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Reproductive Biology, Technology, and Gender Inequality: An Autobiographical Essay

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Abstract

Ignorance of biodata is costly in sociology. Gender theorists remain unaware that until the demographic transition, infants were suckled every 15 minutes for two years, less often another two. A nearly continuous cycle of pregnancy and lactation barred women from the activities that brought the most prestige and power until the advent of modern sanitation after 1880. Women entered the public arena in large number only after technology altered the social consequences of human physiology. Yet wives still spend twice as much time in housework and child care as husbands. Data about the effects of both biology and culture on social interaction would enhance studies of ethnocentrism within the household.

INTRODUCTION

In 1925, the year I was born, the Scopes “monkey” trial was a big issue. The Tennessee Supreme Court fined a high school teacher \$100 for teaching that species evolve. Even after 80 years, national polls report that most Americans do not believe humans descended from apes, and the issue is apparently going global (*Economist* 2007, p. 25).

Sociologists accept Darwin but tend to exclude biology in theory and research (Lieberson & Lynn 2002, Massey 2002). Precedents abound. Anthropologist Franz Boas urged the use of culture instead of race to explain group differences, and psychologist John Watson argued that biology played no part in individual variation (Ekman 1973, p. 4). Later, most feminist social scientists rejected biology because it seemingly consigned women to secondary status forever, and some even claimed that gender is only a social construction. Yet no man can bear a child or, until a century ago, provide the only food it could safely eat. Men alone could compete for power and privilege. This essay explains why sociological theories, especially those of gender, need to include both culture and biology. Human interaction cannot be conceptualized fully without attention to biological changes that began millions of years ago (Turner 2000, p. 4). I begin with the events that aroused my interest in the effects of reproductive biology on women’s use of time.

BACKGROUND

My parents cared deeply about religion and politics. My father, reared to believe in hell-fire, learned about Darwin in studying entomology. Our parents taught my twin and me that Bible stories were poetry and that the socialists had the best political answers. Our small town playmates thought otherwise. Asked about our choice in the election of 1936 (Roosevelt versus Landon), we said Norman Thomas. The response: Who’s he?

I fell in love with world history in sixth grade; in tenth, it became a passion. My teacher, Miss Hale, was a new MA from Tufts

School of Law and Diplomacy, and I soon told my father I wanted to enter diplomatic service. A fine thing, he said, but I’d better learn to teach school. If my husband died, I would have to support myself. Then, two weeks before the state competition in world history in which I was entered, I was felled by flu. Miss Hale brought me books every few days, and I came out first in the State of Ohio. Teachers matter.

In autumn 1943, I entered Penn State. I soon saw how to finish in two years, then on to graduate school. The history department gave no credit by examination (I might flunk, the head said), but the German department would: The department would test me for German 4 if I became a major. (I wanted French in high school, but my twin’s dislike of the German teacher left me no choice but to take German or sit in a class with my sister.) Over the next year, extra courses and working 15 hours a week limited sleep but not social life. I even joined a sorority, but after rushing new members while taking George Simpson’s course in race and ethnic relations, I never wore my pin again.

My BA in German was awarded in August 1945, and Radcliffe admitted me in history. Meanwhile, I had become engaged to an organic chemist. If I went to Radcliffe, he said, it would be the end of us. He was right, and I made the wrong decision. The return of GIs in fall 1945 created a shortfall of German teachers (German was required of all science majors), so I was hired to teach five courses (and take two graduate courses) per semester at Penn State. My husband agreed (I thought) that when the children we wanted were old enough, I would reenter graduate school. After two years at Penn State, he took a postdoc in New York. I got a job in a small firm on Fifth Avenue and soon typed 100 words per minute and handled accounts receivable. I had completed course work for an MA but decided that teaching German was not for me. I wanted something less static. The German subjunctive changes, but not so you notice it in your own lifetime.

By 1948, my husband had taken a job in Philadelphia, and we had two children, who brought great joy but also much work. Seven

years later, now in an Ohio town and with children in school, I presided over the Parent-Teacher Association, the American Association of University Women, and the church bazaar. My name was often in the daily paper, on the women's page amid the cookie recipes. But I had time to read. Russell's (1945) account of Western philosophy, a pony for my Great Books group, reinforced Babbitt's (1919) critique of Romanticism that later inoculated me against intellectual fads of the 1980s.

