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# The Macaque Connection

Cooperation and Conflict between  
Humans and Macaques

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## Chapter 5

# Macaques and Biomedicine: Notes on Decolonization, Polio, and Changing Representations of Indian Rhesus in the United States, 1930–1960

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### 5.1 Introduction

The current institutional framework for state-sponsored biomedical primate research in the United States was launched in 1960 with the opening of the Oregon Regional Primate Research Center. The Oregon center was the first of eight primate research centers funded by the National Institutes of Health (NIH), which in the second half of the twentieth century would make the breeding, confinement, and standardization of rhesus macaques its primary means for supplying US biomedical researchers with experimental animal models for human disease. The eight primate centers supply rhesus macaques with the specific pathogen-free (SPF) designation as well as small numbers of chimpanzees and vervets for applied research. These institutions have played important roles in a number of biomedical watersheds, including the isolation of HIV, the extraction of stem cells, and the first successful attempt at primate cloning.

In the reshuffling of Centers for Disease Control (CDC) and NIH departments that occurred following the September 11, 2001 attacks, the eight primate centers were renamed National Primate Research Centers, emphasizing the central role that nonhuman primate bodies have played in the state-corporate-university complex's engineering of US American immunity. In its current incarnation, the US biosecurity apparatus imagines the rhesus macaque as an integral species for the securitization of the nation and is often posed as a defense against a future of unknowable transnational diseases and health risks for which an ongoing

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diversification of biomedical research is necessary.<sup>1</sup> Yet if the nominal nationalization of rhesus labs seems tied to a specific and recent set of transformations of the US state in response to the specter of terrorism, the history of the primate centers' formation actually demonstrates their long-standing imbrication in the politics and imagined possibilities of national defense emerging from the Cold War. It was during the US polio scare of 1955, when the mass production of polio vaccine created a demand for hundreds of thousands of rhesus macaques, that national officials in charge of marshaling "research resources" established the rhesus as the primary biomedical model for the human to be imported and preserved as a vital national resource.<sup>2</sup> Coincident with the emergence of biomedical metaphors that figured the body as a site of battle waged by an internal immune system to contain the threats of the external world, the new national strategy emphasized the modeling of human biologic systems on the bodies of experimental monkeys figured as conscripts in an immunological battle for national security (Martin 1994). The discussions and institutional experiments leading up to the establishment of the primate centers document a lengthy process whereby US researchers attempted to gain access to nonhuman primate bodies in the Caribbean, central Africa, and South Asia. When polio epidemics spurred a high demand for Indian-origin rhesus, the recent and ongoing successes of nationalist movements in anticolonial struggles across countries with nonhuman primate populations brought about a change in these researchers' understandings of the proper institutional organization for primate research and of rhesus macaques themselves. In turn, scientific institutions were able to mobilize new conceptions of primate bodies in public discourse, which led to an increasing association of monkeys and apes with projects of US American technoscientific modernity.

In this chapter, I explore the changing representations of rhesus macaques and other nonhuman laboratory primates in the United States from 1930 to 1960, a period during which I argue that the increased visibility of the rhesus (as well as the popularization of "the research monkey" in visual culture) coincided with a process in which nonhuman primates were culturally nationalized or domesticated. While in the 1930s monkeys, chimpanzees, and gorillas had typically been figured as representing the untamable nature of animality and were associated with mad scientists and the supposed danger of the colonial jungle, the use of rhesus and other primates by biomedical researchers contributed to a new view of monkeys and apes as kin of humanity. This in turn made nonhuman primates possible conscripts in Cold War biomedical projects for national defense. This set of transformations cannot be understood as an example of scientific knowledge "modernizing" society by establishing an objective view of other species. While rhesus were like rats and fruit flies in that

<sup>1</sup>This future-oriented approach to health and security in the rich countries is described by Andrew Lakoff as "global health security," an assemblage that attempts to insulate wealthy countries from the presumed dangers of disease spread from Europe's former colonies (Lakoff 2010). A wide array of research on US imperial public health and medicine documents the techniques of US immunitary engineering against imperial frontiers and transnationally constituted disease threats (Merkel 1997; Shah 2001; Stern 2005; Anderson 2006; Wald 2008).

<sup>2</sup>For more on polio research agendas, see Paul 1971; Rogers 1992; Wilson 1998; Shell 2005.

they underwent important processes of standardization for diverse forms of laboratory labor in the twentieth century (Clause 1993; Kohler 1994; Clarke 1998), the shift in the social imaginary of the rhesus and other nonhuman primates was born out of the geopolitical and biomedical realities specific to these species' imbrication in a transnational politics of neocolonial research resource extraction.

This politics required the ultimate move of rhesus out of free-ranging habitats and into captive laboratory environments. While early primate researchers often shared the colonial assumption that nonhuman primates were best bred and studied in the supposedly "natural" environments of their African and Asian habitats, it was only after the wave of nationalist movements reestablished home sovereignty over formerly colonized ecosystems that US researchers attempted the type of broad-scale importation and breeding of rhesus culminating in the National Primate Research Centers. Decolonization brought about the "modern" institutions of US American primate laboratories, allowing the rhesus to be domesticated in three senses: rhesus macaques were literally imported into the continental boundaries of the nation; they were broken of their cultural association with a wild and untamed animality; and they were increasingly located in captive homes that attempted to scientifically and affectively establish their suitability to model human bodies and minds.<sup>3</sup> These processes of domestication undid the popular association of medical research with the history of colonial animal expeditions that had historically made primate research possible. Thus, as the US began to accept nonhuman primates as kin and as Cold War conscripts, images of rhesus macaques and other laboratory primates continued to reinforce a conceptual division between First and Third Worlds by demonstrating that the modern laboratory could make these previously sensationalized animals docile.<sup>4</sup> Ironically, as decolonization brought macaque breeding and experimentation within the national borders, this move worked to replicate a type of "domestic containment" that had posed the US American home/land as a space securitized against a communism figured as political, moral, and nuclear contagion (May 1990; Nadel 1995). The domestication of the rhesus macaque thus contributed to an American exceptionalist denial of US empire in the history of US biomedicine (Kaplan 1993)—a history that this chapter brings to light by tracing the

<sup>3</sup>Animal studies theorists have deployed a critique of the wild/domestic binary (Russell 2002), emphasizing the diversity of human-animal relationships crossing biological and social phenomena. I retain the term "domestication" in order to suggest the ideological linkage of rhesus to the racialized and gendered spaces of nation, family, and home.

