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THE COMMODIFICATION OF THE BODY AND ITS PARTS

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■ **Abstract** The human body—and its parts—has long been a target for commodification within myriad cultural settings. A discussion of commodification requires that one consider, first, the significance of the body within anthropology and, second, what defines a body “part.” After exploring these initial questions, this article outlines dominant theoretical approaches to commodification within anthropology, with Mauss and Marx figuring prominently. The discussion then turns to historically well-documented forms of body commodification: These include slavery and other oppressive labor practices; female reproduction; and the realms of sorcery and endocannibalism. An analysis here uncovers dominant established approaches that continue to drive current studies. The remainder of this article concerns emergent biotechnologies, whose application in clinical and other related scientific arenas marks a paradigmatic shift in anthropological understandings of the commodified, fragmented body. The following contexts are explored with care: reproductive technologies; organ transplantation; cosmetic and transsexual surgeries; genetics and immunology; and, finally, the category of the cyborg. The article concludes with suggestions for an integrated theoretical vision, advocating greater cross-fertilization of analytical approaches and the inclusion of an ethics of body commodification within anthropology.

INTRODUCTION

I have something of a problem with borders.... They constitute irresistible lures.

Keller (1995)

Body fragmentation and commodification are troubling themes within anthropology. By definition, each challenges an often assumed human desire to protect personal boundaries and guard body integrity. Yet how are such concepts understood within the discipline? What do cross-cultural and historically informed approaches reveal about the exploitative use of the human body? As initially proposed, the intended focus of this article was specifically the commodification of

body parts. This promptly exposed a host of questions, for an analysis of body fragments must inevitably consider what the body is. Only then might one explore how (literally and symbolically) fragmentation and commodification occur. The cross-cultural approach so intrinsic to anthropology also foregrounds the fact that universalist thinking hampers analysis. Thus, this project takes a highly particularist approach to the myriad forces that shape, augment, mediate, or undermine body integrity. Crucial, too, is the understanding that cultural, social, economic, and political frameworks generate varying (at times complementary, at others contradictory) readings; that gender, class, age, and faith, for example, play their part as well; and that specialized realms of knowledge and power—including the nation-state, the military, magic, clinical biomedicine, and scientific knowledge and research—expose diverse constructions of the body, its potential for fragmentation, and, ultimately, its commodification. Although the primary purpose of this article is to examine anthropological understandings of body commodification, the astonishing array of pertinent questions generated by this topic inevitably necessitates an interdisciplinary approach. Thus, this analysis frequently ventures beyond anthropology and into the realms of history, philosophy, bioethics, society and technology studies, and cultural studies.

Inherent in such a project is an underlying tension between topical and theoretical concerns. In light of this predicament, this article is divided into several sections, which together offer an integrated approach. More specifically, it is organized as follows. Following an overview of anthropological understandings of the body, the discussion turns to the question of commodification. A spatio-temporal approach proves especially helpful, uncovering a rich array of examples for understanding body commodification across cultures and epochs. Thus, the third section offers a brief historical review of well-documented examples of body commodification: slavery and other questionable labor practices; female sexuality; and magic, sorcery, and endocannibalism. The primary goal here is to highlight established theories on the exploitative use of the body and its parts.

The essay's fourth and largest section marks a shift to what I refer to as medico-clinical contexts, beginning with a historical review of medicine's demand for cadavers, followed by a detailed discussion of contemporary ethnographic concerns. I must stress that I use the terms "medico-clinical" or simply "clinical" throughout as a form of shorthand, designed to encompass—and thus underscore—the inseparable relationship that exists between contemporary cosmopolitan, biomedical practices and associated forms of scientific research and knowledge. Recent biotechnologies have generated a host of new forms of body commodification and often are even essential to this process. The following topics define the foci within this section: reproductive technologies; organ transplantation; cosmetic and gender reassignment surgeries; genetics and immunology; and, finally, the category of the cyborg. As I argue, certain domains generate specific theoretical responses. Studies of reproduction, for example, draw heavily on (post-) feminist theory and frequently investigate the shifting nature of kinship; those on organ transplantation often privilege discussions of personhood and property ownership vis-à-vis

the body; and cyborgs dominate the burgeoning field of science and technology studies. A final goal is to offer an integrated vision by advocating greater theoretical cross-fertilization and the inclusion of an ethics of body commodification within anthropology.

(DE)CONSTRUCTING THE BODY

A vast array of incursions into the body ultimately commodifies it either as a whole or in fragmented form. In an attempt to delineate boundaries, I offer a few qualifications. First, this article draws most heavily on sociocultural anthropology. Thus, its primary focus is the human body, although brief forays into realms inhabited by xenotransplantation and cyborgs underscore the immediacy and potential of hybrid forms. Second, a central theme is that of body fragmentation. A key concern is what constitutes a “body part”? Further, what do specific contexts reveal about cultural—or perhaps more appropriately, economic—(de)constructions of the human body? How is the body fragmented or deconstructed? The body may be fragmented both metaphorically and literally through language, visual imaging, or the actual surgical reconstruction, removal, or replacement of specific parts. In turn, what do such (de)constructions say about body boundaries, the integrity of the self, and the shifting social worth of human beings? As revealed below, scientific forms of knowledge currently fragment the body with increasing regularity. Medico-scientific realms in particular expose expanding desires for cadavers and skeletons, blood, organs and other transplantable tissues, microscopic ova and sperm, and, most recently, genetic material. This spectrum of examples uncovers not only a proliferation in the marketability of human body parts, but also the ever increasing atomization of the medicalized body.

In this light, the theme of body integrity must be addressed in both subjective and objectified terms. Here, cross-cultural discussions of self and personhood as they pertain to the body are especially important, and anthropology provides useful theoretical tools. The body has long been a favored site of interest throughout the discipline’s history, with concerns ranging from variations in body size and physiology, the aesthetics of comportment, and body decoration, enhancement, or mutilation to the potency of effluvia and other tangible as well as invisible body fragments. More particularly, and especially within medical anthropology, a relatively recent theoretical interest in embodiment regularly questions or problematizes Cartesian mind-body dualism. Here the body, self, and personhood emerge as inextricably linked. As Lock (1993a) has argued in this journal, anthropology has frequently privileged phenomenological approaches above others. Theorists have drawn especially from Merleau-Ponty (1962) and, more recently, employ Bourdieu’s (1977) configuration of *habitus*, as derived in part from earlier essays on the “techniques of the body” and personhood by Mauss [1973 (1935), 1985 (1938)]. Questions frequently focus on the nature of being-in-the-world, where illness foregrounds the sense of the body-as-self. As the phenomenological philosopher Leder argues

(1990:69, 80), whereas wellness may allow the body to “disappear from awareness and action,” pain and disability are often accompanied by “a heightened thematization of the body” (see also Fine & Asche 1988, French 1994, Murphy 1987). A focus on embodiment thus ultimately foregrounds the dualistic separation of body and self. This dualism, so rampant in medical practice, facilitates the depersonalization—and, thus, dehumanization—of persons-as-bodies, a process that ultimately allows for the commodification of the body and its parts.

As a result, commodification exposes the limitations of embodiment theory because this process inevitably brings to the foreground the objectification of the body over subjective experience. This is not to say that the subjective is irrelevant. As we see below, individual patients and other medical or research “subjects” often struggle to reassert their selves-as-persons when faced with forms of body fragmentation. Put another way, the very sense of self-as-body is frequently obscured by commodification, so that an analysis that reclaims the subject must inevitably first wade through the mire of objectification. For instance, in Taussig (1980), one encounters an especially detailed and now classic exemplary analysis of this very process. Nevertheless (and as Taussig similarly asserted), other theoretical approaches to the body often emerge as more fruitful where commodification is concerned. These include the following: epistemological and ontological frameworks; a concern for emotions and the senses; symbolic constructions of the body, which may, in turn, inform how the world is imagined (and vice versa); and political-economic approaches that underscore exploitative practices or the everyday effects of structural violence (Csordas 1994, Farmer 1997, Kleinman et al 1997, Lock 1993a, Martin 1992, Schepher-Hughes & Lock 1987, Turner 1994). Within these frameworks, anthropology has much to offer to other disciplines’ discussions of commodification because these frequently focus (at times exclusively) on rights of control or ownership of one’s own body. As Turner (1994) further asserts, danger lies in the tendency both to depoliticize the body and to deny its sociality. This pairing cannot be underscored enough. Pertinent alternative questions frequently posed within anthropology address, for instance, how the body is fragmented, for what purpose, and by whom; how such processes may obscure, augment, or alter constructions of personhood and/or the social worth of human bodies; and the victimization vs the agential powers and activist concerns of persons in reference to their bodies.

The breakdown of the body within a medicalized Cartesian framework also exposes the potential fluidity of the body’s boundaries. As biologist Keller reminds us above (1995), such breakdowns or boundary breachings may in fact define the richest analytical terrain. The margins of life delineate a favored anthropological territory because within the discipline the body offers a compelling analytical tool with radical variations emerging from cross-cultural analysis [Douglas 1970, Mauss 1973 (1935), Schepher-Hughes & Lock 1987]. At times the fluidity of boundaries may threaten the integrity of the body and self; at others it may herald new and celebrated forms of transformation.

COMMODITIES

Commodities, like persons, have social lives.
Appadurai (1986a:3)

Anthropology has been especially effective in generating dynamic models of commodification. Inherent in the discipline is the implicit understanding that commodities often are not simply things-in-and-of-themselves, or objects whose worth lies merely in their exchange value. Rather, as Mauss (1967) argued, exchange goods are frequently entangled in a host of meanings framed by sociopolitical concerns, and thus they are symbolically charged by their sociality as well as by their links to hierarchy and power. Exchange is further shaped by spatio-temporal forces, whereby commodities may confirm the social embeddedness of a sequence of owners or embody individual or collective histories. Within such a framework, the carefully studied reciprocal and redistributive institutions of Trobriander *kula* and Kwakiutl *potlatch* emerge as quintessential examples (Mauss 1967). Thus, as Appadurai asserts above, exchange goods do indeed have social lives (Appadurai 1986a), so much so that we may conceive of them as having biographies of their own, a point argued with force by Kopytoff (1986). When viewed in such terms, commodities clearly are not static objects. Rather, they quickly emerge as emblematic of transformative processes.

