomery, who chides Douglas by asking him "who is the animal?" The Sayer of the Law also talks about humanity's struggle with its animal side and is clearly speaking to the audience, as well as to the Beast-People, when he says that it is a "hard way, the way of a man" and that "we all want the thing that is bad." Unlike the other film adaptations, it is Moreau's assistant, Montgomery, who cannot resist the "things that are bad." In addition to his drug addiction, Montgomery violates Moreau's "Law" against shedding blood and eating meat. To Moreau the consumption of flesh represents unhealthy, bestial urges to kill and devour other animals. Yet Montgomery not only savagely breaks a rabbit's neck in

front of Douglas, he orders the Dog-man servant, Azazel, to cook it for him. It is Montgomery's killing of this rabbit, which actually precipitates the Beast-People's revolution and Moreau's downfall. Although Montgomery thinks he is alone with Douglas as he kills the animal, there is a Beast-Person who observes Montgomery violate the "Law." It is Montgomery's actions that teach the Beast-People that it is acceptable to give into "animalistic" urges. Therefore, it is the human, Montgomery, who teaches the animals to act like animals.

The theme of humanity's struggle with its "animal side" is not unique to these three horror films, and is, in fact, a common theme found in science-based horror films. For example, in *Forbidden Planet* (1956) the "monsters from the Id" represent humanity's repressed animalistic nature released by the machinery of the Krel. Likewise, films such as *The Wolfman* (1940) and *Dr. Jekyll and Mr. Hyde* (1931) portray the "mark of the beast" visually through the transformation of humans into animals or beast-like creatures. What differentiates the film versions of *The Island of Dr. Moreau* from other films which detail humanity's "animal nature" is the overt linking of the mark of the beast to our genetic makeup. In the 1933 film Moreau casually explains that he can "strip away 100,000 years of slow evolution" and remove humanity's animal origins through a "slight change in the single unit of the germplasm." (Germplasm was the common name for the hereditary material until the discovery of the double helical nature of DNA in 1953.) Moreau feels that "all animal life is tending toward the human form," but he believes that in current humans this process has somehow gone wrong in the past. Moreau concludes that he must "re-evolve" humans by using animals as templates and changing their genetic makeup.

In the 1977 film, which is set in 1911, Moreau also removes "animalistic" behaviors through genetic manipulation. Preceding Watson and Crick's discovery of DNA by 42 years, fictional Moreau has not only discovered DNA but he has invented genetic engineering. He explains that he has discovered a "cell particle which controls the shape of life" and contains "the distillation of a biological code message." Moreau uses his newly found hereditary material to put "a new set of instructions into experimental subjects which erases the instincts of the animal in order to improve man himself." In the 1996 adaptation Moreau uses a religious metaphor to describe how he thinks animalistic behaviors are humanity's genetic heritage. Moreau explains that he has "seen the devil in my microscope," and that the "very essence of the devil is no more than a tiresome collection of genes." As in the other film versions, the 1996 version of Moreau is concerned with the

"refinement" of humanity through the "eradication of destructive genetic elements" in human nature that "compels us to destroy and debase." The reliance of all three fictional Moreaus on gene altering technologies to change complex behaviors further underscores the endorsement of the genetic determinist ideology by these film adaptations. This brings us back to the initial question of who or what is human? After examining these three films we can only conclude that the answer is: only those with the correct genetics are human.

#### *Science-Based Horror Films and the Process of Science*

This brings me to the ultimate reason I am interested in the cinematic adaptations of *The Island of Dr. Moreau*: science-based horror films and all of popular culture, play a significant role in the process of science. By combining Antonio Gramsci's hegemony theory with the actor-network theory of sociologist Bruno Latour it can be shown how popular cinema affects the acceptance of scientific concepts. According to Gramsci, for the ruling class to maintain its hegemonic position they must legitimate and renew the "common sense" mentality in society as a whole through consent or coercion. Scientific validation is a powerful mode of consent because it makes the prevailing common sense seem inevitable or "the natural order of things." To understand how scientific concepts gain validity, and thus legitimate "common sense," we need to understand the progression of science from hypothesis to validation and social acceptance.

For Latour, and for of other sociologists (e.g. Collins and Pinch (1993)), science as a process is "messy." In fact, there is widespread agreement among sociologists of science that scientific knowledge can be, and indeed has been, demonstrated to be socially constituted [see Golinski (1998) for review]. Sociological studies have established that various scientific interpretations of the natural world fight in an open arena where they compete to become accepted as "knowledge." For Latour, a scientific idea becomes "black-boxed" when it becomes accepted, over all other ideas, as a concept that accurately describes the phenomena of nature. According to Latour (1987) once a concept becomes a black box it should be accepted without hesitation and that it "cannot and should not be reopened" (4). For example, it would be counter-productive for any astronomer to open the black box that says that the earth moves around the sun.