<sup>4</sup>I draw here on the biopolitical theory of Michel Foucault (1995), who suggested that the eighteenth century saw the rise of a "power over life" or biopower emphasizing the institutional production of "docile bodies" which were evaluated and optimized using medical knowledges. More recently, the interdisciplinary fields of animal studies (Wolfe 2010; Shukin 2009; Wadiwel 2002) and science studies (Rose 2007; Latour 1993) have built on Foucault's theory in the contexts of transpecies and transgenic forms of contemporary biomedicine and agriculture. The making of "docile bodies" further suggests the implication of biopower in the production of racial power, as race played an important role in understanding which bodies were made fit or docile for national uplift (Foucault 2003; Stoler 1995).

writings and travels of US primatologists alongside broader public representations of the transpecies kinship of human and macaque.

## 5.2 A Tropical Rhesus Colony: The Puerto Rican Experiment

The story of the transformation of the rhesus into the standard biomedical model for the human begins in the 1930s. At a time when South Asian humans were denied citizenship in the United States and largely restricted from immigrating, the Columbia University comparative anatomist Clarence Ray Carpenter imported Indian monkeys as supreme scientific models for the human body. Carpenter, who helped spur a contested project of a medical school run by Columbia at the University of Puerto Rico-San Juan, spearheaded the organization of the first free-ranging rhesus colony on US-controlled land when he brought 409 Indian rhesus to Cayo Santiago, Puerto Rico. This islet in the Puerto Rican archipelago had been a sugar-exporting platform during the years of Spanish rule and into the early decades of its status as a US American commonwealth. The 1939 *Life* magazine article introducing the Indian-origin monkeys at Cayo Santiago initially focused on familiar colonial tropes exoticizing India and defending British colonialism with reference to the presumed irrationality of Hindu spiritual practices: "Because he is considered sacred in India," claimed the unnamed writer, "the rhesus is domineering, undisciplined and bad tempered" (Anonymous 1939). Following the logic in the *Life* article, many of the popular and scientific representations of rhesus in the years preceding the World War II rhetorically linked rhesus macaques to the discourse of the jungle and the narratives of colonial expedition that framed many early primate researchers' encounters with their research subjects. Carpenter's experiment in creating a macaque colony reflects the dominant assumption that free-ranging primate colonies would reproduce a "natural" tropical environment in which rhesus behavior and social organization would be best preserved.

Carpenter brought Indian rhesus to Puerto Rico, which had been constructed as a natural and ideal space of primate reproduction—a place which US scientists had viewed as an enclosed and exploitable ground for collecting data and specimens since the early days of US occupation (Duany 2002). Nearby residents in Punta Santiago, Puerto Rico, were "alarmed" by the *Life* article's mention of planned use of the colony to research cures for polio and other infectious diseases (Rawlins and Kessler 1986). A community group met with colony scientists to voice their concerns about risk of disease transmission to humans in the area. Although this initial public resistance to the colony apparently died down after a forum attended by scientists, the history of Cayo Santiago's founding testifies to the imbrication of biomedicine within histories of imperial power. Utilizing the institutional resources of tropical medicine, an association of US science with Puerto Rican modernization discourse, the labor of primate traders in British India, partnerships with the US military, and the decaying infrastructure of the sugar trade, the Cayo Santiago colony

represents a trajectory of transcolonial relations whereby the impacts of war, increased transnational contact, and medical science led researchers across oceans for the harvesting of rhesus macaques as raw biological materials.

Carpenter's reasons for establishing the Cayo Santiago colony were twofold: (1) the colony would offer a stable field environment for behavioral studies of rhesus macaques who were relatively undisturbed by humans, and (2) it would provide laboratory scientists with a stable and healthy source of subjects for experimentation and vaccine production. A number of primate colonies had been established around the world in the 1920s, but none fulfilled Carpenter's vision of providing nonhuman primates for both lab and field study for US researchers. The earlier colonies, located in Cuba, Tunisia, French Guinea, Tenerife, Georgia, and elsewhere, were usually established in tropical medicine institutes of colonial powers or as philanthropist-funded initiatives. "Primate studies" of the 1920s "were a colonial affair, in which knowledge of the living and dead bodies of monkeys was part of the system of unequal exchange of extractive colonialism" (Haraway 1989, p.19). As an emissary of one of the US's top research universities, Carpenter was poised to both harness institutional resources and to fashion a global strategy for American research resources, combing the expanding global frontiers of US empire stretching from Asia to the Caribbean in order to ensure researcher access to nonhuman primate bodies.

In 1937, Carpenter traveled across Asia as part of the Asiatic Primate Expedition, which included renowned primate researchers Harold Coolidge, Adolph Hans Schultz, and Sherwood Washburn. These researchers convened in Singapore and fanned out to other sites, including China, North Borneo, and Java. Spurred by disruptions in the primate trade due to the First World War, as well as the increased demand for research subjects in the US, the expedition simultaneously sought out research subjects and provided an actual vehicle for US defense intelligence. A retired US defense intelligence agent recounts that the expedition brought along at least one undercover US operative to station in China to monitor Japanese activities (Noble 2006).