Transformative processes are, nevertheless, often ambiguous in nature, and here Marx proves especially helpful in expanding the Maussian framework. Marx (1978) likewise recognized the social character of commodities, defined specifically as those goods produced under the alienating conditions of capitalist labor. Albeit brief, his commentary on fetishism (Marx 1978) underscores the significantly enigmatic quality of commodities. In his frequently quoted introduction to this section of *Capital*, he states that “a commodity appears, at first sight, a very trivial thing, and easily understood. Its analysis shows that it is, in reality, a very queer thing So far as it is a value in use, there is nothing mysterious about it.” As he asserted, it is the origin of commodities—that is, the processes that generate them—that so often remains obscure. The mystery of commodities lies in the fact that “Value . . . does not stalk about with a label describing what it is”; instead it “converts every product into a social hieroglyphic. Later on, we try to decipher the hieroglyphic, to get behind the secret of our own social products” (Marx 1978:319–322). Labor relations, too, are not what they seem—that is, “direct social relations between individuals at work”; rather, they comprise “material relations between persons and social relations between things” (Marx 1978:321). As we see, decipherment lies at the very heart, so to speak, of this discussion of body commodification.

As Appadurai (1986a) has noted, anthropological writings tend to oppose Maussian and Marxist approaches, where precapitalist versus capitalist modes of production divide respective theoretical interests. Yet both theorists in fact recognized “the social life of things” (Appadurai 1986b), a concern particularly apropos

to this essay, in which the commodification of the body offers an arena in which to integrate these supposedly disparate models. In those contexts framed especially by technocratic medicine (Davis-Floyd & St. John 1998), the language of gift exchange may obscure capitalist forms of commodification. In other words, two models of commodification may be at work simultaneously, one more akin to Mauss's understanding of the symbolically charged gift and reciprocity, the other to Marx's notion of commodities as goods produced under the alienating conditions of capitalism. Thus, different parties may offer competing readings of various goods of human origin. Whereas, for example, medical professionals may insist on the objectification of body parts, nonprofessionals may instead foreground understandings of kinship, body integrity, and selfhood, all of which may be embodied within an organ or other body fragment. Thus, Mauss and Marx can work in tandem, together generating a dialectical model of commodification as a social process.

Following Marx, critic Pietz (1985) has elaborated further on the enigmatic quality of the fetish. Although he writes specifically of the transformation of African ritual materials into art objects of monetary value desired by Europeans, his arguments are nevertheless applicable to human body parts as well. Pietz asserts that the fetish must be analyzed on both subjective and objective levels of psychological experience. As he explains, readings of the object are intensely personal and generated from within the self; these in turn are projected onto the fetish, granting it meaning. Yet also intrinsic to this process is the fact that the fetish inevitably inhabits border zones (defined geographically and culturally), ambiguous terrains characterized by the disjunction of competing cultural readings of the object. Thus, the fetish is at once a sacred ritual object and an art collector's prize (Pietz 1985) [cf Appadurai's (1986a) comments on art, drawn from Graburn's (1976) on Maquet]. Shifting meanings and transformative processes similarly characterize the fetishization of human body parts: For example, a dead woman's transplantable heart may simultaneously embody the essence of a lost loved one, be transformed into a gift for a recipient in need, and be the coveted object of a surgeon's desires. The theme of ambivalence, and of border zones and their crossings, are thus central to this article's concerns.

HISTORICIZING THE COMMODIFIED BODY

The study of the commodified body is hardly a new proposition, given that the body in its entirety or fragmented form has long been an object of economic, social, and symbolic use in a host of societies. A historical analysis uncovers several dominant themes that reemerge within medico-clinical contexts. I offer here a cursory review of well-documented examples in order to spotlight established theoretical concerns.

First, historically, the body frequently emerges as a site of production, where living persons may be valued solely for their labor power. The associated traffic in human beings has many antecedents, characterized by a wide range of rights

and obligations. Myriad forms of slavery emerge as obvious examples of one party owning or purchasing temporary or permanent rights to another (Kopytoff 1982, 1986; Meillassoux 1975, 1991; Miers & Kopytoff 1977; Patterson 1982; Watson 1980). As Patterson (1982) has argued, dehumanization—as a form of objectification—is intrinsic to enslavement, often characterized by a profound sense of “social death.” Slavery is also the point of departure for other exploitative labor practices: Domestic service and child labor, for example, are frequently described as legalized forms of enslavement. In these and other contexts, the labor process may, in turn, fragment the body. Thus, in English, workers have long been referred to as “hands” [Dickens 1994 (1854)]. The social worth of these and other categories of persons depends heavily on their economic value, so they may also fall prey to forms of body trafficking. Within the United States, slaves have been marketed as breeding stock, and athletes and their teams are frequently bought and sold by elite clients. More subtle forms of body trafficking drive a transnational trade in adoptable children (Anagnost 1995, Comaroff & Comaroff 1999:282). Further, a related theme that emerges in conjunction with discussions of enslavement is that of colonization. Colonial power, labor policies, and medical practices have frequently worked together to discipline colonized bodies (Butchart 1998, Comaroff & Comaroff 1992, Packard 1989). Even the local desires of colonial subjects have been targets of commodification, so that the body is transformed through the consumption or use of foreign goods that shape localized constructions of the self (Burke 1996). As Kleinman & Kleinman (1997) reveal, suffering itself may be commodified: Media images may quickly reduce the weak and disenfranchised to little more than objects of pity and exploitation.

The theme of objectification is clearly central to all these examples. Thus, we must pause to consider its relevance to commodification. Commodification insists upon objectification in some form, transforming persons and their bodies from a human category into objects of economic desire. Thus, the presence of objectification in a host of forms is significant because it flags the possibility that commodification has occurred: The medicalization of life, the fragmentation of the body, and the subjectification of colonized subjects all potentially dehumanize individuals and categories of persons in the name of profit. It is for this reason that slavery and colonization so frequently emerge as metaphors for a host of commercialized and exploitative practices. Consider, for example, cosmetic surgery: Within feminist critiques, women who opt for elective forms of body transformation may be described as enslaving themselves to the surgeon’s knife, a process that ultimately transforms them into subjects of medical colonization, anchoring their social worth in a fragmented, malleable, and highly idealized model of the human body (Basalmo 1992, Morgan 1991, Turner 1987:88). Clearly anthropologists must be alert to the use of such metaphors because these offer clues to objectification as an intrinsic characteristic of the commodification process.

In this vein, women consistently emerge as specialized targets of commodification, where the female body is often valued for its reproductive potential. Such bodies may, in turn, require regulation. Prostitution is one site where themes

of production, reproduction, enslavement, and colonization frequently merge (Brownmiller 1975:391–92, Rubin 1975). As White's (1990) work from colonial Nairobi illustrates, prostitution (like slavery) may assume a variety of forms, and thus we should be wary of monolithic arguments about commodified bodies. Yet another pervasive theme is that women's bodies are fragmented in a host of ways through their reproductive potential, so that they are reduced to vaginas, wombs, or breasts. Consider, for example, wet-nursing as a legitimized exploitative, often class-based social practice (Hrdy 1992, 1999), or the elaborate, long-standing debate on the exchange value of women-as-wives in anthropology [the literature is extensive; for recent reviews see Ensminger & Knight (1997), Filer (1985), Kressel et al (1977), Strathern (1985), Tambiah (1989)]. The process of commodification may also render some categories of bodies invisible, a theme that arises frequently in the literature on reproduction. Although female bodies dominate scholarly discussions, male bodies may also fall prey to exploitative practices. As Ebron (1997) explains, however, men (as prostitutes and clients) are frequently omitted from discussions of sex trades. Commodified male virility is also an object of desire, but oddly, it, too, has been less carefully problematized in anthropology [for discussions of the cultural relevance of semen, see Alter (1994, 1997), Herdt (1987), Papagaroufali (1997)]. When set against discussions of women's bodies as highlighted here, far less concern is voiced, for example, over the military use of soldiers' bodies, or the commercial status of sperm donation. This theme of invisibility reemerges below in a discussion of the transformative power of visual technologies.

Of final concern is the far more literal—that is, physical—fragmentation of the body. Body fragments can harbor the ability to harm or heal, charged with powers that exceed those of the bodies from whence they came. As the intertwined realms of magic, sorcery, and healing attest, bodies are frequently targets of aggression, fragmentation, and subsequent commodification. Certain categories of persons—whether strangers, children, virginal or fertile women, laborers, or others considered hardy or otherwise accomplished—may be viewed within their respective societies as possessing more power than others in particular contexts, and thus their body parts may be highly prized. School youth, for example, who embody their nation's potential, may fall victim to ritual murder, their body parts coveted by politicians or others on the rise (Comaroff & Comaroff 1999, Sharp 2000a; Burke 2000:241ff). In warfare, a man's power can be forcefully undermined by a foe through the deliberate destruction of his body and his humanity through, for example, decapitation (Rosaldo 1980). Concerns with male political power or economic success may focus specifically on the phallus, a target for aggressive forms of "penis snatching" [a topic of intense debate at a recent conference (Fisiy et al 1997)]. In other contexts, impotence associated with the demands or dangers of capitalist production renders laboring men so vulnerable as to warrant ritual intervention (Nash 1973, Taussig 1977). As asserted by Comaroff & Comaroff (1999; cf Geshiere 1997, Masquelier 2000), such post-colonial "occult economies" herald intensified anxieties surrounding the "not-quite-human transaction in the

corporeal"; furthermore, such seemingly exotic concerns parallel responses to genetic mutations and cyborgs in postindustrial settings, foci that are explored below.

Finally, body fragments are not simply sites of dangerous longing; they may also be cherished and publicly valued goods. In both senses they are inevitably emotionally charged objects of intense desire. The blurred boundaries of sorcery and healing underscore the magical—that is, transformative—properties of fetishized body fragments, where hair, nails, sputum, blood (including menstrual), and organs can harm in some contexts and heal in others. Consider, for example, the worth assigned to centuries-old saints' relics throughout Europe (Geary 1986), or *ex voto* representations of body parts in the Mediterranean and Latin America, crafted objects that hold the power to heal. The body can also be lovingly consumed so that its essence will not be lost, where body fragmentation simply precedes the full corporal and symbolic integration of the dead among kin through endocannibalism (Conklin 1995, Lindenbaum 1979).