Latour maintains that "science in action" involves the attempts by scientists to gather "allies" for their scientific concepts. A scientific

concept becomes a "black box" for society when it has significantly more allies or "actants" than other competing concepts have. In this actor-network model, potential allies either accept a scientific concept, or they do not throwing their support instead behind competing concepts. According to Latour "the assembly of disorderly and unreliable allies is thus slowly turned into something that closely resembles an organized whole. When such a cohesion is obtained we at last have a *black box*" (italics his: 130-31). Although some allies/actants (i.e. other scientists) are more important than others, allies come from all areas of society (politicians, teaching curricula, textbooks, etc.) including mass media such as science-based horror films. In this way, Latour and his collaborators have expressed a sense of openness of scientific work, and have destabilized the distinctions between what is inside and outside of science.

Sociologists Dorothy Nelkin and Susan Lindee (1995) show that the creators of popular culture act as another ally for the scientific concept of genetic determinism. Nelkin and Lindee examined the content of popular cultural narratives over the last twenty years and found that the growing public acceptance of genetic determinism has translated into a "cult of the gene" (3). They cite numerous examples of popular cultural texts from the 1980s and 1990s showing that "individual characteristics and the social order both seem to be direct transcriptions of a powerful, magical, and even sacred entity, DNA" (2-3). Based on their research, it seems that the black box of genetic determinism is closing in relation to popular culture.

Once genetic determinism becomes a black box it can be used to legitimate the "common sense" mentality that genetic manipulation is the only way to cure societal problems. The more "allies" for genetic determinism, the more it is seen as "common sense" and is taken as the "natural" order of things. According to Lewontin, Rose, and Kamin (1984) genetic determinism has "been a powerful mode of explaining the observed inequalities of status, wealth, and power in contemporary industrial capitalist societies" (7). They sound a warning in their book that neo-conservatives, who they call the "New Right," have increasingly turned to genetic determinism to justify their position of privilege. They contend that genetic determinism "has been greatly seized upon as a political legitimator by the New Right, which finds its social nostrums so neatly mirrored in nature; for if these inequalities are biologically determined, they are therefore inevitable and immutable" (7). By endorsing the view that complex behaviors can be changed through genetic manipulation, the three film versions of *The Island of Dr. Moreau* contribute to the black boxing of the genetic

determinist ideology and, subsequently, to the supporting of the neo-conservative's common sense mentality.

The film versions of *The Island of Dr. Moreau* are not alone among science-based horror films in their acceptance of the genetic determinist ideology. One film featuring genetic engineering, which came out around the same time as the 1996 version *The Island of Dr. Moreau*, is the 1997 film *GATTACA*. It has previously been pointed out that *GATTACA* is an exception to most popular culture in that it tries to dismantle the black box that has been constructed by molecular geneticists who portray a world that is solely dominated by genes (Kirby 2000). *GATTACA* critiques the new eugenics by focusing on genetic determinism, not the technology itself or the whims of scientists. All three film adaptations of *The Island of Dr. Moreau* are equally as critical of the "new" eugenics as *GATTACA*, yet their portrayal of the problems associated with human gene technologies are not as compelling. I maintain that *GATTACA* is a more effective film in its criticism of human gene technologies because it does not fault the technology itself or the scientists who might control it; rather, the film warns of the problems that arise if we believe that humans are nothing more than their genes. For almost 70 years *The Island of Dr. Moreau* has been adapted to the screen with the aim of questioning human gene manipulating technologies and those who control them. Even though both *GATTACA* and the film versions of *The Island of Dr. Moreau* question who has the right to determine what is human and who or what is human, they differ in their presentation of humanity's relationship to its genetics. *GATTACA* assumes that we are more than the sum of our genes and that being human means that we are able to "transcend" our genetic obstacles. Unfortunately, the film versions of *The Island of Dr. Moreau* support the genetic determinist ideology by assuming that we are not only genetically linked to our evolutionary past, we are genetically trapped by this link.

*Works Cited*

- Bond, B. (1996) "Putting *The Island of Dr. Moreau* on the map," in the Production Notes from *The Island of Dr. Moreau*. New York: New Line Cinema.
- Collins, H.M. and T. Pinch (1993) *The Golem: What Everyone Should Know About Science*. Cambridge: Cambridge UP.
- Darwin, C. (1996) *Origin of Species*. Oxford: Oxford University Press.
- . (1998) *The Descent of Man*. Amherst, N.Y.: Prometheus Books.
- Golinski, J. (1998) *Making Natural Knowledge*. Cambridge: Cambridge University Press.
- Grant, B. (1986) "Looking Upward: H.G. Wells, Science Fiction and the Cinema," *Literature/Film Quarterly* 14: 154-63.
- Haldane, J.B.S. (1995) "Daedalus, or the Science of the Future" pp. 23-50 in *Haldane's Daedalus Revisited*. K.R. Dromamraju, ed. Oxford: Oxford University Press.
- Howard, T. and J. Ritkin (1977) *Who Should Play God?* New York: Delacorte Press.
- Huxley, A. (1998) *Breve New World*. New York: Harper-Collins.
- Huxley, J. (1931) "Biology and Our Future World." *Harper's* 163: 403-11.
- Johnson, B.D. (1996) "Monkey Business." *Maclean's* 109: 59.
- Kevles, D.J. (1985) *In the Name of Eugenics: Genetics and the Uses of Human Heredity*. New York: Knopf.
- Kirby, D. A. (2000) "The New Eugenics in Cinema: Genetic Determinism and Gene Therapy in *GATTACA*." *Science Fiction Studies* 27(2): 193-215.
- Kocian, B. (1977) "Virgin Isles as Humamimal Haunt." *Variety* 2 Mar. 7.
- Krimsky, S. (1982) *Genetic Alchemy: The Social History of the Recombinant DNA Controversy*. Cambridge, MA: The MIT Press.
- Latour, B. (1987) *Science in Action*. Cambridge: Harvard University Press.
- Lewontin, R., S. Rose and L. Kamin (1984) *Nor In Our Genes*. New York: Pantheon Books.
- Nelkin, D. and M. S. Lindee (1995) *The DNA Mystique*. New York: W.H. Freeman and Co.
- Paul, D. (1998) *The Politics of Heredity*. Albany: State University of New York Press.
- Philmus, R. and D. Hughes, eds. (1975) *H.G. Wells: Early Writings in Science and Science Fiction*. Berkeley: University of California Press.