In 1938, the year Carpenter traveled to India to harvest macaques for Cayo Santiago, the United States imported nearly 16,000 rhesus macaques for scientific experimentation. Yet the situation in colonial India—the source of the most prized specimens for research—was less than ideal for Carpenter and other US scientists. The Indian rhesus, known for its ease of captivity, its close association to human anatomy and metabolism, and initial easy accessibility under British colonialism, became in the 1930s a target of animal advocacy organizing. Indian animal advocates including the SPCA pressured the British Indian government to institute its first rhesus protection regulations in 1937. These regulations banned the transport of rhesus during the summer months when high temperatures in holding pens on trains and ships frequently caused high rhesus mortality rates (Carpenter 1940). Additionally, scientists reported wartime disruptions in shipping of primates.

Carpenter told the story of his own work to secure a steady supply of rhesus within the rhetorical frame of the colonial expedition narrative. Such stories of colonial adventure and scientific or capital exploitation were immensely popular in

the 1930s, which saw a resurgence of expedition narratives in popular fiction and film.<sup>5</sup> The most popular of these stories—the series of *Tarzan* stories and the 1933 film classic *King Kong*—figured apes as both humanity's closest ancestors and their gravest danger in the colonial jungle. At this time and into the 1940s, the figure of the laboratory monkey (often actually an ape or chimpanzee, or else named interchangeably as monkey and ape) dominated the US imagination of both the laboratory and the colonial world. Visual depictions of monkeys and especially great apes loomed large in the national imaginary both due to the high visibility of apes featured in domestic circuses and the heightened racist stereotyping of the decade associating social change with the supposed animality and hypersexuality of African-American men (Bederman 1993). At the same time, and in line with colonialist language figuring the colonized as similar to “lower primates,” the rhesus macaque was also often a source of comedy emphasizing monkeys' mimetic capacities. In fact, the first popular image of the rhesus macaque was Hansel Mieth's 1939 *Life* magazine image of a Cayo Santiago rhesus that had swum just off the coast of the islet. While Mieth saw the monkey's angry face as a sign of modern alienation, the *Life* editors made light of the monkey by claiming it had swum away from “the chatter of innumerable female monkeys.”

Carpenter's own 1959 narrative of his macaque expedition figured the complexities of the Indian colonial social world as a key danger for the progress of modern biomedicine. His story at times reads like *King Kong*, as the unprepared masculine adventurer overcomes financial hardships to set out on “the very nifty business” of going across vast oceans to trap the primate specimen. Yet the possibility of an even modest heroism for Carpenter within his own narrative melts upon arrival in India, as Carpenter presents Indian disease, greed, communalism, and nationalism overwhelming his efforts at supplying science with macaques. Indian greed is the first obstacle presented in Carpenter's narrative. Being unable to personally collect the hundreds of specimens needed for his colony, Carpenter seeks the services of animal traders, who he later decides are part of a “worldwide racket” stretching from Calcutta to New York to New Orleans. The traders, according to Carpenter, made “fantastic charges for animals that are bought for practically nothing in their local area” in and around the city of Lucknow. Beneath the traders, writes Carpenter, served two distinct “animal unions” consisting of Muslim trappers and Hindu caretakers. The Muslims engaged in a “rough and cruel business” of trapping that contrasted with the hypersentimentality of the Hindus for whom the animals were “sacred” (Rawlins and Kessler 1986, p. 15–18). Reinforcing US and British popular conceptions of the

<sup>5</sup>Popularized at the height of salvage anthropology in the 1930s, the zoological expedition brought scientists, hunters, zookeepers, taxidermists, and filmmakers to various locations across the colonial world, searching for often elusive prize animals to be studied, hunted, and captured as a spectacle of the power of modern science (Rony 1996, p. 154 and 157–60). As such, the zoological expedition was one method of monetizing imperial power through what Timothy Brennan (2005, p. 101) calls the “economic image-function of the periphery”: the operation of “the idea of the global periphery” as “an economic engine.” In this case, the imperial gaze of the filmmaker, the scientist, and the zoological tourist are all connected to circuits of exchange, primarily founded on the existence of particular animal ranges in Africa and Asia.

colonial world as locations of disease bred by poverty, dirt, and overpopulation, Carpenter reports that the monkeys were exposed to the “disease-carrying humans” that “usually surrounded” the “filthy” Indian ports (Carpenter 1940, p. 285). Carpenter had each animal isolated and tested before the voyage.

In a 1940 article he published in *Science* on the primate trade between India and the US, Carpenter takes pains to critique the inhumane practices of trapping and transporting monkeys, but only in terms of the damage that cruel practices cause to scientific research. The exuberance with which the Society for the Prevention of Cruelty to Animals, Hindus, Buddhists, conservationists, and even the government of British India have attempted to limit the primate trade, according to Carpenter, is misguided as the monkeys are a “necessary import.” Carpenter implies that corrupt nationalists manipulate Indians to support animal protection: “These peoples... are told that monkeys are used for the ‘rejuvenation of decadent Westerners’” (Carpenter 1940, p. 285). The *Life* article on the opening of the colony, which cites Carpenter and animal caretaker Michael Tomilin as its only sources, claims that the monkey trade is in danger “because Mahatma Gandhi is preaching against the exportation of the sacred rhesus monkey” (Anonymous 1939). In response, Carpenter has faith that strong US diplomacy with the British Indian administration will secure scientists a steady supply of Indian monkeys.

Carpenter closes his narrative with a description of his journey by sea to Puerto Rico. His irritation over the logistical difficulties permeates this section of the narrative. Underfunded, Carpenter recounts shortchanging the captain of the ship who agreed to take his unusual cargo. Carpenter has no time to dwell on his disdain for Indians, sailors, and the poor given the grueling duties of tending to hundreds of animals, especially given that his rations quickly spoiled and he had to secure new food sources at a stop in Ceylon (Sri Lanka). Surviving the cold around the Cape of Good Hope, Carpenter headed for New York where he shifted the monkeys to an American merchant marine ship, the SS Coamo, bound for Puerto Rico. Carpenter recalls how “delighted” he was “to turn this shipment over to Mr. Michael Tomilin... or whoever else wanted to care for them” (Rawlins and Kessler 1986, p. 19). Carpenter abruptly ended his management of the colony and abruptly ends his narrative.