To summarize, the human body has long been an object of commodification in a host of forms: First, it frequently emerges as a site of production, where the associated demands of capitalist labor rapidly dehumanize subjects; second, female bodies in particular are frequently prized for their reproductive potential, rendering them especially vulnerable to commodification; third, a heightened theoretical concern for certain categories of bodies can render others invisible; and, finally, body fragments may be emotionally charged objects of desire, embodying prized transformative properties that bear the power to harm or heal. As this overview underscores, body fragmentation should be understood at times in literal terms, at others symbolically. Thus, we must pay close attention to metaphorical references of fragmentation and objectification because they frequently flag body commodification. The themes outlined here define, in short, the bedrock for analyses of contemporary medico-clinical and related scientific contexts.

MEDICO-CLINICAL COMMODIFICATION: An Overview

The two new investment frontiers, outer space and inner space, vie for the futures market.

S Franklin (see Haraway 1992:319)

Hogle (1999), writing of organ and tissue procurement in postunification Germany, questions a frequent assertion made by anthropologists that the commodification of the medicalized body is, in fact, a new development. After all, the human body has been commodified in a host of contexts: For centuries within Europe alone, bodies have long served as work objects for anatomists and research scientists, as well as prized curios for medical collections (Hogle 1999:23, 35). One need only turn to the works of historian R. Richardson (1987, 1996) to encounter detailed accounts of medical commodification over several centuries. Writing especially

of developments in Britain, she describes how expanding interests in the internal workings of the body have driven a lengthy history of commercialization. Further, the demands for corpses and their parts have long been plagued by a host of moral dilemmas focusing on consent and reparation, financial and otherwise. Among the most disturbing historical trends is the tendency within the medical marketplace to exploit the bodies of the poor and disenfranchised, where paupers frequently emerge as being of greater worth dead than alive (Richardson 1987; see also Knott 1985, Laqueur 1983). Richardson (1996) also stresses that current debates over the distribution of valued body parts parallel much earlier arguments on how to alleviate the scarcity of corpses needed for dissection. We need only consider such relatively recent contexts as Tuskegee, Nuremberg, military- and prison-based research, and pharmaceutical trials in the Third World to expose a clinical and related scientific propensity to prey on the disenfranchised. As these historical antecedents underscore, socially expendable categories of persons are ironically transformed into valued objects through their involvement in medical research.

Foucault's (1975) writings on clinical practice are pivotal here: the medical art of dissection marks among the most profound epistemic shifts in the history of biomedicine. From the Renaissance onward, dissection offered new ways of seeing, understanding, and, of course, fragmenting the body, generating, in turn, new forms of knowledge and, ultimately, sociopolitical power (Foucault 1975; cf Sawday 1995). It is important to understand, however, that it is not merely dissection—that is, the opening up and peering into the body—that characterizes this transformation. To this one must also add the art of surgery (Hirschauer 1991, Selzer 1974), in which, most importantly, associated technologies have rendered possible permanent transformations of the body (yet another shift involves visual technologies; this is discussed below). Butchart (1998) extends Foucault's arguments to colonial southern Africa, exploring shifts in medical and industrial perceptions of the colonized body: An early one-dimensional approach focused on surface appearance, color, and texture; a subsequent two-dimensional approach privileged internal anatomy; and a late-emerging three-dimensional approach integrated constructions of personhood (Butchart 1998; cf Comaroff & Comaroff 1992, Packard 1989).

Such examples underscore the significance of medico-clinical practices in mediating the objectification of the body. In response to Hogle (1999), what, then, is so unusual about current medical trends? Martin (1992) similarly asks why anthropologists have showered so much attention on the body in recent years. She appeals to Lévi-Strauss (1967), who argued decades before that a sudden increase in scholarly interest in the primitive appeared to herald the imminent disappearance of this social category. Martin suggests that current interest in the body similarly coincides with its disappearance. As she explains, we are now witnessing “a dramatic transition in body percept and practice . . . the end of one kind of body and the beginning of another” that—like global economies—is open, flexible, and unbounded (Martin 1992:121; cf Appadurai 1996). Csordas (1994), writing of embodiment, likewise states that “the body is passing through a critical moment,”

one offering the “methodological opportunity to reformulate theories of culture, self, and experience” (p. 4).

How, then, might we understand this “critical moment”? An assumption central to this essay is that the post–World War II period serves as an especially important watershed for understanding body commodification when medical technologies play pivotal roles. More specifically, we have recently witnessed the advent of dialysis; the iron lung and then the respirator; potent immunosuppressants that allow for the implantation of foreign tissue; cybernetic systems; such visual technologies as X rays, sonography, fiber optics, and magnetic resonance imaging; and rapid shifts in the overlapping fields of genetics and immunology. Such technologies have an overwhelming capacity to challenge boundaries between life and death, human and machine, self and other. They also privilege some bodies while excluding others on local, national, and global levels. As such, they herald a radical paradigmatic shift in how we must now envision body transformations and associated forms of commodification. As philosopher Morgan (1991) argues, “we have arrived at the stage of regarding ourselves as both technological subject and object, transformable and literally creatable through biological engineering” (p. 30). In essence, certain biotechnologies now encourage self-objectification. Morgan’s warning clearly demands a detailed consideration of the cultural potency of new biotechnologies.

Andrews & Nelkin (1998), in turn, expose a significant increase in the commercialization of the body, a process that drives often-heated debates on a global scale “over the taking, use, and distribution of body tissue,” and, further, of genetic testing and gene patenting. One frequently encounters references in lay and professional writings of the ever expanding markets for human tissue, where the body is reduced to a “source of raw material for salable products” (Andrews & Nelkin 1998). To borrow from Kimbrell (1993), we are witnessing the global expansion of a “human body shop”: The print media within the United States, for example, regularly publishes body “atlases” (Flye 1995) consisting of images of partitioned human bodies that expose an array of parts that can either be removed for use elsewhere or be replaced with parts of human or other origins. Andrews & Nelkin (1998) further note a recent “proliferation and diversity of disputes over body tissue,” yet they underscore that myopic scientific constructions of the body are regularly privileged, and that these, in turn, rarely reveal cultural sensitivity. They identify this disjunction as “symptomatic of a much larger problem—a growing divide between scientific and social views of the body in the commercial context of the biotechnology age” (Andrews & Nelkin 1998:53). Another related trend is the intensification of biotechnology as an industry (Olson 1986). Driven by a highly “technocratic” approach, clinical medicine frequently monopolizes access to the human body, so that competing understandings are devalued and silenced (Davis-Floyd & St. John 1998). Further, as Lock (1993b) asserts, the medicalized body is regularly “reified, isolated, decontextualized, and abstracted from real time, actual location, and social space” (pp. 370–71) (see also Andrews & Nelkin 1998:35, Illich 1976, Taussig 1980, Zola 1978). Within this framework,

the commercialized, fragmented body emerges as yet a more advanced form of dehumanization.

Medico-clinical dehumanization assumes a host of forms, where even living bodies are quickly fragmented and transformed into scientific work objects. van Kammen (1999) illustrates, for example, that male and female bodies are regularly reduced to their perceived reproductive capacities and limitations in the context of fertility drug testing. In turn, Sered & Tabory (1999) uncover how patients in an Israeli breast cancer clinic are routinely dehumanized and, thus, experience a medicalized form of "social death" (see Patterson 1982), their names (and thus identities) transformed into mere numbers on a chart. In their attempts to preserve their sense of humanity, patients generate "treatment" rather than "illness narratives" (Sered & Tabory 1999; cf Kleinman 1988). During cancer treatment, clinicians promote the idea that "one's body is working against the self," and patients who regularly cope with "pain, disability, and powerlessness" rapidly fall into passive roles that "involve the dismembering of the body." In response, these women consider carefully and critically what, in fact, it means to be human (Sered & Tabory 1999:231).

Yet another pervasive theme raised frequently in discussions of the new biotechnologies is the question of ownership—of entire bodies, their processes, their tangible (and, increasingly, microscopic) parts, and even of associated scientific knowledge. For example, bitter philosophical and legal battles are waged over surrogates' rights; patients now claim ownership of their DNA, where even genetic information is considered part of or equal to the self; and organ transplantation is rife with proposals to commercialize both body parts and the donation process. A frequently asked question within much of the literature centers on whether the body may in fact be viewed as private property, a concern that is heavily skewed by Western and capitalist interests. In turn there is a pervasive emphasis on autonomy, one presented as a universal right within much of the medical and legal literature (Andrews 1986, 1992; Campbell 1992; Caplan 1992; Chadwick 1989; Childress 1992; Gold 1996; Kass 1985; Murray 1987; Russell 1981). Here, the majority of writers draw (often implicitly) upon the writings of either Locke or Kant (for example, see Ketchum 1992, Oliver 1992, Petchesky 1995).

As De Witte & Ten Have (1997) argue, specific philosophical stances generate different sorts of debates. They explain that, according to Locke, that which is generated by (or mixed with) one's labors constitutes one's property; one may therefore claim rights to the body as an instrument of industry. Kant, however, offers a radically different stance through his supreme principle of morality as embedded in the categorical imperative: That is, one must always act in ways that reflect how one wishes others would act. Kant also raised questions of body ownership, asking whether we own our bodies, or if we are simply stewards of them. Although his comments were brief, Kant opposed selling any part of oneself because such an action might then incline one to sell all of one's parts (cf Chadwick 1989). De Witte & Ten Have (1997) then offer other underutilized models: They ask, for example, what of Bentham's utilitarianism, which states

that we should judge all actions in reference to how they ultimately generate pain or happiness? They explain that Bentham, unlike Locke, recognized no natural property rights, only those based in law. Further, he expressed little interest in the body, instead being concerned exclusively with property that was external to the person. [Not only did Bentham insist that his preserved corpse regularly be put on display, he also bequeathed his body to science and arranged to have it publicly dissected (Richardson 1996:92)]. Marx offers yet another model that privileges the collective ownership of modes of production, the labor process, and commodities themselves. (One might consider, for example, the implications for discussions of reproduction and labor vis-à-vis childbirth.) De Witte & Ten Have (1997) conclude by underscoring that these various models of the body as property generate a spectrum of possibilities, ranging from no rights, to limited control, to full ownership of the body and its parts by individual or collective parties. Clearly, certain arguments about rights to the body dominate some contexts more than others. More troubling from an anthropological perspective, however, is this fact: This array of philosophical arguments exposes the trap of (post)enlightenment theory. Once issues of property ownership and autonomy take center stage, they displace competing cultural constructions of the body, other possible reactions to the dilemmas of biotechnologies, and, finally, the shaping of alternative ethical responses. Specific examples provided below are designed to foreground these concerns. The conclusion then offers a brief review of alternative approaches.

