Sex Bias in Nature and in History: A Late 1980s Reexamination of the “Biological Origins” Argument

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ABSTRACT Biologically based behaviors are viewed as highly situation dependent, constrained, and shaped by local history and environments. This perspective is illustrated by tracing through time changes in the patterning of parental behavior toward sons vs. daughters. Although it is assumed that decisions about parental investment are rooted in evolved predispositions, parental behaviors change in response to changing conditions affecting the productive and reproductive contributions of sons vs. daughters.

NATURAL CALAMITIES

Scenic San Diego was sweltering in the throes of a record-breaking heat wave. Seven minutes into the talk, as I flashed a slide of a woman in purdah on the screen, Southern California was struck by a mild earthquake. I suspected at the time that I might be touching on delicate topics, and this convergence of minor calamities seemed to confirm it.

But oddly, the heretical component here had nothing to do with the oppression of women. My very presence at the lecture podium, or the 50:50 composition of men and women at the head table, suggested that questions as to the desirability of providing equal opportunities for women had been decided by this group some time before. No, raw nerves touched here had to do with the increasing sensitivity many anthropologists feel about biological approaches to the study of human behavior. Given that it is a demographic fact of life for biological anthropologists in anthropology departments that we are in the minority, dependent for hiring and tenure on the sufferance of colleagues in other “wings,” these political tensions, hotter even than the San Diego pavements, have profound implications for the future of anthropology in this country.

It is no coincidence that biological anthropologists are starting to tiptoe in the halls and, when cornered, either overstate or understate their own convictions so as to make it absolutely clear that although “biological types,” they are not fascists, do not believe in a “gene” for mayhem, or a human destiny that preordains inequality by race or by sex. Yet, as I will argue here, much of this tension—which for me personally is certainly the most unsettling of the nature-based calamities that I encountered on April 7, 1989—is based on fundamental misunderstandings of what a “biological basis for behavior” actually means. To some extent we are all hapless passengers name-calling from the decks of ships as they pass in the nights.

To imagine that what is biologically based is also immutable, to equate “biology” with “destiny” is a fundamental misunderstanding, albeit a misunderstanding with deep roots in Western intellectual traditions, and also one that continues to be fostered by contemporary cultural practices, perhaps particularly the fact that many academics prefer perusing the New York Review of Books to reading recent issues of the American Naturalist, Behavioral Ecology and Sociobiology, or Animal
Behavior. As I hope to make clear here, biologically based behaviors are not necessarily less labile or less context dependent, and hence alterable, than those that are culturally constructed. Indeed, in many cases, change of biologically based behaviors may proceed far more expeditiously than the transformation of values and institutions possibly could.

To illustrate this point about the flexibility of biologically based behaviors, I turn to the topic I promised to discuss today: the differential treatment of sons and daughters.

IDEOLOGY, PRODUCTION AND REPRODUCTION

Recent statistics on abortion following amniocentesis in a South Indian population provide convincing evidence that parents radically discriminate against daughters in some contexts. Of 8,000 such abortions, 7,997 involved foetuses that parents knew to be female (Rao, 1986; see also Jefferies et al., 1984; Ramanammmma and Bambawale, 1980). How can we explain such a powerful bias in favor of one sex offspring over the other? At one extreme, anthropologists view the relative worth of sons vs. daughters as a cultural construct, a product of ideals with a life of their own, detached from chromosomes and earning power. Hence the reluctance to invest in daughters by middle- and upper-income Indian parents might be attributed to long-standing patriarchal ideologies prevalent throughout much of Asia, ideologies that devalue the worth of women. If, as some hermeneutics and critical theorists of the 1980s envision, human minds float free, spinning infinitely variable webs of meaning out of locally received traditions, then progressive education chipping away at old mentalities should eventually be able to alter behaviors that many Westerners and more than a few Indians find undesirable. (In just such an effort to legislate social change, the state of Maharashtra recently outlawed amniocentesis just because it has been so often used to discriminate against daughters).

There is a widely held conviction running through the humanities that if a behavior—here the propensity to bias investment toward sons by eliminating daughters—is culturally constructed rather than biological in origins, then it will be easier to change (see, for example, Yanagisako and Collier, 1987). Central to this agenda is the goal of “liberating” people from “constraining naturalistic assumptions” about sex differences (e.g., see Ortner and Whitehead, 1981) so that we will at least be able to cut through arbitrarily woven webs of gender roles and reweave them to eliminate gender inequalities and produce a society with “total sexual liberation” (Cucchiari, 1981).