Yet while Carpenter could leave satisfied at having transported his 409 rhesus monkeys to Puerto Rico, other officials involved in the day-to-day operations of Cayo Santiago would find themselves charged with the task of producing a livable habitat for macaques. And instead of looking to the Indian habitat as a model, imperialist fantasies of a tropical nature filled with palms and coconuts (possibly fueled by US popular representations of its new possessions in the Caribbean and Pacific) came to structure the new landscape of Cayo Santiago. As Carpenter was away on his India voyage, Columbia officials were directing the transformation of the pastureland on the islet into a tropical paradise from which the monkeys could indefinitely feed. The New Deal Civilian Conservation Corps was enlisted to forest the island with mahogany, coconut palms, fruit trees, and root vegetables. In advance of the release of the monkeys, *The Illustrated London News* presented images and descriptions of the lush flora in travel-postcard prose: “It is... rocky land covered with shade-trees and thickets; some of it sandy depression, fringed with coconut-palms,

and some flat, earthy expanses in which... root crops have been planted for the future islanders.... It is, in effect, a miniature Pitcairn Island dropped into a shallow sea of parrot-wing blue, jade green, or wrinkled copper, according to the caprice of the sun and wind" (Locke 1938, p. 290). Yet save a few coconut palms, most of these transplanted organisms were killed off by climate or hungry monkeys (Rawlins and Kessler 1986). Presuming that tropical fruit would nourish animals and that the sea would enclose them, caretakers were surprised when the monkeys destroyed the expensive fruit trees and, in small numbers, swam to the Puerto Rican main. Tearing down the imperialist fantasy of tropical nature, the animals forced scientists to establish feeding stations. This in turn had material and communicative effects, provisioning monkeys and training them to see built platforms and humans as part of social life. Cayo Santiago ultimately had to be maintained as a "semi-free-ranging" site, with feeding stations featuring Purina monkey food and cages for intermittent examinations becoming standard parts of life on the island. Colony employees and scientists learned not to disturb or provoke monkeys by wearing sunglasses or directly staring at the animals.

Despite the effort put into establishing the colony at Cayo Santiago, after Carpenter's 1940–1941 field studies, many of the initial caretakers left, and, with the Columbia-run School of Tropical Medicine taken over by the University of Puerto Rico, funding became scarce. Local residents had to feed the monkeys in the absence of state support. The colony was saved by the efforts of the Puerto Rican biologist José Guillermo Frontera who secured a grant from the National Institute of Neurological Diseases and Blindness, which carried out small studies in the 1950s. However, after a long gap in funding and with air transport speeding the pace of imports directly from India, researchers soon focused on building new, mainland US facilities. Cayo Santiago would, by the end of the 1950s, become an example for US research resources officials of a failed plan for building a national supply of research macaques. Instead, NIH officials would think carefully about both global primate sourcing and the possibilities of domestic primate breeding.

### 5.3 India, Central Africa, and the Cold War Push for a National Rhesus Macaque Strategy

During World War II, popular representations of medical science's encounter with nonhuman primates often consisted of highly sensational narratives of jungle expeditions to find miracle cures or tales of mad scientists corrupting human society through xenotransplantation between humans and apes. Such ideas are best expressed in films such as the 1940 production *The Ape*, which labeled the research scientist himself as an ape for losing touch with his own humanity. As a vivisectionist willing to sacrifice rats, then dogs, then apes, and finally humans, the polio researcher who used laboratory primates was portrayed as a flawed scientist who disturbed the species boundary in a futile attempt to extend life. In an even more

sensational example, the 1945 serial *Queen of the Jungle* featured a US American girl traveling to central Africa and, after being separated from her group, becoming the white queen among a tribe of indigenous Africans. Her adopted community worships a giant ape as a jungle god protecting dangerous yet biomedically revolutionary uranium, which is later extracted along with the queen herself by a dashing American scientist. Wartime anxiety, as well as the much-publicized inability of researchers to fashion an experimental cure for polio over decades of primate research, required that futuristic promises regarding biomedical experimentation be qualified with the dangers that raw biomedical materials and colonial locations of biocapital extraction posed to the integrity of the white body and the individual's control over social life. Revealing an identification of the US cinematic gaze with British colonial conquest and expedition narratives (Shohat and Stam 1994), these dangers were often visually represented through a set of colonial tropes that made forested landscapes into a racial crucible—the large mammals of the jungle appeared as the masculinized, dark bodies of the so-called savage world.

Yet immediately following World War II, both the institutional structures and public representation of biomedicine's relationship to nonhuman primates shifted. The emergence of a medical consumer culture in the 1950s helped make US publics understand medical products as an essential component of "a prosperous economy and a modern social self" (Serlin 2004, p. 3). This medicalization of social life and US national identity emerged alongside US imperial exuberance over the nation's technological supremacy following the war. The atomic resolution to the war had both demonstrated the nation's technological prowess and had, according to state propaganda, helped the US avoid the mass destruction of a presumed future attack on the continental US by Japan. After the war's end, the government would harness the atomic "victory" as well as fear over heavy Soviet investment in technology in order to obtain significant state subsidies for research. State support for science and technology became heavily institutionalized, eclipsing the philanthropic research system of the wartime era. With increased funds for national health and medicine, researchers would seek out new and increasingly complex tools for fighting dread diseases like polio (Cook-Deegan and McGeary 2006).

At this time, after Carpenter had switched his professional focus to communications and worked as a filmmaker for the US war effort, several officials at NIH as well as in the Defense Department and the State Department began discussions of expanding Carpenter's original idea to promote a national system to ensure macaque populations for key research objectives (Garden 1992; CENCPC 1957). While these officials' interests were quite varied—ranging from an interest in radiological testing to the support of specializations such as blindness and heart disease—the effort to nationalize primate research did not begin to take shape until after a decade of discussions, by which time Tulane University heart researcher George E. Burch convened the Committee for the Establishment of a National Cardiovascular Primate Colony (CENCPC) at NIH. From 1956 to 1963, this committee would bring about the development of the national system for the importation and breeding of rhesus macaques. And in its initial phases, following the logics of Carpenter and the Asiatic

Primate Expedition, CENCPC was often focused on diversifying primate sources by establishing overseas sources and colonies for the study of nonhuman primates.