THE NEW BIOTECHNOLOGIES AND THE COMMODIFIED BODY

Reproduction

Reproduction and associated technologies currently define intensified sites of anthropological interest, where the commodified female body, its reproductive organs and processes, and, in turn, the fetus have generated an impressive array of works. As outlined above, female reproduction renders women's bodies particularly vulnerable to regulation and commodification. Set against the context of current biotechnologies, (post)feminist critiques offer an obvious analytical framework, driven by the understanding that women's bodies are consistently manipulated, fragmented, employed, and raided in ways altogether different from men's bodies. Thus, women's bodies are consistently privileged, rendering men virtually invisible within the literature.

Pregnancy and Female (In)Fertility The birthing process is subject to a host of forms of objectification and commodification. Within medico-clinical contexts, obstetrical records are readily employed as a means of surveillance, decision making, and wrenching control of childbirth from women, processes that are all the more radically experienced by the disenfranchised, particularly if their cultural

backgrounds differ from those of the clinicians who treat them (Kaufert & O'Neil 1990). Within Fourth World contexts, clinical medicine rapidly asserts its power through technological hegemony (Andrews & Nelkin 1998). A host of medical practices undermines female agency over their reproductive capacities (Davis-Floyd 1994, Duden 1993, Ginsburg 1990, Lock & Kaufert 1998, Raymond 1993), whereby the female subject may be rendered "invisible" (Casper 1998), transformed into a "work object" (Casper 1998) or "laboratory" for medical practice or research (Rowland 1992). The sonogram, a visual technology employed routinely in many countries during pregnancy, may fetishize the fetus while displacing the mother (Hardacre 1997, Petchesky 1987; for interesting contrasts, see Georges 1996, Mitchell & Georges 1997). The power of visual technologies lies in their uncanny ability to render the body transparent and thus easily penetrable; furthermore, they profoundly transform the ways in which we "map" (Berland 1996, Diprose & Ferrell 1991) and thus perceive bodies, persons, and, ultimately, ourselves (Cartwright 1995, Dumit 1997, Taylor 1998). As Davis-Floyd asserts, the mother's body is devalued as a site of production as the obstetrician strives to deliver "the perfect baby." As she explains, "this idea of the baby as separate, as the product of a mechanical process . . . implies that the technocracy ultimately can become the producer of that product, as of so many others" (Davis-Floyd 1994:1127–28).

Female reproduction raises many thorny questions about choice as well as about body ownership and integrity. Childbirth, after all, generates a host of medically valued by-products, including the umbilical cord, placenta, and fetal brain matter and other tissues from neonates who do not survive. In such contexts, women might ask are these me? Are they mine? Or are they social property? Petchesky (1995) asserts that alternative readings are possible: e.g. Bangladeshi women's activist F. Akhter scorns Western feminist constructions of the body as property as mirroring capitalist, patriarchal interests; to regard the body as property reduces it to "a 'reproductive factory,' objectifies it, and denies" the "natural [reproductive] power" of the body (see Petchesky 1995:394–95). The irony here is that heated debates over self-ownership—whether phrased in Lockean, Kantian, or Marxist terms—arise because so much is at stake. As Andrews (1992) argues, it is one thing to claim one's body as one's own property; it is another entirely for other parties to lay claim to it. One only need consider the all-too-real potential of cloning, paired with current attempts to develop an artificial womb, to realize the ability of science to wrench control (and ownership) of culturally specific understandings of "natural" or embodied forms of pregnancy and birth (Squire 1995). These developments bear the frightening potential to render female reproduction and motherhood obsolete.

A political-economic approach to reproduction uncovers other conundrums. Individual nation-states, for example, may insist upon radically different understandings of the body. Militaries, after all, consistently appropriate soldiers' bodies in a host of spatio-temporal settings; and the dehumanizing violence wrought upon bodies through torture exposes nefarious claims upon particularized categories of transgressive bodies (Axel 2000, Daniel 1997, Das 1997, Green 1998, Scarry 1985). Population programs define yet another significant arena that reflects an

intensified interest in female bodies. In a host of countries, the poor are common targets of state policies that hold their bodies culpable, especially where population size is an issue (Hartmann 1987, O'Brien 1981, Yanoshik & Norsigian 1989), a trend that has remained pervasive since the writings of Malthus, two centuries ago [Malthus 1976 (1798)]. In certain contexts, the state may claim collective rights to citizens' bodies and their reproductive potential. Thus, as Anagnost (1995) argues for post-Mao China, the citizen is simultaneously a "consuming" and a "producing" body that defines an open site of state disciplinary practice, when the nation is plagued by a "surfeit of bodies." Within this context, factors that determine the worth of surplus bodies are complex. Some urban households, for example, rely on clandestine forms of body trafficking in their search for brides and children drawn from rural territories; others may willingly pay state-imposed penalties for additional births. Handwerker (1995), writing of infertility in China, illustrates how both "women's fertility and infertility are situated as critical markers of national 'progress'" (p. 377). Here women remain inescapably culpable, locked in a double bind of blame and responsibility where (in)fertility locates their social and political worth in their reproductive capacities.

The Fetus The fetus, in turn, raises troubling questions about uniqueness and autonomy: Is the fetus part of the female body or a separate entity? Within the United States, shifts in definitions of its social worth are inevitably framed by the abortion debate (Franklin 1997, Franklin & Ragoné 1998, Ginsburg & Rapp 1995, Hartouni 1991, Hopkins 1998b, Morgan & Michaels 1999, Stacey 1992); thus, fetuses may occupy multiple or even competing categories of personhood. Those that did not reach full term have long been commodified as medical curios, transformed into prized objects of scientific scrutiny, research, and collection. As Morgan (1999) shows, this practice is so controversial within the United States that these "corpses" must be hidden from public view (cf Casper 1994, 1998; Stabile 1999). Conjoined twins offer an especially vivid example of competing cultural readings: as Thomsma et al (1996) make clear, a sacrificed twin may be described as a murder victim, appendage, unjust aggressor, or organ donor, an array that exposes multiple definitions of personhood, social worth, and the economic value for an unusual category of the fragmented body. Similarly, Casper (1998), writing of experimental fetal surgery, uncovers yet other competing constructions of the fetus (as well as of the pregnant woman): as the mother's organ, as an autonomous being, as a work object, or as social property among, for example, obstetricians, perinatologists, fetal surgeons, the pregnant mother and her kin, and anti-abortion activists (cf Franklin 1995:336–37, Ward 1995). Hardacre (1997) further illustrates how the fetus can be transformed through visual technology. As she shows, in recent years in Japan, fetal images have been commodified through advertisements employed by religious groups, an effort that has altered a once dormant creature into a menacing social force requiring commercialized ritual responses to appease its anger.

Certain reproductive technologies also mark or facilitate responses to market demands for those babies deemed socially desirable, while allowing for the termination of others who harbor stigmatized qualities. For example, children are occasionally gestated and borne in an effort to offer compatible bone marrow to siblings in need (Morrow 1991). Such categories of fetuses and potential children are thus reduced to being parts-of-themselves, as defined by their medical and/or social value (Franklin 1995; Franklin & McNeil 1988; Layne 1999; Ragoné 1994, 1996; Ragoné 2000). In-vitro fertilization allows prospective parents to select the number of embryos to be implanted, so that they might set the upper limit of live births. Other techniques now facilitate sex selection and genetic testing for unwanted disabilities (Fine & Asche 1988). Such practices are so common as to be a normal part of prenatal care (Browner & Press 1995) in many nations, allowing for new constructions of personhood, where, as Strathern (1992b) argues, professionals may discard unwanted aspects of humanity onto “the cutting-room floor” (pp. 111–14). Taussig et al (2000) identify such practices as heralding the clandestine arrival of a new “flexible eugenics,” a process driven by a biological imperative and the all-too-American desire for individualized perfectibility. As Rapp (1999) asserts, “this is a marketplace of biomedical free choice,” where genes become “alienable objects of desire” that allow one to remodel and reimagine the body and the self.

Surrogacy Surrogate motherhood emerges as the quintessential example of the commodification of female bodies and their reproductive capabilities, an institution that is now intensely bureaucratized within the United States, involving brokers, formal and complex contracts, and hefty fees (Gostin 1990, Ragoné 1994). Advertisements now frequently appear in college newspapers and on the Web, detailing the desired characteristics and capabilities of an imagined, and thus idealized, surrogate whose worth lies in her assumed genetic propensity toward intelligence, beauty, manners, schooling, body size, and poise. Such developments underscore how certain categories of female bodies, the uterus, reproductive processes, and the fetus are now routine and unquestionably fetishized.