Alternative hypotheses to explain why so many people exhibit preferences for sons that range from mild to extreme derive from materialist and biological perspectives. Cross-cultural and economic anthropologists who assume that parents are “rational actors” link gender hierarchies to the different productive contributions made by sons or daughters, or else they link decisions to the different networks of alliances open to males vs. females or to different liabilities (e.g., dowries) or benefits attached to sons or daughters. Beyond the ritual role of sons in transmitting the family name, we might consider the fact that sons hunt, wield ploughs, earn more in emerging cash economies, or the possibility that, as the Indian saying goes, “sons are guns . . . able to defend family and community resources, or the likelihood that sons in patrilocul cultures will be available to do so.

Where wives and daughters tend to make the greatest contributions to subsistence—in gathering- and horticultural-based economies—women are more highly valued (Whyte, 1978; Schlegel and Barry, 1986), especially if the societies are matrilineal and matriloclcal. Traditional subsistence systems, with high female participation, also tend to provide opportunities for children to make productive contributions through gathering or gardening so that children are valuable as labor. Women become not merely vehicles for producing male descendants but (as in various east and central African examples) important resources in their own rights for the production of more producers (Tambiah, 1989).

As for biological explanations of sex bias, by and large they come in two forms.
The first, an extreme form of biological determinism was prevalent in the 1960s and early 1970s but which—in the academic literature at least—now primarily persists as the “straw man” found in the writings of critics of sociobiology. The second form—one might only half-jokingly call it “situation-dependent biological determinism”—derives from evolutionary perspectives heavily influenced by behavioral ecology (a field itself heavily influenced by economies). This second form of biological explanation is not so easily distinguished from the “rational actor” models described above except insofar as reproductive success or persistence of the (biological) lineage is an explicit goal of that rational actor.

Two decades ago, Lionel Tiger published an essay on the biological origins of sexual discrimination (1970, reprinted in 1977), which at least thematically is the precursor of this one. The essay was in large part about “the genetic foundation of masculine dominance.” It was based on the conviction, widely held among some ethologists and physical anthropologists at that time, that the exclusion of females from central (meaning political) roles was rooted in the genetic legacy of our species. If women were by and large excluded from political roles in society, it was because females were “biologically unprogrammed”. In Tiger’s words: “the whole weight of the relevant primates’ breeding history militates against female participation in what we call primate public life.” (Tiger, 1970, 1977:28).

“What we may call the ‘anti-female’ tradition,’ has its origins, then, not only in belligerent male chauvinist ideology and in economic exploitation of females, but in a genetic process which evolved because pre-hominids found they could survive and reproduce better if they excluded females from the processes of political dominance, with survival further aided by the exclusion of females from the hunting party ...” (Tiger, 1970, 1977:35).

Features of this biosocial paradigm from the 1960s were incorporated into sociobiological accounts of human social evolution in the 1970s (e.g., Wilson, 1975a, b), but they are scarcely representative of much subsequent writing by sociobiologists concerned with female participation in primate social life (Hrdy, 1981; Smuts, 1987). A decade into the enterprise, sociobiology was changing rapidly. In particular, researchers concerned with the evolution of behavior were profoundly influenced by behavioral ecology and by a more sophisticated understanding of ontogeny and the importance of local environments in the expression of genetic traits. As a consequence, people with “biosocial” or “sociobiological” perspectives were beginning to focus on local ecology and recent population, lineage, and individual history (e.g., West-Eberhard, 1987).

Hence, at the same time that the study of animal behavior became virtually synonymous with animal sociobiology (see any recent issue of the mainstream journal Animal Behavior), sociobiology was itself changing. Sociobiology was part of a general trend in ethology away from seeking for species-specific genetically coded behaviors to a search for the cues individuals use to respond to local ecological circumstances with some combination of strategies that, given the circumstances at hand, would have been adaptive in the “environment of evolutionary adaptedness.” Biological determinism, increasingly out of fashion in the writing of contemporary evolutionary biologists, can still be found. Nevertheless, it is most reliably located in the writings of cultural anthropologists, philosophers, and Marxist biologists who understandably, and for various (often justifiable) reasons, take violent exception to deterministic paradigms. The more extreme versions of cultural constructionism arose partly in response to equally extreme views about direct links between genes and human behavior.