By the time Burch helped establish the first Regional Primate Research Center, the number of animals used in research had grown to immense proportions. In the early 1960s, the NIH reported that in addition to the four million animals used in its own labs, nine million were used in private pharmaceutical research. In addition, there were millions more uncounted animals used in hospitals, universities, and other research institutions. Nearly one-half of all research funded by NIH in 1963 used animal subjects (Animal Resources Branch 1963). Yet rhesus availability was exhaustible. Because of physiological differences between Indian rhesus macaques and members of the same species located in China, Indian imports were defined as a priority by US researchers. There were also various political and economic concerns, disease, and the problem of human encroachment, all of which limited the transfer of animals from their range in present-day Pakistan, Nepal, India, and Bangladesh. Imports during the mid-1950s were the highest ever, numbering around 150,000 annually, with 120,000 of that number killed for vaccine production. (In later years, more efficient vaccine production techniques cut that number nearly in half (Haraway 1989).) In the minutes of Burch's early meetings with other primatologists to formulate proposals for a national primate strategy in 1957, despite the large number of rhesus imports to the US, researchers noted the increasing difficulty in securing imports for smaller researchers and for specified types of animals. This situation meant that larger importers—especially the companies making polio vaccine—dominated the market. Ninety percent of imported monkeys, they estimated, were used for the production of polio vaccine. Leon Schmidt, a researcher at a Cincinnati hospital, claimed, "It looks like we have passed the point of availability of the larger animals and we're dipping into the young now who would be under normal circumstance the creators of the next generation. So it looks as if we are in a very, very precarious situation with respect to procurement of rhesus monkeys from the particular areas of India where they have been found in former years" (CENCPC 1957, p. 18).

If Indian animal welfare concerns had prompted Carpenter to establish Cayo Santiago in the 1930s, the polio scare of 1955 renewed US concerns over Indian rhesus supplies. Even as the first effective polio vaccine began to yield results, the polio epidemic of 1955 occasioned a scramble for Indian rhesus macaques, from whose spinal matter the base of the vaccine was extracted. Yet following publicity of the Defense Department's radiation studies, the Indian government placed a moratorium on rhesus exports to the US. India's 1955 agreement with the US on the uses of research primates—prohibiting the use of Indian primates in radiological experiments—sets nationalist statements regarding the value of animals within Indian Prime Minister Jawaharlal Nehru's larger policy of nonalignment. South Asian primatologists played important roles in rallying formerly colonized nations against the use of rhesus in US radiological experimentation. While the Department of Defense used hundreds of Indian monkeys in neutron bomb research and other experiments from the mid-1940s, by the 1970s, several African and Asian countries openly denounced such experiments in international forums and through export

bans in place to the present day (Haraway 1989).<sup>6</sup> Even though researchers were able to reestablish access with new assurances that Indian animals would not be used in military research, George Burch emphasized the Indian threat to biosecurity "The problem of supplying monkeys is now acute and there is no assurance whatever that it will improve. The immediate reason is the necessity for poliomyelitis vaccine, but in the recent past an embargo on Indian monkeys was nearly catastrophic" (Burch 1958). In the committee's proposal for the Yerkes Regional Primate Research Center, the need to establish control of the primate supply is even more directly evident:

In some areas, such as in India, the decimation of the monkey population has led to an appalling reduction in the quality of the animal imported for research. Also, political and religious considerations now loom large, so that the exportation of rhesus monkeys will continue to be curtailed. Embargoes have been placed on rhesus monkeys in the past and it is likely they will be again.... Grave concern was expressed when by 1955 the Indian government had placed two embargoes on the shipment of monkeys. It is also known that the Indian government is assuming a role of responsibility in determining what sorts of research are acceptable for the use of rhesus monkeys before they can be exported to this country. (Burch, n.d.)

As Leon Schmidt noted in a planning meeting for the establishment of the regional primate research centers, importation of rhesus monkeys was seen as a national security priority on par with the raw materials of the US war machine:

The rhesus monkey is almost as strategic material as tungsten and tin and natural rubber.... We may do to the rhesus what we've almost done to the buffalo here in the United States. It would seem therefore, that any device which would bring together people who could make maximum national use of any of the animals would be a very worthwhile procedure. (CENCPC 1957, p. 19)

Given the troubled history of rhesus importation from India, the committee initially set its sights on other locales and other primate species. Cold War concerns were always on scientists' minds. The 1957 meetings included a significant focus on the decades-old Soviet baboon colony at Sukhumi, Georgia. In the 1950s, Dr. Boris Lapin, who did cardiovascular research on baboons at Sukhumi, met with NIH scientists including Burch and James Watt in Georgia (Garden 1992). Described as both a tourist destination and a home for luminaries such as Pavlov, the US American scientists on the Primate Committee marveled at the ability of the Soviet state to maintain the colony continuously through periods of war. Contrasting this representation with his experience at the underfunded colony in Puerto Rico, Dr. Watt concludes that proper and sustained investment was the key to the Soviet's success.

In assessing other possibilities for primate procurement, central Africa became an obvious choice for the researchers. Two research sites were considered. The first, approved by the outgoing Belgian Congo government in 1959, would establish a new field station for capture and breeding of chimpanzees on a river island in the vicinity

<sup>6</sup>Recently, the National Academy of Sciences has called for an end to Indian restrictions, using the growing presence of HIV in India as a justification (Hearn 2003).

of Stanleyville (present-day Kisangani). The second, the Darjani Primate Center near Kibwezi, Kenya, would house a variety of primate species and was spearheaded by the Southwest Foundation of San Antonio, Texas, a private research group.