Surrogacy thus raises a host of concerns: the most pronounced focus on reproductive rights and autonomy in a realm overrun with the language of commerce. Surrogacy has generated a host of theoretical responses that underscore such themes as enslavement versus self-ownership (Petchesky 1995), where the institution itself has been referred to as “estranged labor” (Oliver 1992), “contracted motherhood” (Ketchum 1992, Oliver 1992), “contract pregnancy” (Holmes & Purdy 1992), “incubatory servitude,” and “the renting of a womb” (Hopkins 1998a). Others express concerns that surrogacy ultimately preys on the bodies of disenfranchised women in financial need, an issue that is mystified by the language of gift exchange (Ragoné 1994; cf Malm 1992). Several authors nevertheless express alarm over current feminist responses, underscoring the fact that arguments against surrogacy undermine feminist agendas in other spheres (Andrews 1988, Caddick 1995, Petchesky 1995). It is interesting that little attention

is given to cross-cultural concerns; when offered, they focus almost exclusively on other Anglophone and postindustrial contexts, generally in reference to legal disputes over surrogates' rights. As Ragoné and others explain, EuroAmericans in the United States tend to stress genetic material as defining the link to the fetus, whereas Australian and British laws grant more weight to the woman who bears the child (Ragoné 2000; cf Strathern 1992b). Cross-cultural analogies are essential because they underscore the danger of assuming that homogeneity characterizes seemingly similar populations.

In order to expand these boundaries a bit, I offer one brief comparative example from West Africa (Uchendu 1965:50): What might we learn from the Igbo institution of female husbands, where prosperous market women take wives of their own, have a hand in selecting their lovers, and maintain rights to subsequent offspring? Such examples might free current debates on surrogacy from all-too-Western concerns with property rights and body ownership. Headway has been made, however, within the realm of kinship (Finkler 2000, Franklin & Ragoné 1998, Haimes 1992, Strathern 1992a). Strathern (1992b) builds a strong case for new emergent forms of "enterprising kinship" in England, drawing heavily upon her comparative material from Melanesia (Strathern 1992b). Her comparisons offer refreshing responses to the assumed immutability of social relations. They also expose more forcefully the troubling nature of the language of commodification that surrounds reproductive technologies in Britain. As she explains for Britain (in contrast to Melanesia), "there is something about the market analogy that is less than benign. It tends to collapse all other analogies into itself, the effect being rather like that of money itself which, in differentiating everything, makes itself the only source of difference" (Strathern 1992b:35–36; cf Edwards 1993).

Organ Transplants

The literature on organ donation, procurement, and transplantation (realms that I refer to together as organ transfer) has long been dominated by open discussions of body commodification. Within the United States, for example, legislative concerns alone have historically focused on questions of organ rationing, the prohibition of the open marketing of organs, and, most recently, experimental policies involving financial rewards for kin who consent to donation (Fox & Swazey 1992:64). A host of corporate entities now specialize in the sterilization, storage, and redistribution of human tissue for needs that range from pelvic implants, to oral surgery, to skin replacement (Flye 1995). Organ retrieval relies on a highly bureaucratized professional structure: Within the United States, this involves a dense national network of organizations that serve as brokers for human tissues and organs. In addition, the legal international trading in human body parts is a routine practice, as exemplified by exchanges that crisscross much of Europe (Hogle 1999).

This medical realm is rife with potent forms of mystified commodification: Although organs are frequently described as "gifts of life" (an expression that originates in the blood industry and that likewise is used to describe surrogacy), it

is, in fact, a multi-million dollar medical industry where clients in need pay steep fees for the procurement, preparation, transportation, and surgical replacement of body parts. This rhetoric of gift exchange disguises the origins of commercialized body parts, silencing in turn any discussion of the commodification process (Sharp 1994). Slippage nevertheless occurs, a fact mirrored, for example, in public anxieties about the open marketing of organs that can be purchased by the highest bidder or offered first to politicians and other celebrities (Caplan 1992). Even anonymous donation, portrayed as an act of great social kindness, has its darker side, for as Fox & Swazey (1992) explain, many organ recipients suffer terribly from “the tyranny of the gift” in their intense desire to repay, as it were, this debt of life (p. 39).

The donor body offers compelling comparative material for discussions on reproduction. Whereas female bodies emerge as sites of reproductive commodification, the donor body is, as Ikels (1997) explains, “disproportionately male” in nearly all countries because men are more likely to be victims of highway and work-related accidents, homicides, and suicides, contexts where irreversible brain death occurs (a common prerequisite for potential donor status) (p. 106). The objectification of donors is central to the procurement process as well, where patients are rapidly transformed into dehumanized “cyborgs” sustained in a liminal state by a complex array of technologies (Hogle 1995a). A variety of parties nevertheless embrace competing ideologies that may confirm or undermine such (re) constructions of the dead. Within the United States, transplant professionals and organ recipients regularly reduce donors to their parts: The heart may be described as a pump, the liver and kidneys as filters. Donor kin, on the other hand, may view transplanted organs as embodying the essence of lost kin, living on in the bodies of recipients, a process that, in turn, generates new understandings of fictive kinship (Sharp 1994). Donor kin may also challenge or undermine professional efforts to obscure the origins of transplantable organs, relying increasingly on such radical mortuary forms as donor quilts and virtual Web cemeteries that publicly disclose the names of their “commodified kin” in defiance of professional censorship (Sharp 2000b).

Among the most startling questions that circulate in the realm of organ transfer is the dynamic nature of self and personhood. Organ transfer, after all, necessitates that body parts be removed from donors who appear to be alive. Sustained by a complex array of technologies, they are warm to the touch, they breathe, many of their organs still function properly, and like other patients receiving intensive care, they take in fluids and other forms of nourishment (Slomka 1995). To those who knew them (and others who challenge brain-death criteria), donors are considered to be alive and fully human. Even clinical professionals frequently exhibit discomfort with brain death (Youngner et al 1989), so they may describe potential donors as truly dead only once their organs are removed and they are disconnected from the respirator (Hogle 1995b). In Hogle’s words, “with the technological capability to sustain a brain-death state, the body sends mixed signals . . . the body appears to be alive. Biological and technological cues, then, must be created” to mark that

“he is ‘dead,’ but he has not ‘died’”; as such, potential donors are transformed into the ambiguous category of “living cadaver” (Hogle 1999:65–66; see also Bibeau 1999, Kaufman 2000). Following procurement, transplanted organs bear the potential for transformation, generating a host of readings among different parties. Donor kin and recipients alike may perceive a donor’s parts as living on in their new bodies, frequently transferring the donor’s qualities to recipients, a construction that bears strong resemblance to sorcery practices, as outlined above. Until recently, lay discussions within the United States have focused primarily on qualities embodied in whole organs, but a recent paradigmatic shift is now marked in some quarters by a heightened interest in far more minuscule parts of the self. More specifically, an increasingly popular concern centers on folk understandings of “cell memory” versus “cell replacement.” Proponents of cell memory argue that dead donors in fact assert themselves at the cellular level, integrating their original personalities, tastes, etc. into the bodies of others. Opponents argue against atomized memory by asserting instead that the body continuously replaces all cells and, thus, donor “memory” will inevitably be obliterated by the host or recipient body. These models of atomized humanity parallel developments in genetics and immunology, a theme explored below.

The realm of organ transfer remains fairly unique to discussions of biotechnologies; unlike a host of other topics, it has generated an impressive array of cross-cultural work. Here I offer a cursory review. Among the most significant concerns involve reactions to brain death as a medicalized redefinition of the end of life. The reliance on a host of medical technologies—on the one hand, to maintain the donor body prior to and during procurement and, on the other, to measure brain activity and other vital signs—exposes the slippery nature of medical incursions into the realms of personhood. Here still-warm corpses are rapidly transformed into sources of viable commodities. As the works of numerous anthropologists underscore, understandings of this process are by no means uniform from one national or cultural context to another. Lock (1997, 2000), Lock & Honde (1990), and Ohnuki-Tierney (1994), all of whom write of Japan, and Ikels (1997), who focuses on China, Taiwan, and Singapore, together expose how clinical constructions of death challenge Shinto and Buddhist beliefs about an embodied soul or spirit. Particularly cherished properties of the self are also seated in specific organs: Kidneys, for example, are repositories of yin and yang (Ikels 1997), so their transfer to other bodies is highly problematic. Localized understandings of kinship and body integrity in Japanese and Chinese contexts undermine the possibility of anonymous donation, a favored practice within the United States (Nomoto 1998). Furthermore, as Lock & Honde (1990) assert, Japan offers a radically different perspective on medical ethics: In Japan, transplantation involves open public debate and decision making, whereas in the United States they are confined primarily to clinical circles.

Hogle (1999), in turn, asserts that discussions of body fragmentation be historically informed: As she illustrates for postunification Germany, a host of taboos surrounding the procurement of body fragments and the proper handling of the

dead expose anxieties about eugenics policies and medical experimentation under Nazism. Today, skin is rarely taken from German bodies. Instead, it is imported from countries where social taboos are less pronounced. It is odd that the origins of such prohibitions remain unknown to many German procurement specialists, but recent reconstructions of national history are marked by the silencing of discussions of past wartime atrocities (Hogle 1999). Finally, Egypt exposes the myopia of universalist thinking within medical ethics, as framed by Western models. Here, enlightenment concerns of the body-as-property are irrelevant. Instead, the Qur'an and Hadith guide discussions on decisional authority, the ethical behavior of physicians, medical justice, and autonomy. Nevertheless, P Marshall (unpublished manuscript) cautions that Western ideas may assert their hegemony within clinical arenas, as was true at a medical conference on transplantation in the Islamic world (cf Aswad et al 1992, Hathout 1991, Morsy 1988, Rispler-Chaim 1989, Sacedina 1988).