ACADEMIA

In 1961, we moved again, not, as I had hoped, to a city with a university but to a small town on Lake Michigan. I enrolled in the University of Michigan's extension courses in Grand Rapids in sociology, as historians seemed to prefer narrow-focus archival research to world history.¹ In 1962, I entered Western Michigan's MA program in sociology in Kalamazoo. The department head suggested a thesis on the Michigan Penal Code, but I focused on laws that penalized the same-sex behavior of consenting adults in private, one of the many ferocious proscriptions listed in Leviticus 20.

I began commuting to Michigan State in 1963, the year MacDonald's review of Harrington's (1962) book on poverty resulted in higher levels of federal research funding. The National Institutes of Mental Health supported my study of beliefs about poverty and wealth based on a probability sample of Muskegon (Huber & Form 1973). A 1967 PhD, I became a visiting assistant professor part-time at Notre Dame. In 1969, my commuting ended with a divorce, and I moved to South Bend, an assistant professor.

In the late 1960s, baby boomers, blacks, and women were protesting the System. Academics generally thought that blacks were right

to complain and that Vietnam was a mistake. But feminism was a shock. With few exceptions [e.g., pioneer Alice Rossi (1964)], sociologists' interest in women's status had been nil. A caucus of women faculty and graduate students first aired grievances at the 1969 meeting of the American Sociological Association (ASA). Led by Alice Rossi and Rose Coser, demands included a meeting room, child care, and efforts to put women on ASA committees (A. Rossi, personal communication, 2007). The business meeting approved the demands. Later, in the bar, an offended male spat in Alice Rossi's face.

The caucus at the ASA meeting in 1970 regrouped as Sociologists for Women in Society in 1971, the year Bill Form and I moved to the University of Illinois at Urbana-Champaign. There I observed strategy and tactics that helped or hindered women. Early on, segregation helped women learn from one another, but over time it led to insularity. For example, during the annual meeting of the ASA, Sociologists for Women in Society fielded a program of its own; members read papers to other members.

Early sex-roles research, mostly descriptive, focused on socialization. Later studies examined sex-wage differentials and family-related career factors. A few studies concerned the effects of sex differences in hormone levels. Little research examined the origins of women's status or the factors that spawned a new wave of the women's movement, though sociology had originated as an attempt to explain a rapidly increasing rate of social change as erstwhile peasants became urban wage earners. A series of upheavals threw the class system into relief but left gender patterns obscure. Twentieth century events offered opportunities to construct new theories from history, as Stinchcombe (1978) later suggested, but attempts to do so were rare.

Lenski's (1970) path-breaking analysis of the effects of ecology and subsistence tools on social stratification overlooked gender inequality; it indicated what a theory of gendered differences needed, and Blumberg (1978) adapted his ecological-evolutionary approach to address gender stratification worldwide. Lacking time to read enough anthropology, I focused on

¹McNeill (2005, p. 92) reports that world history at the University of Chicago ended with his retirement. His account of *Plagues and Peoples* (McNeill 1976) is a dazzling work of social explanation akin to Diamond's (1997) *Guns, Germs, and Steel* and Cavalli-Sforza's (2000) *Genes, Peoples and Languages*.

the socio-technological changes that set the stage for a renewal of the women's movement (Huber 1976). Later, I assessed the effects on gender inequality of children, housework, and jobs (Huber & Spitze 1983), family patterns (Huber & Spitze 1988), and macro-micro variables (Huber 1990). By 1990, wives' second shift was a plus; husbands liked the extra money (Hochschild & Machung 1989).

In 1978, I became the first director of women's studies at Illinois, but reluctantly; I still had doubts about segregation. The second year I also headed the sociology department, and in 1983 Bill Form and I moved to Ohio State. I became dean of the Social and Behavioral Sciences. I loved Illinois, but the president of Ohio State convinced me (correctly, as it turned out) that the behemoth it had become was finally on the move. I unexpectedly became interim provost in 1992 when my predecessor became a president elsewhere. The fiscal situation was grim, and the trustees removed the label "interim."