This form of genetic determinism is becoming increasingly scarce in the main-

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1 I do not claim to speak for Tiger today, and in fairness it must be pointed out how little anyone knew about primate social systems in 1970. I cite Tiger because he was an articulate spokesperson for an influential and widely held position that still lingers on in the “cultural construction” of sociobiology by its critics.
stream writings of evolutionists and sociobiologists. Influenced by behavioral ecology, animal behaviorists view environmental factors (ranging from the level of the cell all the way up to populations and their habitats) as critical to the unfolding of behavior (West-Eberhard's work on wasps, Dunbar (1988) on primates, serve as examples). Certainly we cannot expect a single species-specific response to socioecological circumstances that are chronically changing.

Hence an analysis of the "biological origins of sex discrimination" from the 1980s ought to look quite different from its predecessor, and look different also from the views most commonly attributed to sociobiologists. Bear with me, then, as I illustrate what I view as an essentially sociobiological analysis of sex biases. I will stick with a South Asian context simply because I prefer to keep specific examples in mind. Although this illustration is certainly intended to be more realistic than a fictional case would be, far more detailed study would be needed to substantiate all of the suggestions made here.

Changing attitudes toward sons and daughters in South Asia

Travel with me, then, to North India, an area that provides some of the most extensive documentation for sex-biased infanticide, a form of sexual discrimination that unequivocally works against the interests of its targets. Census data collected by British colonial administrators during the 19th century reveal that for some groups boys were more than five times more likely to survive than girls, and in some very elite clans among the Rajputs, no daughters ever survived (for documentation, see Cave-Brown, 1857; Parry, 1979; Miller, 1981; for the general model I rely on here, see Dickemann, 1979). Ethnographic accounts corroborate demographic evidence that preferential female infanticide was being practiced on a very wide scale among elite land-holding classes. This parental refusal to divert resources to daughters has been attributed both to costly dowries needed to marry daughters into families sufficiently prestigious to buttress the honor of their own family (e.g., see Sleeman's account cited in Reeves, 1971) and also to the greater reproductive potential of polygynously married sons. Status and property are scarcely incidental benefits in a stratified social system embedded in a monsoon ecology that is characterized by recurring famines. According to Dickemann's sociobiological model (and possibly also to the calculation of parents caught in this system), the channeling of resources to privileged sons provides the best prospect for lineage survival in a part of the world where lineage extinctions are commonplace (Dickemann, 1979a, b).

By 1875 British colonial administrators had outlawed the killing of infant daughters, but parental mindsets were not so easily transformed by either the legislation or the accompanying sanctions. Instead, infanticide was replaced by the far crueler and more drawn out analogue of female neglect. The contemporary plight of daughters is captured in the UNICEF photo of male and female twins in Bangladesh, the son plump and well nourished, the daughter limp and marasmic (Fig. 1). Interestingly, though, in the contemporary social and economic context, discrimination against daughters appears to have spread beyond the elite classes. (Indeed, it would be exceedingly interesting to know which groups are now "immune"). By the time this photo was taken, discrimination against daughters was characteristic of small landholders and landless peasants as well as the landholding elite.

I follow the Indian ethnographer Parry (1979) in assuming that lower in the economic scale, as well as lower in the caste hierarchy, daughters were traditionally buffered by their marriage options (as suggested by Dickemann, 1979a). Where significant bride prices were paid, daughters may even have been regarded as a boon. In low and untouchable castes, and especially among some of the tribal groups, daughters would also have been buffered by their labor contributions where women are able to fill low-wage positions in road building and agriculture (Fig. 2). Now, as Wadley has documented for Uttar Pradesh, this immunity is fading as wage labor opportunities for women disappear in rural areas. Among these rural poor in North India, female-biased mortality (long characteristic of the
anded but not the landless classes in this area) has been increasing. Wadley documents a telling pattern of infant mortality, highest in sons under 1 month of age (i.e., presumably due to the natural vulnerability of so many male mammals) followed by higher mortality for daughters between the ages of 1 month and 5 years. This pattern almost invariably points to differential treatment of male and female children by their parents (Wadley, 1988; c.f. Voland, 1988). There is reason to believe that such "across-the-board" discrimination against daughters in India is recent. To the northeast, in Bangladesh, Mead Caine (1977) has quantified the rationale for daughter neglect among poor peasants living there. By the age of 10–13, years a male is a net producer, and by 15 his cumulative lifetime production will have reimbursed his parents for his keep. By age 21, a son will have repaid his parents for himself and the net cost of one of his sisters as well. Daughters, by contrast, although they work early and hard, typically will leave home to marry long before the point at which they have repaid parental expenditures.