Letters from Belgian researchers concerning the Congo station reflect how the dramatic struggles for Congolese independence thwarted US and Belgian officials' attempts to maintain control of chimpanzee habitat. White primatologists living in Congo initially hoped that international support, primarily from US researchers and the UN, would ensure funding after the July 1, 1960, departure of the Belgian government. In the area around the proposed station (called Institut pour la Recherche Scientifique en Afrique Centrale, IRSAC), Kivu leaders apparently initially wanted IRSAC to help maintain the colonial parks that had been retaken by the Congolese. Painting a positive picture for the future in a letter to the NIH requesting temporary financial assistance, IRSAC Director Louis van den Berghe assures the American researchers that "the local Congolese Government of the Kivu was well intentioned, our staff and the population around us were even more friendly than before" (van den Berghe 1960b; Rahm 1960). Yet this cautious optimism perhaps overlooks the fact that the clear racial ordering established in scientific institutions made them targets of Africanization campaigns. At IRSAC, white scientists were highly specialized, highest paid, and last to be fired when institutions closed. The American researchers ultimately placed the project on hold once the Congolese began to expel whites and UN peacekeepers were deployed; they received several letters requesting help in airlifting research chimpanzees out of the country. In an October 1960 plea for help from Karl Meyer to the Director of NIH, James Shannon, Meyer explains that all along, van den Berghe's plan for the US-sponsored chimpanzee colony had been to ensure funding after independence (Meyer 1960).

Van den Berghe himself appears to have understood the US American interest in research chimpanzees to exceed medical science; it was rather one battle in the ongoing Cold War to protect the world from the encroachment of Soviet communism. In an illuminating letter addressed to "an American Friend" (presumably Meyer) 2 months after independence—unsigned perhaps for fear it would be intercepted—van den Berghe gives an extended diagnosis of the colonial failures leading up to IRSAC's precarious situation. Titled "The Congo Situation," the letter sets forth a number of contrasts between Soviet investment in the Congo and lack of US presence. In addition to investing in scholarships, hospitals, and technical institutes in the Congo (van den Berghe calls for a "Tuskegee Institute" for Africa), he notes the Soviets' broad presence across the continent. Emphasizing that the fate of Africa rests on "the fate of the Congo," and that "an effective presence of the USA in all parts of the Congo is essential," van den Berghe ends his four-page letter on the fate of Congolese science and education with a bit of science fiction: "I do not want to make any comments on geopolitics and the actual struggle for power. I have spoken as a scientist and a man devoted to Africa and its inhabitants" (van den Berghe 1960a). Despite the ultimate failure of the Congo project, the Primate Committee saw other prospects in Kenya. With the support of US oil tycoon and amateur cryptozoologist Tom Slick, the US Congress allocated funding for the Southwest Foundation for Research and Education's project at Kibwezi, Kenya. Slick carried

out his own expeditions to Nepal and other sites worldwide in search of the Yeti and other zoological legends. He had promised to return the Yeti to the labs of his Southwest Foundation for study (Coleman 1993). The congressional allocation was unusual—it was the only primate funding that was ultimately approved for the maintenance of an institution outside of US territorial control (Animal Resources Program 1968). By 1961, construction and research were in progress on the baboon station in Kibwezi. The situation in an independent Kenya was quite different from that of the Belgian researchers in the Congo. Despite the fact that Kenya was in a similar moment of transition away from colonial rule, the Southwest Foundation was able to secure a lease from the colonial Department of Lands in advance of the 1963 independence declaration. This was a 33-year lease for over 250 acres of unsurveyed land beginning January 1, 1961 (Southwest Foundation for Research and Education, n.d.). At the same time, foundation officials bragged of their decision to pass over more expensive English construction contractors and use an African company. Yet despite this enthusiasm for indigenous contractors, the Southwest Foundation plan was able to allocate widely divergent pay scales for white, Asian, and African workers, with further divisions for skilled and unskilled African laborers (Werthessen 1960, 1961).

Primate studies of the era remained, however, connected to the circuits of exchange underpinning zoological expeditions and the production of sensational colonial discourses around nonhuman animals. According to anthropologist Claud Bramblett, manager of the Southwest Foundation's Darjani station in Kenya from 1963 to 1964, after an American film crew came to the area to film scenes for Howard Hawks' 1962 safari film *Hatari!* starring John Wayne, the Darjani station used the crew's generator to power the station. The Southwest Foundation had initially worked from a safari camp called Bushwackers before being able to fund and construct the Darjani station. During the approximately 5-year tenure of the station, the most expensive local safari expeditions would come to the Darjani area to hunt the large populations of wild mammals including elephants. A pamphlet promoting the station to US American researchers even advertised the possibility of recreational hunting (Southwest Foundation for Research and Education, n.d.). The Darjani station, however, closed in the mid-1960s and returned its lease to the Kenyan government (Bramblett 2008; Vagtborg 1973).

#### 5.4 Turning Inward: Affection and the Domestication of the Macaque

The demise of the African institutions meant that the committee's remaining options were within the existing frameworks of Indian importation and domestic laboratory breeding. This also meant that the rhesus macaque would take center stage as sites for the extraction and reproduction of other species such as chimpanzees were exhausted. In the discussions of the regional primate research centers, there was no consensus on how best to supply and house macaques. Should scientists rely primarily

on importation of foreign stocks, where breeding occurs on the free range, but where control over the resource is in the hands of other countries with other interests? If imported, should breeding also occur in free-ranging settings that simulate primates' indigenous environs, as in Cayo Santiago? Or rather than employing these "natural settings," should the state support efforts to undertake more carefully monitored breeding indoors? With disease and genetic variations proving to be the main obstacles to the effective use of rhesus monkeys in research, what institutional organization could provide healthy and increasingly standardized populations of rhesus, either in captivity or in "the wild"? And perhaps most important, would the state be able to quarantine monkeys not just from disease but also from the recurring threats of war, chronic underfunding, and nationalist criticisms of Western biosecurity initiatives?