Retiring in 1994, I first worked on a topic suggested by years of financial woes: What makes disciplines viable? ASA secretary Mike Aiken suggested I charge and chair a committee on graduate education; some findings appeared in the Centennial Essay of the *American Journal of Sociology* (Huber 1995). I concluded, as had Neil Smelser (1999), that we need to share a commitment to sociology as a scientific enterprise. A viable social science must produce data that help citizens make wise choices.

I then turned to study of the origin of gender inequality. In the 1970s, I expected cultural anthropologists to clarify the origin of gender inequality, but the issue was addressed instead by social psychological studies of sex differences in hormone levels that were said to give women an edge in nurturing; men, in other areas. I could not see how a bit more of this in one sex and of that in the other sufficed to produce extant patterns. Then Ernestine Friedl (1975) highlighted the significance of categorical sex differences of reproduction: No man could bear a child. I was on my way, a journey that culminated in a

book, *On the Origins of Gender Inequality* (Huber 2007).

THE SEARCH FOR HUMAN ORIGINS OF GENDER INEQUALITY

In the 1960s, findings from primatology had elicited scholarly and popular claims that male domination was inevitable. These claims differentially affected the increasing number of feminists in anthropology and other social sciences. Some rejected biology because it consigned women to second-class status forever. Others worked harder to demonstrate that the claims were wrong.

Tiger & Fox (1971), in a study that reached a wide audience, exemplified what made feminists uneasy: They claimed that mature males in the baboon social system defend and control the troop, and they extended this analysis to humans, showing how evolution affects humans today. Male political domination from tribe to empire taps the biological basis of the behavior. Politics must seem hopelessly bizarre to women, frighteningly irrelevant to the simple concerns of child care. Women lack the capacity for leadership. To pretend that university-level coeducation is good denies the entire course of evolution.

Contrary reports existed, of course. For example, Rowell (1972, p. 44) had followed three baboon troops for five years and never saw the males defend a troop. Biased findings nonetheless dominated texts and popular work long after the central role of female primates had been well documented (Hrdy & Williams 1983).

A less biased search for the origin of gender inequality began in several disciplines around 1970. Centered in anthropology (e.g., Brown 1970, Lancaster 1975), this search soon became a large literature. A decade review reported that the findings, though inconclusive, permitted three generalizations: Men monopolized political office; women were barred from prestige spheres; and ideologies of sex differences favored men (Quinn 1977). But few scholars followed these leads. A decade later,

Mukhopadhyay & Higgins (1988) reported that despite much research, the original questions still lacked answers. For example, Whyte's (1978) study based on the Human Relations Area Files could draw no conclusions. The categories, devised by authors who saw each society as unique, were unsuited for statistical comparisons (Goody 1962, p. v; Fedigan 1986, p. 247). Later, di Leonardo (1991, p. vii) said that sexual asymmetry was no longer a central question in anthropology. But bio-anthropologists continued to search. Sociobiology and postmodernism had deepened the gap between the two fields.

Sociobiology soon became basic to biological anthropology, although only a plurality of cultural anthropologists accepted it (Lieberman 1989). Biologists applied natural selection theory to reproductive behavior. The measure of evolutionary success was the number of offspring who lived long enough to reproduce (Wilson 1975). As the focus on individuals permitted precise measurement, the theory spawned a flood of research that explained evolutionary aspects of nonhuman animal behavior. Biologists soon accepted it, but most social scientists remained skeptical.

The main criticism was the application of animal findings to humans (Mayr 1997, p. 203). When Wilson discussed insects (with many facts), he did not bring humans into the discussion, but in discussing humans (with minimal facts), he used insect behavior to illustrate his points (Washburn 1978, p. 60). Environmental adaptation was often ignored, although Darwin had written that it was critical (Gould 1983, p. 243). For example, an evolutionary study [highly praised by Wilson on the book's jacket (Freese et al. 1999, p. 208)] claimed that firstborn adults are always the most conservative and tough-minded; sociologists overemphasized structural effects. However, Freese et al. (1999) found a number of procedural errors that many social scientists would not accept. Moreover, the discounted social variables (e.g., gender, social class, race, and family size) were in fact more strongly linked to political attitudes than was birth order.