The point here is that even though a preference for sons is ideologically en-

Fig. 1. A mother and her son hold infant twins while visiting a clinic in India. Attention is focused on the male twin who is crying. The female twin is ignored. From birth, the male twin was nursed first and fed first (Photograph used by permission of UNICEF; John Baleomb).
trenched in India and Bangladesh ("May you have eight sons . . . .," entreats one traditional marriage blessing), the way that parents actually behave toward sons and daughters fluctuates in response to local conditions. After marriage opportunities (Parry, 1979) or alter subsistence conditions (e.g., the wage labor opportunities for daughters), and parental investment patterns follow not far behind. The consequences of colonial legislation and government propaganda aimed at changing parental mentalities seem ineffective by comparison.

The basic premise that parents bias investment in order to enhance the re-
sources locally available to their lineage is typical of both those anthropologists who think in terms of "rational actors" and some sociobiologists (e.g., Gowaty and Lennartz, 1985; Sieff, 1990); and this convergence should not be surprising. Both groups share the underlying assumption that resources are finite; if not in short supply this year, then they will be next year. This view contrasts with the alternative perspective fashionable in Marxist and feminist-socialist circles that if only societies were organized more equitably, there would be plenty for everyone.

Both "rational actor," and especially evolutionary models, are concerned with the costs of male and female infants relative to potential benefits, and they share the assumption that parents will act so as to optimize their access to certain benefits. Where they differ is in postulating the ultimate nature of the benefits, primarily economic in the first instance, eventually reproductive in the second. Where productive and reproductive capacities are linked (as many sociobiologists assume they once were), it becomes virtually impossible to separate these two approaches (Hill, 1984). In the study of animal behavior, it is now widely accepted that enhanced access to resources leads to enhanced reproduction by females but this connection, so obvious for other creatures, creates a stumbling block for researchers concerned with humans. As Vining (1986) and others have pointed out, links between resources and reproduction decline in relevance for nontraditional human populations where socioeconomic status and prestige appear to have become ends in themselves. Small wonder that to students of human history, the obsession with reproductive success seems misguided (Bock, 1980).

Sociobiologists view parental investment in offspring along an imaginary continuum of parental investment, a diversion of resources from maternal maintenance to production of progeny that begins at conception, continues through weaning and—in humans at least—persists long into the juvenile years, even extending past puberty to include dowry and bridewealth cost at marriage, and ending with one last opportunity for parental investment at death, in the form of inheritance. There are then multiple points in the life cycle where parents can skew investment toward offspring by sex, as well as by birth order and other characteristics (see especially Daly and Wilson, 1980).

Mothers in particular may invest more in male or female offspring by suckling one sex longer, tolerating offspring of one sex around feeding areas long after she has rejected offspring of the other sex, or else by actually producing more offspring of one sex than the other (Hamilton, 1967; Clutton-Brock and Albon, 1982; Clutton-Brock and Iason, 1986; Hrdy, 1987). A wide range of models and hypotheses, broadly designated as "sex ratio theory" (Trivers, 1974), have grown up within evolutionary biology. The two most pertinent to humans are the Trivers-Willard hypothesis and what I regard as a subset of local resource competition (see Clark, 1978; Silk, 1983) known as "local resource enhancement." (Gowaty and Lennartz, 1985; Sieff, 1990).

In an article published in *Science* in 1973, Trivers and Willard proposed in a general way (following Hamilton, 1967) that under certain conditions natural selection should favor biased investment in offspring according to anticipated reproductive success of sons vs. daughters. More specifically, they suggested that in polygynous breeding systems where one sex (typically males) is characterized by great variance in reproductive success and where the mother's condition at conception is correlated with the condition of her offspring at the end of maternal investment, then mothers in good condition should favor production of the sex with the greatest variance in reproductive success; females in poor condition should pursue a more conservative course. Unable to produce highly successful males, they should channel investment toward daughters (See Fig. 3 for a simple diagram).