Debates regarding the proper environment of the experimental macaque include moments in which monkeys are not simply viewed as resources, but also as intentional beings with complex minds and needs. This understanding is promoted by the idea that recognizing the psychological as well as biological needs of animals improves research. In the 1957 meetings of the committee, a major controversy centered on whether keeping monkeys in captivity went against proper animal care. Harry Harlow and Leon Schmidt argued in favor of indoor facilities, speaking of Harlow's success maintaining rhesus in "very small quarters." By contrast, Irving Wright, a Cornell cardiologist, was "not quite sure that locking monkeys up in cages is really giving them a natural environment, if you are going to study their long-term and generation after generation effect on them... I wouldn't expect it to be true of humans; and I don't see why it would be true of monkeys." George Burch added that "it might change their personalities," with Wright implying further that captivity might "affect their outlook on life." Recognizing the labor-value of the rhesus, James Watt, former researcher at Cayo Santiago and director of the National Heart Institute, argued for both captive and semi-free-ranging programs. When "talking about a colony," Watt said, researchers are "shooting for... a diverse group of workers" (CENCPC 1957, p. 25–26). The differences in opinion here betray a logic of animal modeling that contradictorily humanized monkey bodies and minds and objectified their bodies as machines for vivisection.

The NIH program ultimately would establish a mix of indoor and outdoor facilities that could meet a variety of conceptions of best practices. However, it was largely due to the work of University of Wisconsin comparative psychologist Harry Harlow, who had recently demonstrated the efficacy of indoor captive breeding and study, that the rhesus macaque was both broken of its association with tropical nature and effectively humanized, setting the stage for the macaque to become a domesticated figure of national progress. Harlow's laboratory at the University of Wisconsin produced experimental technologies for telling scientific stories about mother-infant love and affection in rhesus that were in turn generalized to humans. His labs were also successful breeding facilities where he developed isolation techniques for ensuring disease-free (specifically TB-free) monkeys that he eventually sold to other researchers in large numbers (Harlow 1986; Haraway 1989). Harlow's breeding techniques—which would eventually include an experimental "rape

rack"—were connected to his affection studies, which required the isolation of infant monkeys in order to test their tactile relationships with surrogate mothers that the researcher had fashioned out of wire and cloth (Harlow 1958).

Harlow, who attended the key meeting of the CENCPC, argued for the ability of the experimental scientist to generalize between species in research (Harlow et al. 1972). Harlow's conception of the macaque made this generalizability innate rather than dependent on variables such as the supposed naturalness of the free-ranging habitat. Dismissing the charge of anthropomorphism as an old-fashioned minding of hard-and-fast boundaries between human and animal, Harlow's work made rhesus infants widely publicized models of human love and depression. Images of his rhesus affection experiments were reproduced in textbooks and other visual media. In bringing the rhesus indoors—establishing an ideologically loaded relation of the macaque to the mother, emphasizing its affective life and complexity, and publicizing universal psychological characteristics shared with humans—Harlow worked to establish a new vision of the rhesus divorced from the jungle habitat and expedition narratives that had so sensationally racialized gorillas and chimpanzees and depicted them as hypermasculine monsters. Making the laboratory into a home, the rhesus was rendered domestic—cut off from the transnational circuits of importation, placed under the care of a mother, and removed from the old associations of mimicry and circus performing.

As Harlow's career-making experiments in rhesus affection were informing his advice to the committee on the potential of captive breeding, the laboratory primate as well as the scientist were given makeovers in the US cinema. Echoing the 1953 horror film *Robot Monster*, which idealizes the scientist as "better than a cowboy," films of the early 1950s make the scientist into a model of American manhood and transform the nonhuman primate into his experimental child rather than an overpowering and aggressive monster from the jungle. 1952's *Monkey Business* starring Cary Grant, Ginger Rogers, and Marilyn Monroe and 1952's *Bedtime for Bonzo* starring Ronald Reagan move into a decidedly modern laboratory, celebrating the intentions (if not the abilities) of the white male scientist rather than depicting the pathological possibilities of traversing species boundaries in the lab. From this celebration of American technoscientific modernity, apes not only mirror the human but become science's conduits for envisioning the future of the human. *Bedtime for Bonzo* provides an apt idealization of Harlow's humanization of the laboratory primate, as the chimpanzee is a psychology professor's model for an experiment to prove that the environment of the nuclear family can teach moral values, disproving those who argue that a chimpanzee by nature has no capacity for morality.

If Hollywood producers paid little attention to accurately distinguishing between laboratory monkeys and apes, NIH officials were actively promoting the broader designation "primate" to apply to the entirety of the research that would be carried out in the primate centers. Keeping apes in the institutions, despite the centrality of rhesus subjects, served to maintain the public's association of the project with science rather than older views of mimicry and humor attributed to monkeys. In another 1957 meeting of the committee, Theodore Ruch explicitly addresses the politics of primate representation. He argues for considering including "anthropoid

apes" in the agenda for the primate centers primarily because of the "public relations" advantage of not being associated only with monkeys: "There are certain advantages of considering them [apes] in this picture, if for no other reason so that they won't be labeled as the monkeys. It helps to support the word primate. It has a lot better public relations value" (CENCPC 1957). Ruch's statements help us understand the constructedness of the category "primate" in national policy on biomedical research. To advertise "primate research" rather than "macaque research" (or even "chimpanzee research") avoids a range of racialized associations with monkeys and apes, either as sites of danger or humor. Species designations work to attribute value, and the abstraction of "primate research" demonstrates how experimental and institutional language works to shape new associations between animals and research programs.