By contrast, postmodernism made science impossible. By the 1990s, postmodernism had swept across the humanities and interpretive social sciences. Like late German Romanticism via Paris, it defied definition (Scheppele 1994, p. 397). It has an affinity with the idea that reality is a social construction and may include feminist theory (Flax 1987, p. 623). Certainty is difficult; statements about feminist theory and epistemology are problematic (Chafetz 1997; Rule 1997, p. 157) What matters in postmodernism is the text. There is no truth, only an endless unraveling of text that turns mounds of ravels into mountains of obfuscation. The claim that a constructionist view of sex and gender dominated anthropology from the early 1970s (Conkey & Gero 1997, p. 417) is exaggerated. Yet, the number of constructionists sufficed to reorient the cultural field. By the 1990s, research on human origins was limited to areas oriented to biology.

THE EVOLUTION OF GENDER INEQUALITY

Evolution occurs by adaptations that carry costs as well as benefits. Some costs affect both sexes. For example, language required a rearrangement of larynx, pharynx, and tongue that lets food fall into the larynx and cut off air (Lieberman & Blumstein 1988). We are the only mammal who can choke while eating: no free lunch.

Some costs fall on one sex. Natural selection made birth risky and deepened the already lopsided gendering of primate parenthood. Down from the trees, our ancestors spread over the African savanna when climate change lowered the carrying capacity of their niche. New niches required change in anatomy, physiology, and behavior (Trevathan 1987, p. 15). Bipedalism, which evolved five million years ago, made birthing harder; an enlarged brain made it worse. The ratio of the chimpanzee infant head to maternal pelvis is that of yolk to white in a boiled egg: plenty of room. The head of the human infant fills the pelvic cavity top to bottom, with only tiny slivers of space at each side. In natural settings, 1 birth in 20 ended in maternal

death. Human mothers were more likely to survive with the help of a skilled woman (Trevathan 1999, p. 197), but even with help, most women did not outlive men (Crews 2003, p. 36).

Passage through the mother's bony pelvis is hardest for the infant; passage through her vagina is hardest for the mother. In other apes and the probable quadruped human ancestor, the birth canal's entrance and exit are broadest front to back, as is the infant's head, and the infant emerges facing the front of its mother's body. She can reach down to guide it, or it can crawl unassisted toward her nipples, grasping the mother's hair with its strong little hands. In contrast, bipedalism twisted the human birth canal in the middle. The entrance is broadest side to side. The exit is widest front to back. Thus, the widest breadths of entrance and exit are perpendicular. Likewise, the infant head is largest front to back, but its rigid shoulders are broadest side to side. Passage of the infant's broad shoulders through the mother's deep bony pelvis requires that the infant's chin be pressed against its throat. This flexion, coupled with a restructured birth canal, requires the infant to rotate serially to pass through the canal (Stoller 1995). Unlike the infants of other primates, it tends to be born facing away from its mother, and if the mother tries to guide it to her breast, she risks pulling its head backwards thus damaging nerves and muscles (Trevathan 1999, p. 195): intelligent design indeed.

Moreover, a premature infant makes more work for mothers. The problem posed by a larger head is solved not by enlarging the birth canal or the mother's total size (as in gorillas and chimpanzees) but by giving birth before the infant brain becomes too large for safe passage (Trevathan 1987, p. 22). At birth, the human infant brain is 23% of adult size, compared with the chimpanzee's, which is 45%, and the rhesus monkey's, which is 68%. A human infant thus needs more care over a longer period than do other primate infants. Moreover, humans are the only mammals whose juveniles do not feed themselves (Lancaster 1991). Until the end of her reproductive period, a foraging mother toted her youngest child and slept with

it at night for three or four years. Her low-fat milk sated its hunger only briefly. She gathered nuts and berries and killed small animals daily to teach her children to fend for themselves, all of which barred her from the activities that contributed the most to male power and prestige.