The literature on organ donation especially in the United States is rife with concerns of scarcity. Authors commonly assert that the demand for organs far outnumbers the supply, and human organs are openly described as "scarce" and "precious" goods that frequently "go to waste" (Fletcher 1969, Peters 1991) when, in fact, they should be "recycled" for social reuse. The competition for these commodities is so fierce that Joralemon (1995) has described it as a medical "battle for body parts." For several decades, proposals have been routinely offered by a host of parties who hope to expand the market supply of transplantable human body parts. These include redefining the threshold of death and thus personhood, so that anencephalic and non-heart-beating cadavers can be donors; developing bioartificial organs and xenotransplantation; presumed consent laws for organ donation; advocating a direct market approach, where specialized procurement firms fill orders generated by transplant centers; and offering forms of "rewarded gifting" to surviving kin in the form of estate and income tax incentives and assistance with burial fees (Bowden & Hull 1993; cf Blumstein 1992, 1993; Brecher 1994; Daar 1992a; Hansmann 1989; Land & Dossetor 1991; Marshall et al 1996; Murray 1996; Peters 1991; Schwindt & Vining 1986; Sells 1992a). Such practices have been labeled by critics as nothing more than "paid donation," "rampant commercialism," or "frank entrepreneurial commerce" (Daar 1992b, Sells 1992b, Smith 1993; see Marshall et al 1996:8-9). Cohen (1999:146), assuming an international stance, refers to such open discussions of commercialization as evidence of disturbing forms of "flexible" or "purgatorial" ethics. Even those who oppose commodification may nevertheless employ the language of commerce, describing financial incentives as "cheapening" organ donation (Bowden & Hull 1993:15). Among the strongest criticisms of body commodification has been levied by sociologists Fox & Swazey (1992). As they argue, "the 'de-gifting' of transplantation that this market approach entails has been accompanied and reinforced by the progressive 'biologization' of donated organs Increasingly, organs are being thought of as 'just organs,' rather than as living parts of a person" that might be given willingly and unselfishly to others. This "biological reductionism . . . has insidious

implications” for constructions of self, definitions of what it means to be human, and more generally of life as it should be lived (Fox & Swazey 1992:207). This increased commodification of the body, paired with associated forms of medical hubris, eventually compelled these authors to abandon this field following several decades of careful research (Fox 1996:262).

Concerns over access, scarcity, and, ultimately, ownership have generated anxieties on a global scale over organ procurement as thievery. Folklorist Campion-Vincent (1997) has carefully documented rumors of organ snatching from over 40 nations, where a pervasive theme includes raiding the bodies of innocents and the disenfranchised. Careful attention to culturally specific contexts expose the logic of folklore. As White (1993) explains for East Africa, ambulances retain a “vampiric” character, a development linked to their use during colonial blood campaigns, when colonized subjects were captured, drained of blood, and released with little or no explanation (cf Sharp 2000a). In this context, a standard medical practice emerges as little more than colonial sorcery. Such tales are further complicated by the fact that both the legal and clandestine trading in body parts does, in fact, exist. Until 1994, one could sell a kidney in India, a practice now driven underground in response to legislated prohibitions (Cohen 1999, Marshall 2000, Marshall et al 1996, Reddy 1993); wealthy clients from a host of countries encounter fewer financial obstacles to transplantation than do the poor or uninsured; and executed prisoners may define a regular source of transplantable organs, as documented for China and elsewhere (Guttman 1992, Human Rights Watch 1994, Ikels 1997, Lam 1991). Tales of organ trafficking have generated a host of responses, ranging from “disinformation” services within the US State Department (Leventhal 1994), to efforts by human rights organizations to document and combat clandestine body trafficking (Cantarovich 1996; Chugh & Jha 1996; Human Rights Watch 1994; Rothman et al 1997; Scheper-Hughes 1996, 2000).

Other Surgical Transformations

Other realms of surgical practice, such as cosmetic surgery and gender reassignment, may advance or counter previous arguments concerning the medicalized and commodified body. Both are often described as “elective” forms of surgery, whereby the self is willingly and radically transformed through the remapping of the body’s anatomy. Social constructions of the significance of such surgeries as elective ultimately rely on the language of autonomy and free choice. As some authors have argued, however, such rhetoric in fact mystifies the commodification of bodies (often female ones). Thus, these two domains are intriguing by the very fact that they generate such highly contradictory readings about individual and even collective agency.

Current discussions of cosmetic surgery draw heavily on feminist understandings of the body, paired with political-economic concerns. Under such conditions, nose jobs, face lifts, body tucks, liposuction, etc., expose patients as the victims of oppressive, idealized standards of beauty, where physical appearance drives

definitions of self and social worth. Such practices uncover a racialized hierarchy of beauty: As Kaw (1993) shows, eyelid reconstruction is a common practice among women of Asian descent, who equate a Caucasian look not only with beauty but intelligence. Philosopher Morgan (1991) underscores the sexist, racist, and ageist violence of cosmetic surgery, stressing in the strongest terms women's dependence on "the knives that promise to sculpt our bodies, to restore our youth, to create beauty out of what was ugly and ordinary. What kind of knives are these? Magic knives. Magic knives in a patriarchal context. Magic knives in a Eurocentric context. Magic knives in a white supremacist context. What do they mean? I am afraid of these knives" (p. 32). She forcefully asserts that such terms as "cosmetic" and "electic" mystify the realities of eugenicist thinking, and the paired pathologizing and colonizing of women's bodies. These are forms of "coerced voluntariness" that are driven by a "technological imperative" to conform. Associated biotechnologies drive the desire for "twentieth century versions of 'feminina perfecta'" as "an increasingly artificial and ever more perfect object." Through radical and painful forms of surgical alteration, women are told they may "override the genetic code," a false promise that undermines feminist understandings of self-determination. In short, "we are creating a new species of woman-monster" imprisoned in "artifactual bodies" (Morgan 1991:30–34; cf Basalmo 1992).

In contrast, the category of the transsexual generates a wider array of interpretations. Here, surgical interventions (especially when adult patients are involved) may be celebrated as liberatory practices that allow the true self to emerge (Bolin 1988, Devor 1997). Nevertheless, Stone (1991) underscores the proliferation of an intensely profitable transnational clinical trade in gender reassignment, one that extends from Palo Alto, CA, to Casablanca, Morocco. Among the more troubling paradoxes of surgical reassignment is the all-too-frequent fetishizing of gender dualism. In clinical contexts, strict definitions of male and female bodies emerge as the only viable possibilities, where an extraordinary amount of attention may focus on the outward appearance of one's genitals. In essence, then, gender identity is understood to run only skin deep (or, more subtly, physical assignment facilitates the subsequent internalization of the transformed self). This fetishizing of gender dualism runs contrary to the extraordinary array of evidence in anthropology of gender plasticity cross-culturally (Bolin 1999, Herdt 1994, Kulik 1998, Lancaster & di Leonardo 1997, Morgan 1989, Morris 1995, Nanda 1990, Ortner & Whitehead 1981, Parker 1991, Parker & Aggleton 1999, Shapiro 1991).

If we turn to those medical interventions that affect the lives of intersexed infants, this picture is rendered increasingly complex because here self-determination is impossible. As Kessler's (1998) compelling work in the United States illustrates, clinicians reveal little tolerance for sexual ambiguity, and even far less tolerance than nonprofessionals for variations in genital size and shape. Driven by outdated psychological theories of gender identification (as rooted at least initially in one's anatomy), medicine rapidly reduces the bodies of intersexed infants to their genitals. Within days of birth, their gender is quickly assigned and literally built upon their bodies through genital reconstruction. In this context, female identity can

hinge on the absence of a penis (or a penis of a particular length), a phallogocentric approach that also assumes that a vagina can be constructed potentially within any body (Kessler 1998). The voices of adults surgically altered as children are consistently ignored and, thus, silenced. In turn, little regard is given to the greater flexibility offered by the alternative category of transgendered (Devor 1989, 1997). Such considerations prove fruitful as well for a host of other medical interventions involving other bodies—cochlear implants for the deaf, or growth hormone therapy and limb-lengthening surgeries for dwarfism (Rapp et al 2000). The world of the intersexed exposes yet again an atomized model of the body, one where self, gender, and sexuality are unproblematically collapsed and rapidly assigned following criteria established within a narrow framework of medical aesthetics.

Genetics and Immunology

Current trends in genetics and immunology generate evidence of bodily fragmentation par excellence, where corresponding scientific constructions locate the essence of our humanity within our DNA (Martin 1994a, Taussig et al 2000). This shift, argues Rabinow (1992), marks the ultimate displacement of the soul in Western discourse, where individual and collective identities are dependent on scientific constructions, a process he refers to as “biosociality.” Drawing upon this concept, Rapp et al illustrate that individuals who share such common labels as Down syndrome, Marfan syndrome, or forms of dwarfism, for example, assert ties of kinship that supersede other biological links, an act that fosters strong sentiments of social inclusion among the socially stigmatized (Rapp et al 2000). This new “hegemony of the gene” (Finkler 2000:3) relies heavily on an atomization of the body into the smallest of biologically recognized fragments.

Accompanying these developments are concerns over the commercialization of increasingly minute body fragments, associated inventions, and new categories of scientific knowledge. Genetics research has generated heated debates over ownership, focused especially on patent claims. Within the United States, ownership rights may be granted for the discovery, creation, and, in turn, marketing of genetic processes associated with “new life” (Rabinow 1996; cf Andrews 1991, Caulfield & Jones 2000, Hayden 1998, Nelkin & Andrews 1998, Suzuki & Knudtson 1989). As Rabinow’s work on French DNA illustrates, various parties may lay claim to individuals’ genetic material as defining the national body, their coded fragments suddenly redefined as a precious national resource that should be guarded by the state (Rabinow 1999). Given the involvement of multinational pharmaceuticals in genetics research, ownership of DNA rapidly supersedes national boundaries and enters a transnational arena. Current developments under the aegis of the Human Genome Diversity Project (HGDP) offer a case in point. Here, discussions on the ownership of genetic material and knowledge are pervasive (Pompidou 1995, Roberts 1987, UNESCO 1995). The atomization of the body lies at the heart of this debate, raising questions about how increasingly minuscule human parts may still embody persons. Even scientific information is now equated

with the body and the self, an issue raised by Finkler (2000) in her work on genetic testing for breast cancer. Although patients may request or consent to genetic testing, they nevertheless raise questions over ownership rights. Finkler asks: "To whom does genetic information belong: the individual or the family?" (p. 4). To this one must add insurance companies, pharmaceutical corporations, and even the nation, all of which define parties that may profit commercially from embedded knowledge. Finkler's work underscores the underlying disquiet among research subjects that their bodies have been violated, their intimate boundaries breached, the essence of their very being commodified.