Part of the appeal of including the ape under the category "primate research" was also its long-time status serving as a "missing link" between human and animal. This association occupied a central place in the colonial anthropological imaginary from the nineteenth century into the early decades of the twentieth. As Donna Haraway argues, however, this association was radically transformed in the aftermath of WWII, as both the Nazi genocides and the global movements for decolonization resulted in the ape bearing the burden of the global history of racism. In this manner, nonhuman primates (particularly ape figures) were simultaneously situated in a temporal difference (figured as the historical past of the human) and universalized as the heritage of all humanity (Haraway 1989). Researchers consistently emphasized the similarity of the primate to the human as justification for the research priority, and this required further moves to rescue the image of the primate. Ruch was not alone in working to address the association of monkeys and apes with primitivity. In the rough draft of George Burch's first proposal for the primate centers, a key word is crossed out in the first sentence: "subhuman." Burch handwrote "nonhuman" in the space above to describe primates in more neutral terms (Burch 1958). The term "subhuman"—used widely by Harlow and many other primate researchers—was present in many of the early documents associated with the founding of the NIH centers, but was eventually replaced in bureaucratic language with "nonhuman."

This properly Darwinian adjective—which today modifies "animal" in the writings of many an animal activist and animal studies scholar—grew in usage out of a set of needs to institutionalize and standardize the primate, which required resignifying it as the proper model for the human. This change in language signals a complex series of transformations in the relation of biomedicine to nonhuman primate bodies. For while it was necessary to domesticate the rhesus and other primates used in research, breaking them of racialized associations with the colonial jungle, this act at the same time allowed for both the humanization of primates and their emergence into politics as imagined rights-bearing subjects once they were no longer "subhuman." Just a year after Burch's editing correction, Jane Goodall would begin her important studies of chimpanzees in Kenya—studies which would be the basis of the next decade's sentimental images of even free-ranging apes as kin

of humanity and of field research as a feminized pursuit of a planetary ecological ethic (McHugh 2009–2010). Primate representation was integral to the emergence of a public critique of anthropocentrism: first through new forms of animal activism, later through elaborate visual culture images of ape and monkey emotion, intelligence, and behavior, and most recently through an elaborated academic discourse in "animal studies." Notably, within 10 years of Burch's nominal elevation of primate species on to an equal plane with the human, a new form of animal activism emerged in the US that broke from earlier humane discourse by emphasizing the rights of animals and the duties of humans to incorporate them into political consideration (Rupke 1990; Francione 1996). This act of renaming, then, had the unintended consequence of later helping to identify primate labs as prime targets for animal rights activism. This would solidify the containment of primates as laboratories responded to animal liberation activism through a militarized securitization of laboratory space.

## 5.5 Conclusions

In her classic sociocultural study of primatology, *Primate Visions*, Donna Haraway documents a number of major transformations in the technologies and ideological underpinnings of primatology as it moved from a minor field of research to a central interdisciplinary site of investigation within US and global scientific discourse. Haraway situates the work of both Carpenter and Harlow within shifting conceptions of communication and embodiment that framed wartime science in the US. Specifically, Haraway associates Carpenter's interest in the social organization and behavior of rhesus within a broader decentering of the human within its social and technological environments, making the command and control of human and animal populations a central scientific and economic interest. Carpenter's later experiments on neurological control of monkeys are the most radical extension of this vision. If for Haraway, Carpenter represented an attempt to establish sovereign power over monkey populations and to capture their supposedly machinelike properties, Harlow's work represented an attempt to grapple with rhesus as emotional creatures. This was paradoxically accessed through the underside of love, the sadism inherent in his experiments that produced the emotional deprivation of the experimental subject in order to prove the existence of its converse, love. While these two primatological figures cannot be simply seen as products of their times, their research indicates a certain shift from a wartime logic of control and command of primates as raw, exploitable, foreign biocapital to a domestication (nationalization/endogamization) of rhesus as humanized beings who could serve a variety of social functions.

Such a shift was influenced as well by the twin geopolitical developments of the US ascendance as superpower and the refusal of scientific access to macaque bodies by newly independent nations in Africa and South Asia. In the process, US American

views of rhesus macaques and other laboratory primates shifted, moving the primate out of the jungle and colony and into the laboratory and the home. In the process, the traces of racial and gendered fear of nonhuman primates were often expunged from popular representation, and the category "primate" took on public significance, eclipsing the specificity of macaque or chimpanzee in research institutional promotion. This change had important impacts for the ways in which not just laboratory primates but animals more broadly are represented in scholarly inquiry and political discourse. For while nonhuman primates have rarely been included in the sphere of liberal equality often sought by mainstream animal rights activists, their position as "other animals" (rather than "subhumans") is mediated by the history of biosecurity policies that needed to desensationalize primate figures and to incorporate them into the projects of nationalist technoscience. This shift shows that scientists' attempts to "think with animals," to use the apt phrasing of Lorraine Daston and Gregg Mitman's recent work on anthropomorphism (2005), are an act of knowledge production with specific and often unpredictable political effects. The material and linguistic terms upon which animals model human biosystems reveal both deep assumptions about the extent to which worlds are shared by different species and political and methodological calculi by which researchers attempt to demonstrate biomedical progress (Mitchell 2005).

As a cultural theorist of US American biosecurity, my entry into primatology is concerned with the ways in which the exercise of biosecurity unites particular institutional languages around bodies and species, specific technologies for engineering immunity and other national defenses, and specific geographic imaginaries that frame our cultural conceptions of what national risk and defense might be. If initially, contact with the colonial world was seen as a risk, the colonized bodies of rhesus and chimpanzees were ultimately nationalized and integrated into the very bodies of the inoculated US American public. Rhesus macaques' utility in protecting the nation against disease was initially balanced by a fear over their origins and bodies; and yet a laboratory science that could domesticate these creatures—turn them from exotic objects into tamed national subjects—was an important component in the transformation of US society into one that began to accept increasingly radical biomedical intervention into patient bodies at the same time that it came to see humans as closely related to other primates. The conscription of rhesus as defenders of the nation against dread diseases, then, demonstrates that cooperation and conflict between humans and rhesus are conjoined and are substantially mediated by the language, visual representations, and institutional and capital circuits through which we forge our relationships to these other animals.

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