By the end of the twentieth century, researchers reported that premodern infants had been nursed every 15 minutes on average for two years, less often for another two. The pattern evolved because it maximized infant survival. Among foragers, if a woman gave birth before her older child could follow in the daily food search, the older one died. The pattern prevailed after the invention of agriculture because other foods were so risky and changed only after the 1880s when the provision of safe water enabled about as many of the bottle-fed as the breast-fed to live long enough to reproduce. Until this event occurred, a massive movement of women into the public arena was not possible.

HUMAN MILK

Most research on human milk appeared only after 1970 (Lawrence 1994, p. 91). Anthropologists rarely gathered data on it. Retrospective surveys cost little but yield unreliable data (Haaga 1988, p. 307). Interview data reveal low concordance between timed data and mother's memory (Vitzthum 1997, p. 247). Direct observation, very expensive, requires much time, and few studies report it (Ellison 1995, p. 316).

The composition of human milk explains duration and frequency of feeds, regulated by hormones described only in the past few decades (Quandt 1995, p. 128). The milk evolved to meet needs of a fast-growing brain, high in lactose, low in fat and protein, typical of a species that breast-feeds almost continuously (Micozzi 1995, p. 357). The idea that lactation has contraceptive effects is recent. Demographers long thought Malthus was right: Population outstrips the food supply. Physicians doubted that lactation affected fecundity; the feeding schedules they advised minimally prevented ovarian function (Vitzthum 1994,

p. 316). Davis & Blake (1956) did not list lactation as a fertility determinant. Then Henry (1961, cited in Ellison 1995) wrote that it might be the main cause of natural fertility: Couple behavior is not bound to number of children born nor modified when they have the most they want (Ellison 1995, pp. 305, 338), and in the late 1960s the idea spread that frequent, prolonged suckling halted ovulation. In the 1970s, detailed data on Kalahari foragers revealed much lower mortality and fertility than expected, a lifetime average of five births (Howell 1979, p. 291). Students of historical fertility now agree that natural fertility was nearly universal before the demographic transition (Wood, 1990, p. 213), countering the belief that social customs control fertility (Wood 1994, p. 9).

Biomedical studies of human milk focused on physiological costs and benefits to infant and mother. Benefits far outranked costs (Huber 2007). For infants, benefits were greatest when other foods were unsafe. Infants fed human milk had far lower mortality than did unlucky ones given food that often sickened adults. In modern areas, maternal milk reduces allergies, inner ear infections, and other ailments and contains antibodies that ward off infection. The bottle-fed suffer more ailments as they grow.

The maternal benefits of frequent and prolonged breast-feeding became known only recently. The huge decrease in frequency and duration of lactation in Western women floods their bodies with hormones over a much longer period. Modern women average 450 menstrual cycles in a lifetime versus 50 cycles for women in the old mode (citations in Crews & Gerber 1994, p. 159). Modern patterns increase the exposure of reproductive tissues to estrogenic hormones, which increases cell proliferation (Maynard Smith et al. 1999, p. 270). Cells that divide more often are more likely to become malignant. Rates of diseases linked to chronic hormone exposure are rising for both sexes: breast, colon, endometrial, and prostate cancer as well as coronary heart disease (Micozzi 1995; Whitten 1999, p. 211). The incidence of cancers likely reflects the transformation of human biology entailed in the profound

ecological changes of modernization (Ellison 1999, p. 201). Meanwhile, abundant calories and fats increase exposure to gonadal steroids by lowering the age of puberty (Worthman 1999a). Adult behavior does not suffice to explain the rising global prevalence of chronic conditions like cancer, hypertension, diabetes, and obesity (Worthman 1999b). Better knowledge of the physiological effects of natural and artificial hormones may lead to artificial ways to mimic effects of forager life histories (Neese & Williams 1994, p. 181). Let us hope.

The social costs of breast-feeding were otherwise: costs to infant were nil; costs to mother, high. After the advent of agriculture, lactation in the ancient mode barred women from the activities that bring prestige and power. Political elites, all male owing to the links of war and politics, made laws to protect male privilege, shoring them up with ideologies that justified control of female sexuality. Wet-nursing dates from this period.