De Witte & Ten Have (1997) ask how genetic material might differ from other body parts? Furthermore, what are we to make of the assumption that our humanity now rests not simply in our body fragments, but in the information surrounding them? Should both fragments and information be defined as individual, communal, corporate, or universal properties? They then ask more specifically, "... can anyone 'own' the human genome... or is [it] the property of humankind, 'the common heritage of humanity,' as proclaimed in a recent declaration of UNESCO (1995)?" De Witte & Ten Have (1997:52). Furthermore, does it make sense even to speak of genetic material and information in the same terms? Can both claim the same moral status? As these two authors show, answers are far from uniform. In contrast to the models from the United States and France above, the Danish Council on Ethics has drawn a careful distinction designed to guide the issuance of patents. The Council allows for the granting of patents on modified and synthetic genes, but not on naturally occurring ones. The quandary here, of course, is the inevitable confusion over what, in fact, defines the "natural" when human body boundaries are increasingly breached and generations of human tissues transformed through genetic tampering?

Such contexts also generate concerns for exploitative practices wielded on a global scale by postindustrial nations capable of creating, managing, and marketing new biotechnologies (Haraway 1997, Kevles & Hood 1992). Andrews & Nelkin (1998) underscore the ethical dangers of preying on peoples in Third World nations. Pharmaceutical and other corporate entities now draw blood samples from indigenous peoples so that they may one day provide "cures for diseases in the developed world and products affordable only in wealthy countries" (Andrews & Nelkin 1998:55), an image hauntingly reminiscent of White's (1993) description of vampiric ambulances in colonial Kenya, and of sorcery more generally. As Rapp et al (2000) explain, within the United States, some individuals considered genetically unusual now proclaim themselves to be an "endangered species." Similar concerns are raised in Third World contexts, where actions associated with the HGDP expose insidious insults rendered by scientists who wish to "immortalize" the cell lines of groups that are going to become extinct." Moved by the fear that DNA stockpiling could displace incentives to solve localized problems of survival, the World Council of Indigenous Peoples voted unanimously in 1993 to "reject and condemn the Human Genome Diversity Project as it applies to our rights, lives,

and dignity” (Andrews & Nelkin 1998:55; cf Nelkin & Andrews 1998). Such practices have thus been labeled by various authors as little more than mystified forms of “biocolonialism” (Andrews & Nelkin 1998), “biopiracy” (Shiva 1997), or “biodiversity prospecting” (Hayden 1998), as well as a highly racialized form of a “new manifest destiny” (Ikemoto 1997). Historical antecedents to these exploitative practices—and their responses—exist, for example, in legislation in the United States and Australia that now dictates the repatriation of skeletal and other remains to indigenous peoples (Andrews & Nelkin 1998:60). With the increasing commercialization of human fragments, we are indeed witnessing an intensification of “mining” activities focused on the body of *Homo economicus* (Nelkin & Andrews 1998).

Cyborgs

If genetic technologies define a new frontier of exploitative explorations, the cyborg, as an amalgamation of human, animal, and technological parts, emerges as emblematic of newly imagined possibilities—in both nightmarish and celebrated forms. A burgeoning interdisciplinary literature in science and technology studies now frequently focuses specifically on the cyborg in medical and other contexts (Dumit 1997, Gray 1995, Hopkins 1998b). Frankenstein’s monster symbolizes scientific potential gone awry, an image that crops up repeatedly in social science and medical discussions of current biotechnologies (Helman 1988, Morgan 1991, Sharp 1994:366, Squire 1995). Here the central question is who is the monster—the creature or its maker? Hospital units are regularly occupied by cyborgs in a host of forms. Potential organ donors are suspended in cyborgic animation, linked to life-support systems designed simply to postpone their deaths (Hogle 1995b; cf Kaufman 2000). These same technologies support pregnant brain-dead women who, following Cesarean sections, may in turn become organ donors (Hogle 1999, Murphy 1992). Similarly, the lives of premature infants (Casper 1998), the aged in palliative care, and accident victims in intensive care units are routinely sustained through a host of technologies fastened to and embedded within their bodies. Ohnuki-Tierney (1994), writing of transplantation in Japan, identifies the associated widespread discomfort as rooted in the “transgression of basic cultural categories and the emergence of a new ‘nature’” (p. 239), words that most certainly hold true as well for troubled cultural responses to the cyborgic human.

Especially unsettling is the now routine use of a host of artificial, mechanical prostheses that extend life and enhance bodies. Heart valves, pace makers, artificial hip joints, prosthetic arms and legs, and synthetic lenses are now regularly implanted in human bodies. Furthermore, the monster now has a legitimate (and unstigmatized) medical label: “chimera” is now used routinely to encompass a host of hybrid forms (Jankowski & Ildstad 1997). In the exuberance to extend the boundaries of life, xenotransplantation and bioartificial organs define a new frontier of technocratic medicine. These developments are proposed, first, in order to

alleviate scarcity in a troubled market of human body parts and, second, because they are often viewed as ethically unproblematic. Even the commodification of genetically altered animal species often remains unchallenged. After all, simians, for example, already define an existing category of scientific work objects (Lynch 1988, Papagaroufali 1996, Suzuki & Knudtson 1989).

The cyborg also troubles the safety of personal (Papagaroufali 1996) as well as international boundaries (Fishman et al 1998, Hunkeler et al 1999). During a recent conference on xenotransplantation, several participants challenged the general exuberance, expressing anxiety over the need for the open exchange of information among nations. Julvez (1998), for example, raises concerns over the cross-species transmission of pathogens. Yet an even more startling opinion was offered by Effa (1998) from the Cameroon Bioethics Society: Rejecting the assumed miraculous quality of xenotransplantation's medical potential, he instead voices grave concerns over inequity and potential exploitation. As he explains, "because of their exorbitant price, acquiring these prostheses still remains the privilege of an infinitesimal well-to-do minority." He challenges the hubris associated with xenotransplantation research, asking how realistic such work might be "when we know very little about the structure and use of the *natural* organ?" Furthermore, widespread distrust already exists within African communities, where biomedicine is often perceived as posing significant "psychological, sociological, and cosmological" threats to communities. Researchers must recognize the inherent dangers that will accompany the inevitable expectation imposed on Africans to "adapt to scientific breakthroughs and progress in biomedical technologies," work that is certain to exploit vulnerable African bodies in the name of scientific progress (Effa 1998). The power of Effa's words lies in the fact that they trump the all-too-frequently voiced assumption that new biotechnologies are void of significant ethical problems.

New medical technologies are also troubling because they challenge previously assumed impermeable boundaries. As Papagaroufali (1996) explains, many societies share an "imagined" sense of "original wholeness . . . as unique to humans" (p. 241), rendering xenotransplantation and related practices especially troubling. Here Haraway's (1991) groundbreaking work is central because it so frequently focuses on the complexities associated with "the reinvention of nature." She first underscores the oppressive relations that shape "fractured identities," turning then to the potential harbored in the melding of human, animal, and machine. Here the cyborg emerges not as the monstrous by-product of oppression, but as a newly politicized and potentially liberating hybrid (Haraway 1992:328–29). Hopkins (1998) likewise underscores the importance of exploring how new technologies intersect with existing oppressive social institutions because they bear the potential to reinforce, subvert, or alter existing paradigms. Echoing Keller's words that opened this essay, Haraway (1992) hails the analytic potential of the cyborg, which, by its very definition, inevitably inhabits the "margins, those potent places where theory is best cultured" (p. 303). In this mode, one may in fact celebrate, rather than condemn, the monstrous cyborg.

CONCLUSION

What, then, are we to make of this array of contemporary social and politicized concerns for body fragmentation? Frequently, new biotechnologies are hailed as miraculous advancements that challenge the frontiers of scientific knowledge and practice, a stance promptly problematized by anthropological inquiry. As a comparative discipline, anthropology rapidly foregrounds static understandings of the body that rely on universalist concerns for individual autonomy, personal choice, and the body-as-property. Nevertheless, current research is hampered by a compartmentalized approach, whereby specific topics are often linked to particular theoretical approaches. This conclusion offers three general suggestions designed to break down these barriers. The first involves granting greater attention to the meaning of the “natural,” as it pertains to the commercial use of the body; the second underscores the mystifying power of metaphorical thinking in science; and the third is a call for greater anthropological involvement in ethical debates.

Nature, Body, Economy

Within anthropology, the transformation of nature is considered an intrinsically human activity, where the “natural” body in a host of forms emerges not as a static but culturally malleable category. Humans regularly infringe upon and (re)order all ecological terrains, clearing forests and other swatches of earth for domiciles, farm and medicinal plots, ceremonial space, and work stations. In turn, landscapes ranging from gardens (Benoit 1997) to mountainsides (Bastien 1978) undergo metaphorical transformations, so that the body itself is mapped upon the world. The human body, too, may be quite literally sculpted and, thus, transformed through a host of processes, at times decorative, at others mutilating. Hair, skin, and genitals, for example, are altered through techniques designed to enhance beauty, alter or perfect gender, or maim and permanently mar the body and, by extension, the person. As reflected in this host of contexts, the intersection of nature and culture is deeply ingrained in anthropological constructions of the world, of bodies, and of their processes, where human activities shape constructions of the natural. Any attempt to universalize the body is thus impossibly flawed, driven inevitably by idealized and ethnocentric definitions of beauty, shape, size, mobility, etc. One need only consider the absurdity of defining “natural childbirth” to encounter limitations: What might this mean for the Igbo woman who takes female husbands, for a Latina gestational surrogate carrying a child for an infertile Asian couple, or for a mother who bears conjoined twins?

A far more fruitful approach involves exploring those boundaries that are assumed to separate nature from culture or the natural from artifice. As this article’s examples reveal, these border zones are hardly secure. When considered especially in reference to current biotechnologies, constructions of the human body and of human nature itself emerge as deeply troubled. As Franklin has recently asserted, the “contested location between science and nature” generates a host of intriguing

questions (Franklin 1995:336–37). Nature in particular occupies a pivotal analytical position: In Morgan’s words, it now “functions primarily as a frontier rather than a barrier . . . transforming the human body into an increasingly artificial and ever more perfect object” (Morgan 1991:31). Of particular concern for both authors are the transformative powers associated with current biotechnologies (Hogle 1995b, Kaufman 2000). In short, anthropologists would do well to patrol with care these shifting border zones. Thus, how might anthropologists explore, contextualize, and problematize the boundaries between science and nature, or the natural and artificial? How are transformative processes understood locally, in contrast to potentially more universalistic clinical constructions? Where, when, and how do breaches occur? Of whose “nature” do we speak, and in what terms?