- Pickens, D.K. (1968) *Eugenics and the Progressives*. Nashville: Vanderbilt University Press.
- Production notes for *The Island of Dr. Moreau* (1996) New York: New Line Cinema.
- Publicity Feature - No.3 for *The Island of Lost Souls* (1932) "Science Tries to Create Life! Laughed at Wells 25 Years Ago When He Predicted Beast-Men." Los Angeles: Paramount.
- Publicity Story - No.24 for *The Island of Lost Souls* (1932) "Scientist Friend Observes Wells' Adventure Filmed." Los Angeles: Paramount.
- Ritkin, J. (1998) *The Biotech Century*. New York: Penguin/Putnam.
- Train, S. V. (1997) "Between Takes: A few words with actor Burt Lancaster." *The Sunday Sun*, 20 Feb: M11.
- Tudor, A. (1989) *Monsters and Mad Scientists: A Cultural History of the Horror Movie*. Oxford: Basil Blackwell.
- Weaver, T. (1996) "Islands already visited," in the Production Notes from *The Island of Dr. Moreau*. New York: New Line Cinema.
- Wells, H.G. (1996) *The Island of Dr. Moreau*. New York: The Modern Library.
- (1975) "Human Evolution, An Artificial Process," pp. 211-219 in H.G. Wells: *Early Writings in Science and Science Fiction*. R. Philmus and D. Hughes, eds. Berkeley: University of California Press.
- Williamson, J. (1973) *H.G. Wells: Critic of Progress*. Baltimore: The Mirage Press.

David Kirby has a PhD in molecular population genetics from the University of Maryland, with publications in the *Proceedings of the National Academy of Sciences* and *Genetics*. His latest article in *Science Fiction Studies* explores eugenics and gene therapy in the 1997 film *GATTACA*. A NSF Postdoctoral Fellow in Cornell University's Department of Science & Technology Studies, he is currently studying scientists who consult on fictional films.

## Biohorror/Biotech

Eugene Thacker

Georgia Institute of Technology

*Approaching Your Own Body*

This condensed essay is both descriptive and prescriptive: an outline of a particular type of horror centered around the siting of the body by technoscience, and an attempt to articulate an intermediary zone in which genre horror intersects with technoscience in complex ways. From the start, it should be emphasized that this essay is, more than anything, about a complicated ambivalence embedded in the technoscientific body. Put briefly, "biohorror" may be described as an extreme body-anxiety generated by the enfolding of the body by the biological technosciences: biomedicine, molecular genetics, and most of all molecular biotechnology. Biohorror is also a cultural expression inextricably interwoven with technoscientific research and practices. The anxiety in biohorror emerges in part from a fear of the instrumental uses of biomedicine and biotechnology applied to the body, rendering it as so much "meat," raw material, biological resource, or as a technology in itself.

The paradigmatic case of biohorror may be seen in Greg Bear's novel *Blood Music*—a case we shall return to in more depth later. The novel's revolves around a scientist—Virgil Uliam—working for a biotech company developing novel hybrids between living cells and integrated circuits ("MABS" or medically applicable biochips). When the company threatens to halt Uliam's research, he willfully injects the biochips into his blood stream, thereby continuing his research *in vivo*. Individually, the biochips are predictable and "dumb", collectively however, they form a complex biological network in Uliam's body, and become "intelligent," radically modifying Uliam's anatomy, physiology, and biochemistry at the molecular level. The human body is transformed, not just randomly, but according to the specific biotechnical, "network logic" of the biochips—what results, in the case of Uliam, is a visceral mass of tendrils (the "cables"), distributed nuclei (the "nodes"), and something resembling a giant cellular mass. Eventually the biochips discover the "outside" of the body, and their development takes on epidemic proportions, not only infecting other people, but the ecological landscape of the area as well. Eventually entire regions are transformed