The evidence to support Trivers and Willard's hypothesis has been mixed, with the strongest support deriving from studies of opossums (Austad and Sunquist, 1986), spider monkeys (McFarland Symington, 1987), and red deer (Clutton-Brock et al., 1986). Only the red deer study contained data on the reproductive outcomes of sex ratio biases. That is, Clutton-Brock et al. found that high-ranking deer mothers overproduced sons, and low-ranking mothers, daughters. As they tracked
the careers of these same mothers over time, high-ranking mothers who had produced sons ended up with more grandchildren than did those who produced daughters. The reverse was true of low-ranking mothers specializing in daughters.

At the time they wrote their article in 1973, Trivers and Willard (1973) believed that human parents in higher socioeconomic statuses (in situations where polygyny or serial monogamy were options) were actually overproducing sons at birth. Empirical support for this notion, however, has not been forthcoming (Hrdy, 1987). The idea that parents bias investment according to circumstances after birth has fared much better. A number of recent studies of inheritance show that wealthy parents are more likely than poorer ones to bias investment toward sons. In societies ranging from 18th century Germany (Voland, 1988), colonial New England, 19th century Ohio (reviewed in Judge and Hrdy, 1988) and contemporary British Columbia (Smith et al., 1987), preferential treatment of sons is more common among the elites. The preference for sons among the elite has also been reported for an historical reconstruction of different strata among the elite of Medieval Portugal in which reproductive outcomes for parents with sons or daughters conform to predictions of the Trivers-Willard model (Boone, 1986, 1988).

In his study of medieval Portuguese genealogies, Boone traced the fates of sons and daughters born into various classes, including royalty, the bureaucrats who served them, the landed gentry, and soldiers for a period lasting 200 years, between 1380 and 1580. These data are necessarily confined to the elites and sub-elites, because, as usual, records for the lowest, laboring, and peasant status are nonexistent. At the very highest social ranks, Boone found that more sons than daughters married and produced more (legitimate) children. Daughters born among the elites were not killed, but large numbers were sent to convents, a far less costly option than providing daughters with dowries commensurate with family rank and more acceptable (in terms of family honor) than allowing the daughter to remain at home unmarried and in perpetual jeopardy of dishonor. At any given time, between 10% and 40% of daughters might be disposed of by sending them to convents. Of the daughters who were able to marry, they produced on the average fewer children than did sons at the same rank.

By contrast, at the lowest ranks for which data are available, particularly the military classes, daughters were far more likely than sons to marry and more

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Note: however, that Debra Judge and I elsewhere (1988, and unpublished data) present a well-documented exception to this pattern in which sons and daughters in California are treated equally regardless of socioeconomic status.
likely to produce (legitimate) children. Most interestingly, when Boone (1988a,b) used his data in computer simulations to obtain estimates of third-generation reproductive success, elite parents could expect more grandchildren through sons than daughters; the opposite was true for lower-ranking parents.

It should be clear from these examples that, although the Trivers-Willard model predicts differential treatment of sons and daughters under various conditions, precisely which sex is favored is situation dependent. Sociobiological explanations do not necessarily predict a preference for sons. At least three different sets of circumstances can be identified in which parents are expected to invest preferentially in daughters: 1) when variance in female reproductive success exceeds that of males; 2) when variance in female reproductive success is variable in females and maternal condition affects the reproductive career of daughters more strongly than that of sons (e.g., Altmann et al., 1987; Silk, 1983 for cercopithecine monkeys); and 3) when variance in male reproductive success exceeds that of females, but parents have relatively poor prospects for producing a son who will be successful.