SUBSISTENCE MODES AND INFANT DIET

The rise in food production after grain domestication is ordinarily defined as progress, but people do not turn the soil or collect manure unless they must (Netting 1993, p. 103). Hungry people invent ways to produce more food but only with more labor. A surplus tempts the strong to grab all they can, making ordinary people worse off than their forager ancestors (Lenski 1970). A grain diet stunts growth, and village living spawns infection (Cohen 1979). Foragers had been as tall as the affluent today (Eaton et al. 1999, p. 341). Peasants shrank (Larsen 2000, p. 231; Steckel & Rose 2002). A poor woman could be induced to suckle an infant not her own.

Wet-nursing appeared in classical times when slave women suckled elite infants, and it became common among rich Europeans in the Middle Ages. Wealthy parents more often than not bought their child's life with the life of another (Fildes 1986, p. 98). The

huge drain of lactation on the maternal system made it unlikely that one woman had milk for more than one child over a prolonged period (Stini 1985, p. 203). In early modern Europe, church and state hired wet nurses for infants abandoned by poor unmarried women (Golden 2001, p. 3). Later, when male wages were very low, abandonment was related to a rise in women's opportunities for employment: Of 30,000 Parisian newborns, 8,000 were abandoned in 1780 (Braudel 1979, p. 491).

As cities grew, poor sanitation made human milk optimal for infant survival (Preston & Haines 1991), but by 1910, the bottle was about as safe as the breast in modern areas, and a preference for cow's milk crossed class and ethnic lines among all women (Wolf 2001, p. 9). By 1950, bottle-feeding was widespread in the West (Stuart-Macadam 1995, p. 28). Today, more than half of U.S. newborns begin on the breast; 7% nurse longer than one year (Potts & Short 1999, p. 268). Women who continue to breast-feed schedule fewer feeds. Modernity ended the ancient mode of lactation, while low fertility and safe bottle-feeding increased the supply of women workers. The increasing demand for their labor was a consequence of the transfer of political and economic power from elite households to business and political interests (Jackson 1998).

REPRODUCTIVE BIOLOGY AND POLITICS

Physiological sex differences matter politically. Some scholars, ignoring the effects of technology on fertility and lactation, still believe that physiology settles women's status forever. As historian Gerda Lerner (1986, p. 19) put it, using machinery to replace male muscle was seen as progress, whereas biology doomed women to species service. Sex differences thus need explication. They are of two kinds: categorical and statistical. The only categorical human sex differences are those of reproduction, and they can mark only one sex: insemination, lactation, menstruation, and

pregnancy. All other human sex differences are statistical. Men tend to be larger and stronger, although some women are larger and stronger than most men.

Studies of physiological sex differences now flourish in two areas of bioscience. Evolutionary psychologists study statistical differences that correlate with gendered behaviors and see male dominance as hormonally induced (Mealey 2000, p. 375). They tend to deal inadequately with social variables (Freese et al. 2003, p. 238). By contrast, biological anthropologists examine the effect on human behavior of the interaction of the food supply, statistical and categorical sex differences, and culture. Such studies meld readily with social science. For example, Smuts (1995) sees patriarchy as stemming from the reproductive strategies of male primates that are much elaborated in humans owing to cultural inventions like agriculture, animal domestication, and ideologies that language makes possible. Genes are selected in a highly variable environment. Traits are exquisitely sensitive, not fixed. In humans, male control of resources and political power yields more control over female sexuality than is usual among other primates.

Several sociologists elaborated a similar theory. Influenced by Lenski (1970), Collins et al. (1993) focus on the 10,000 years after plant domestication. Domination was based on male control of resources stemming from the gendering of production and reproduction and the tendency of all-male groups to become solidary around masculine erotic identity. Men monopolize violence owing to size and strength and the nonfit of warfare and reproduction.² The authors thought it too early to predict the outcome of the male monopoly on violence.