As the examples above reveal, science and medical practice rapidly objectify nature, breaking down bodies—literally through surgical transformations, or metaphorically through language and daily practice—into increasingly atomized fragments. Myriad forms of objectification rapidly displace the self, exposing the human body to the world of commerce. Commodification, in turn, generates an array of anxieties. Within some realms, for example, scarcity emerges as a dominant concern, ultimately exposing, as Appadurai (1986a) has argued, the hidden links between consumption, demand, and desire. Here organ transfer offers a case in point. Medical professionals and potential recipients alike engage in an insatiable search for transplantable organs, and policy makers offer a host of strategies designed to alleviate the shortage of these scarce body parts. Responses range from proposed forms of “rewarded gifting” to experimentation with xenotransplantation. Other examples reveal a hunger to stockpile human material. For instance, the HGDP is driven by a deep-seated desire to understand the human organism by “mapping”—and, in a word, collecting—human genetic material on a global scale. Associated experimental, scientific knowledge marks a radical shift in understandings of (im)perfection within our species. As such, this process bears the potential to harden boundaries that define the social worth of particular persons. Finally, the increased commercial use of human body parts raises troubling questions about the values associated with categories of both the living and the dead. Against these concerns, might we begin to speak of a commerce in luxury goods of human origin? Clearly, the regulation, control, rationing, use, and knowledge of human bodies and their parts together expose a host of conundrums that insist on careful anthropological investigation.

An intensified focus on flexible boundaries may very well free the discipline from the propensity toward theoretical compartmentalization, where specific topics currently generate particular theoretical readings. A more general concern here involves the need to break free of the body-as-property paradigm, and where a cross-fertilization of ideas might, in turn, generate a host of new questions. For example, how might feminist arguments of exploitative practices expand understandings of organ transplantation or immunology? Could anxieties about scarcity alter readings of cosmetic or fetal surgery? Does the hybrid cyborg generate alternative critiques of accumulation in reference to, say, genetic material? Such

questions offer possibilities for breaking down existing theoretical boundaries, potentially enhancing anthropological understandings of the linkages that unite nature, the human body, and economies.

The Power of Metaphors

Driven by the works of Mauss [1973 (1935)] and Douglas (1970), a pervasive understanding within anthropology is that the human body generates a host of potent metaphorical constructions for ordering the world (cf. Scheper-Hughes & Lock 1987). Kass (1985) likewise asserts that the language employed to describe the body reflects how it is understood in ethical terms (cf Murray 1987). Indeed, science and clinical medicine generate a host of metaphorical constructions of the body (Keller 1995; Martin 1989, 1990, 1994b; Sontag 1989). As illustrated regularly throughout this article, within the context of commodification, metaphorical thinking rapidly depersonalizes, desubjectifies, and thus dehumanizes the body and its parts. As Richardson (1996) further underscores, forms of “semantic massage” are frequently and deliberately employed in contexts involving body commercialization. An especially pervasive example is the “gift of life,” an expression applied simultaneously to blood donors, surrogates, and organ donors. Organ transfer, in turn, offers an especially compelling domain for analysis because discussions of commodification occur openly and frequently. Thus, bodies that fail to become donors “go to waste,” the language of commerce is said to “cheapen” the donation process, and the brain dead are not “patients” but “donors.” In turn, the imagery surrounding the “recycling” of human bodies downplays the sense that cadavers are medical refuse. Policy makers work cooperatively and aggressively to perpetuate language that foregrounds gift exchange even as they consider the further commodification of the body through a host of marketing strategies.

In many clinical arenas, the body is frequently reimaged as a machine. For example, both Haraway (1989) and Martin (1990, 1994a) argue that within immunology, the body is frequently envisioned as a militarized nation-state. Keller (1995) also illustrates that within science, the body has been compared with a clock, telegraph, computer, and cybernetic system, and machines, in turn, are anthropomorphized. Rhetorical shifts can also guide the direction of new research because they profoundly affect scientific perception and how research agendas are envisioned (Keller 1995). Furthermore, the female body frequently emerges as highly exploitable, the male body may be an emblematic prototype. Davis-Floyd (1994), writing of childbirth within the United States, explains that in clinical contexts “the male body is metaphorized as a better machine than the female body. In form and function it is more machine-like—straighter-lined, more consistent and predictable, less subject to vagaries of nature . . . and consequently seems less likely to breakdown.” In contrast, female bodies “are seen as inherently subject to malfunction” (Davis-Floyd 1994:1126). In yet other cultural contexts, male bodies are associated with particular technologies, where metaphorical constructions signify status, strength, and even the potential of the nation. Alter’s (1997) work

on male Indian wrestlers offers a case in point: The practice of semen retention may render the male body a benign “hydraulic system,” a more volatile “pressure cooker,” or a lethal “time” or “atomic bomb” capable of “nuclear meltdown” (cf Alter 1994, Cohen 1997). In other contexts, one may even speak of “fathering” (but never mothering) technology (Easley 1983).

These and other gender metaphors rapidly expose which bodies—and technologies—are considered most productive and valued. They also bring to the foreground legitimate ways to fragment and use the body, ultimately revealing how routinely technologies transform humans into commodities. As a result, a new sense of “use value” has come into play. As Andrews & Nelkin (1998) explain, a host of metaphors currently underscores the ubiquity of body commodification, where the process of “objectifying the body enables scientists to extract, use, and patent body tissue without reference to the person involved.” Further, “researchers often refer to the body as a ‘project’ or ‘subject’—a system that can be divided and dissected down to the molecular level . . . This reductionist language is increasingly permeated with commercial metaphors. Body parts are extracted like a mineral, harvested like a crop, or mined like a resource. Tissue can be ‘procured’—a term that is more commonly used to refer to land, goods, or the prostitutes provided for a client. Cells, embryos, or tissue can be frozen, banked, placed in libraries or repositories, marketed, patented, bought, or sold” (Andrews & Nelkin 1998:540). Clearly, it is imperative that anthropological investigations pay close attention to those processes that cloak commodified bodies in metaphor.

Towards an Ethics of Body Commodification in Anthropology

Over a decade ago, Koenig (1988:467) noted the paucity of social science interest in medical technologies. As this review reveals, however, significant strides have since been made in anthropology, where myriad examples offer compelling critiques of dehumanizing processes. A concern here is that anthropologists may imagine only social scientists as defining their audience; notable exceptions involve forays into cultural studies, interdisciplinary work on science and technology, and feminist arenas. Yet how might anthropology take a more activist and even radically ethical stance (Scheper-Hughes 1995) in its critique of biotechnologies? If, as advocated above, mutable border zones define a key terrain for future research, associated questions might focus more clearly on the ethics of the increased commercialization of the human body, where clinicians, scientists, medical ethicists, and policy makers are potential audiences.

One particularly fruitful approach involves problematizing standard modes of ethical inquiry. Kleinman (1999:70, 72, 77) asserts that clinical bioethics is mired in a Eurocentric propensity to privilege “ethical” abstract universals over localized “moral” concerns. Critical ethnography offers a much needed alternative “method of knowledge production,” in which local constructions of injustice are further enriched through comparative study (cf Hoffmaster 1992). Attempts to reconcile the universal with the local are exemplified by two essays within

Kleinman's volume (Kleinman et al 1999). Contemporary India offers a lens through which Cohen (1999) examines heated debates over the commercialization of transplantable organs; Das (1999), in turn, exposes the myopia of global health policies as applied to India. Certainly anthropology must become more concerned with bioethical questions; even more crucial is the need for bioethics embraces in-depth, critical ethnography as a fundamental methodological approach.

In an essay on "genethics," Diprose (1991) has noted that the human body often remains absent from medical ethical debates, where universalist constructions of human rights are instead privileged (cf Schenck 1986, Suzuki & Knudtson 1989). Morgan (1991) is similarly puzzled by the absence of discussions over the ethics of cosmetic surgery. The growing field of feminist ethics offers a partial solution (Diprose 1994, 1995; Holmes & Purdy 1992; Komesaroff 1995), yet clearly, anthropology can most certainly expand these boundaries. This is a discipline, after all, that has long asserted the importance of problematizing the seemingly mundane and routine aspects of human life [Malinowski 1961 (1922):1–25]. Numerous anthropologists have, in fact, made significant strides within the field of bioethics by doing just this, questioning the medical use of the human body as a research object, dehumanized or denaturalized subject, and commodified product (Clark 1993, Marshall 1992, Marshall & Koenig 1996, Muller 1994, Slomka 1995:1260–61; see also Fox & Swazey 1992, Komesaroff 1995, Weisz 1990). Slomka (1995), for example, has argued for a more critical and socially informed understanding of personhood within medicine, illustrated through her work on artificial nutrition and the use of other associated technologies among the dying (cf Kaufman 2000).

The "routinization" of medical practice emerges as yet another productive focus because ethical questioning frequently subsides as clinical technologies become normalized. Ultrasound imaging, for example, has become a regular feature of prenatal care, a process Mitchell argues personifies the "cyborg fetus" through "technological quickening" (Mitchell & Georges 1997). The transformative quality of this and many other biotechnologies is nevertheless frequently overlooked, considered so mundane as to escape notice within clinical contexts. Thus, specialized wards now sustain the near dead, sometimes for years in persistent vegetative states (Kaufman 2000), and even the Chimera (Jankowski & Ildstad 1997) has emerged as a naturalized monster of sorts. Fox & Swazey cite routinization as a tragic development in the realm of organ transfer, one that has silenced far too many ethical debates (Fox 1996:260–61). Yet Koenig (1988) offers another view of routinization: Although technologies frequently move from experimental to standard categories of practice, even within early stages the concept of "routine" may be employed to downplay associated dangers and risks (p. 465). In closing, we would do well to heed Fox & Swazey (1992), who ask, "Who shall guard the guardians?" (p. 170). As this review has shown, anthropology clearly defines a discipline capable of challenging not only new and contested practices, but also the mystification associated with routinization. A more radical, ethical stance will inevitably further problematize the border zones between nature and society, self and other, human and machine, generating even more critical readings of the commodified body and its parts.

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