If sons appear to be more often favored than daughters, this may in part be an artifact of biases in the historical record. Life histories of elites tend to be better documented than those from individuals at the bottom of social hierarchies. Where data are available, they may contain surprises for those who take for granted a preference for sons. Ethnographer Lee Cronk provides a striking case study for the Mukogodo people of Kenya, who have largely abandoned their traditional way of life as hunter-gatherers and beekeepers to adopt the subsistence patterns of their Maa-speaking pastoralist neighbors. Nevertheless, they remain relatively poor and suffer by comparison with the neighboring Masai and Samburu herders with whom they compete for wives. Indeed, locally mukogodo means the despised ones, epitomizing the prejudice that would-be suitors must overcome. Marrying a wife, much less several wives as their polygynous Maa-speaking neighbors manage to do, is beyond the capacity of many Mukogodo sons. By contrast, Mukogodo daughters do rather well for themselves by marrying up the social scale to Samburu and Masai husbands. As a result, Mukogodo parents can rely on more grandchildren through their daughters than through their sons. In striking departure, then, from the usual situation found among pastoralists, Mukogodo women have higher than average completed fertility, about four children compared with three for Mukogodo men. Daughters will leave their family homes and go to live with their husbands' families, but they are also more likely than sons to produce grandchildren, thus providing direct fitness incentives for parents to prefer daughters.

Not surprisingly, when examined in the light of differential marriage prospects, but certainly surprising when viewed in the context of favoritism toward males portrayed in ethnographies of East African pastoralists or taken for granted by those subscribing to notions of biologically mandated "male superiority," Mukogodo parents are more likely to pay to take a sick daughter than a sick son to the clinic. Cronk argues that it is largely the result of such differential investment that more girls than boys survive childhood. Cronk's cohort of girls aged 0–4 years was 60% female (Leech and Cronk, 1988; Cronk, 1989).

In short, parents may bias investment toward offspring of either sex. Exactly which sex may be a function of the reproductive prospects of sons vs. daughters under varying conditions, what zoologist Tim Clutton-Brock likes to term their "great expectations." Yet, even when the ultimate outcome is greater reproductive success—the usual currency used by people studying animal behavior these days (e.g., Clutton-Brock, 1988)—evolutionists may nevertheless decide to focus on the productive portion of the equation. Researchers who test hypotheses generated by

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3Note that inclusion in the Mukogodo sample of a number of men who attain no wives increases the variance in male reproductive success in the same way that polygyny does.

4There may also be material disincentives against neglecting daughters because cattle provided as bridewealth might permit other male family members to obtain a first or additional wife.
the local resource enhancement model are concerned with the effects that the presence of sons vs. daughters have on resources locally available to the parents or lineage.

Biology's type case for local resource enhancement is provided by a flashy southeastern American bird known as the red-cockaded woodpecker. In a recent study, Gowaty and Lennartz (1985) noted that when males and females first pair up at the beginning of their breeding career, they produced mostly (65%) male fledglings. The skewed sex ratio was viewed as a useful adaptation. Whereas daughters soon migrated away from their birthplace, sons lingered near home and helped to rear the subsequent clutch. Once the parents became established in an extended family group with plenty of available male and females, parents could afford to produce equal numbers of sons and daughters. Such "helping at the nest" is of course only one of myriad ways that offspring alter the cost-benefit equation in favor of one or the other sex. The literature on humans provides striking examples of the extreme lengths parents may go to in order to manipulate advantageous family composition in terms of gender and birth order of offspring to fill specific labor and lineal needs. In extreme cases, families with a long reproductive career before them may eliminate a firstborn so as to end up with the culturally preferred and more practical family composition: daughter first, then son. In this way, the daughter can care for the son, freeing the mother for labor and thereby ensuring that the son eventually produced will be a quality product, better fed, better cared for (discussed by Skinner, 1984, for Tokugawa, Japan; see also Das Gupta, 1984, for Bangladesh). Along these lines, Hill and Kaplan (1988) document for Ache hunter-gatherers that mothers whose first surviving offspring is a female have a larger completed family size than do those whose first offspring was male.

To date, interchanges between demographers, economic or "production-minded" anthropologists, and sociobiologists have been minimal. The two "schools" frequently come close to one another, but rarely engage. Nevertheless, evolutionary models can provide a formal theoretical framework for the more methodologically sophisticated economic approaches, approaches that may be better suited to the study of culture-bearing humans (see, for example, the work of Alice Schlegel) than the models used by sociobiologists, most of which are generated from the comparative study of animals. With the emergence of graduate students literate in both traditions, my own hope would be that these separate approaches will increasingly merge, even if it means that the "cannibalization" of other disciplines once prophesized for sociobiology actually ends in the vivisection of sociobiology by traditional disciplines.