Yet, women could not enter the public arena in large numbers until after 1880. For nearly all of human history, gestation and prolonged lactation in the ancient mode barred women

²Political scientist Joshua Goldstein (2001) later reported that no statistical sex differences adequately explain women's exclusion from warfare.

from warfare and politics, which were inextricably linked since the invention of metal weapons 5000 years ago. Warriors like Joshua, Alexander, Caesar, Napoleon, and even Fidel Castro had first dibs on political control. But no longer. The spread of common literacy following the invention of the printing press severed the warfare-politics linkage. Among highly literate populations, eminent generals no longer have a path to high position. Aspirants need a temperament more given to persuasion than command. Thus, women's major gains in politics over the past two decades will likely continue (Paxton & Hughes 2007, p. 313).

A micro-level barrier to equality remains. The gendering of domestic time use gives men a boost in the competition for prestige and power. Wives still spend twice as much time in housework and child care as husbands (Bianchi et al. 2006, p. 177). Some men see this as unfair and try to compensate. Many do not. As a full-time housewife and mother for 14 years, I understand why men are not eager to wash dishes and scrub toilets. In long-term relations of social inequality, one group always has a vested interest in preserving the distribution of resources it brings (Jackman 1994, p. 7). Were I male, I would doubtless be tempted to feel and act the same way.

The ethnocentrism attested to in the domestic division of labor is a problem in social psychology, but not as it is currently practiced. Human action involves both passion and reason, and a focus on both is currently difficult (Lawler & Thye 1999). I have long admired George Homans's wit and the elegance of exchange theory (Cook & Emerson 1978), but it is increasingly clear that theories of rational choice must go beyond instrumental benefits and costs (Boudon 2003), and some students of the sociology of emotions need to attend more to the requirements of science (Thoits 1989).

The most basic problem in social psychology is that human interaction cannot be fully conceptualized without attention to evolutionary changes. Turner's (2000) insightful analysis of the origin of human emotions points out that a

wide array of emotions evolved long before spoken language. Early humans on the savanna, no longer able to take to the trees to avoid predators, had to learn how to live in larger groups capable of cooperative behavior (Maryanski & Turner 1992). That the same emotions appear worldwide argues for a biological basis that sociologists need to understand (Turner & Stets 2006, p. 46). The human mind is not a blank slate shaped by social interaction (Bergesen 2004). Shortcomings of current models that result from the exclusion of evolutionary sociology include an overemphasis on speech as the major interactive process; the view of the self as a verbal and cognitive construct; and the failure to ask why humans need rituals. The fact that we use rituals in all interactions in the sense argued by Goffman (1967) and Collins (1988) attests to how hard we work to sustain tie formation lest it fall apart under inputs from the neural anatomy that we share with African apes (Turner 2000, p. 116).

CONCLUSION

My own history has highlighted the need for bio-social explanation of human organization over time. I came of age in the 1940s, married, had two children, and spent 14 years at home at a time when women's use of time was still constrained by laws and customs devised in response to male inability to bear a child and (until the 1880s) provide the only food it could digest. Suckling an infant four times an hour for two years and less often for another two had barred women from public life. Yet, most sociologists ignore the profound changes in reproductive technology that enabled women to enter public life in the last century. Evolutionary psychologists and the few sociologists who use biodata tend to study only the statistical sex differences, which are highly publishable (Freese et al. 2003, p. 238) but of limited use in explaining the gendering of social institutions.

It was primarily the sex differences in reproductive biology that made women's secondary status universal. Today, human biology

is unchanged, but science has altered the social consequences. This outcome can be understood only with use of data on human evolution, technology, ecology, and human beliefs over long periods. Sociological explanation must be rooted in a historical context. Only an exchange between those working on scales from the most minute to the most gen-

eral can hope to compensate for the defects of each form of scholarship (McNeill 2005, p. 73). Societal comparisons over time are rare but they exist. Examples include anthropologists Johnson & Earle (1987), and sociologists Lenski (1970) and Massey (2002). More research is much needed, but whether sociologists will do it is an open question.

DISCLOSURE STATEMENT

The author is not aware of any biases that might be perceived as affecting the objectivity of this review.

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