A burgeoning literature now documents the manipulation of family composition by sex (Hamilton, 1967; Clutton-Brock and Jason, 1986; Hrdy, 1987; McFarland, 1987; Boone, 1986, 1988a), and in the animal literature, at least, these skewers are often in line with anticipated reproductive success through male and female grandchildren. In human cases, biases appear to be in line with reproductive success or with economic prosperity and family prestige. The important point is that there is no evidence for the existence of any innate bias favoring males or females. Instead, we appear to be dealing with a biologically based motivational system in which parents evolve so as to respond to a wide range of social and environmental cues relevant to likely productive and reproductive contributions by offspring. In human cases, this process can involve quite conscious calculations (Bourdieu, 1976; Voland, 1988). The most interesting questions for future research become the social and environmental cues to which parents respond.

**Importance of history and local constraints for the expression of biologically based behaviors**

Select almost any current research topic in animal sociobiology, be it the acquisition of food preferences, foraging strategies, infanticide, maternal behavior, or responses to predators. In all likelihood, the researchers involved will be acutely aware of the importance of social context and may even explicitly state the need for
more information on past and current social relationships and the population’s history. This is not to say that these same researchers will not have been exposed in the recent past to writings that imply genetically preordained behavior patterns: it simply means that genes as anything like “destiny” are not particularly central to the models sociobiologists are currently using in their research programs.

Nevertheless, this point has apparently been missed by critics of biological approaches to the study of behavior. It has become all too routine in the humanities to assume that there exists a dichotomy between holistic, “contextual” analyses based on detailed understanding of local history and traditions—what in the Geertzian tradition has become known as local knowledge—and analysis invoking some entrenched, unalterable biology (meaning genes). “Biological determination of contemporary sexual behavior,” writes one social anthropologist, “is put forward to convince us that conscious social change is futile or worse” (Caufield, 1985). Much of the almost reflexive hostility between cultural and biological anthropologists derives from this belief that culturally constructed behavior is going to be somehow more open to change, more correctable, than is behavior rooted in the evolutionary biology of the human species.

There is no small degree of irony in the observation that those emphasizing the difference between “cultural” and “biological” explanations tout the importance of “attention to context,” “individual variability,” “variation within and between groups,” “dynamic interactions with the environment.” In fact, these are all central to what I regard as sociobiological models. Generally speaking, the real weaknesses of contemporary sociobiology lie elsewhere (e.g., in a fixation with short-term reproductive consequences or in the nearly unsurmountable methodological difficulty of obtaining historic depth for nonliterate subjects, in a general lack of respect for irrational processes and accidental phenomena, and so forth).

Obviously, I do not mean to imply that it is not often awkward to be cast in the role of defending sociobiology. I suffered through those mortifying years of “man the hunter” and the political superiorities of “men in groups” but to dwell on outmoded mistakes would be like condemning social anthropology because Margaret Mead sometimes overlooked key facts in Samoan life (e.g., see Kuper, 1989).

Critical theorists and interpretive anthropologists like to emphasize how “reductionist” sociobiological explanations are. First of all, one has to ask, reductionist compared to what? “Female is to male, as nature is to culture” perhaps, a key paradigm cultural anthropologists used not so long ago to explain bias against daughters (Ortner, 1974, drawing on Levi-Strauss). Obviously, anyone seeking to construct explanatory models is going to simplify reality; the alternatives, like a good deal of contemporary deconstructionist “theory,” is simply incomprehensible. “Reductionism” and a certain degree of “determinism” are in my opinion valuable features of explanatory models.

Far more problematic is the charge that biological explanations overly constrain human options. Consider the case at hand, the differential treatment of sons and daughters by their parents. It should be clear that the basic assumptions actually made by sociobiologists are substantially different from those many of their critics ascribe to them. Biologically based behaviors are often extremely situation dependent, and models derived from evolutionary theory are as well equipped as any body of theory to date to deal with behavioral plasticity.

The real irony here, for those whose primary interest is “conscious social change,” is that it is likely to be far more straightforward to change parental behavior by changing the conditions that affect the productive and reproductive contributions made by daughters vs. sons, than to focus on ideology. Biologically based parental behaviors are by definition quite malleable.

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LITERATURE CITED


